

## CURRICULUM VITAE

NAME: Waltraud M. Kriven



BORN: in Eisenstadt, Austria

CITIZENSHIP: Dual Australian and US citizen

PROFESSION: Full Professor of Material Science and Engineering,  
Department of Material Science and Engineering,  
Affiliate Professor of Mechanical Science and Engineering,  
University of Illinois at Urbana-Champaign,  
1304 W. Green St.,  
Urbana, Illinois, 61801, USA.  
Tel: (001) 217 333 5258  
Cell: 217 721 7722  
Fax: (001) 217 333 2736  
E-mail: [kriven@illinois.edu](mailto:kriven@illinois.edu)  
<http://www.matse.illinois.edu/directory/profile/kriven>

QUALIFICATIONS:

- Ph. D. in Physical and Inorganic Chemistry (1976) from the Dept. of Physical and Inorganic Chemistry, University of Adelaide, South Australia. Ph. D. Supervisor, Dr. S. W. Kennedy.
- B. Sc. (Hons.) Bachelor of Science, Honours degree (1971), in Physical and Inorganic Chemistry.
- B.Sc. (1970) Bachelor of Science from University of Adelaide, majoring in Physical and Inorganic Chemistry and Biochemistry.
- Matriculation from St. Joseph's High School, 1966, in Adelaide, South Australia, Australia (1961 - 1966).

PROFESSIONAL AFFILIATIONS:

Academician, World Academy of Ceramics  
Member of the European Union (EU) Academy of Sciences  
Fellow of the American Ceramic Society

Fellow of the Australian Ceramic Society  
Member of the American Chemical Society, USA  
Member of the Electron Microscopy Society of America

LANGUAGES: English (by education), German, French (to matriculation standard, 5 years), Latin (four years in high school)

- AWARDS:
- Fellow of the American Ceramic Society, 1995
  - Academician, World Academy of Ceramics, 2004
  - Fellow of the Australian Ceramic Society, 2008
  - Member, European Union Academy of Sciences (2020)
  
  - Brunauer Award (1988), jointly with C.J. Chan. and Prof. J.F. Young. Awarded by the Cements Division of the American Ceramic Society, for the Best Paper of the Year.
  
  - Brunauer Award (1991), jointly with Dr. O.O. Popoola and Prof. J. F. Young. Awarded by the Cements Division of the American Ceramic Society, for the Best Paper of the Year.
  
  - James I. Mueller Award of the Engineering Division of the American Ceramic Society, (2017) for research in Advanced Ceramics.

PATENTS:

1. "A High Strength, Flaw Tolerant, Oxide Ceramic Composite,"  
Inventors: W. M Kriven and D. H. Kuo  
US Patent number 5,948,516 issued Feb 1999.
  
2. "Toughening of Ceramic Composites by Transformation Weakening of Interphases,"  
Inventors: W. M. Kriven and S.-J. Lee  
US Patent number 6,361,888 issued March 2002.
  
3. "Processes for Preparing Mixed-Oxide Powders,"  
Inventors: M. A. Gülgün, W. M. Kriven and M. H. Nguyen  
US Patent number 6,482,387 issued Nov 19<sup>th</sup> 2002
  
4. "High Temperature Tolerant Ceramic Composites Having Porous Interphases,"  
Inventors: W. M. Kriven and S. -J. Lee  
US Patent number 6,887,569 issued May 3<sup>rd</sup> 2005.
  
5. "Porous Geopolymer Composites,"  
Inventors: Dong Kyu Kim and Waltraud M. Kriven  
US Patent number: 9,957,197, issued on May 1<sup>st</sup> 2018.

6. “Flowable Slag-Fly Ash Binders for Construction or Repair”  
Inventors: W. M. Kriven, Kaushik Sankar, Ghassan K. Al-Chaar  
US Patent No. 16/255,131, issued on May 25<sup>th</sup> 2021

#### RESEARCH EXPERIENCE:

Aug 1995 - present:

Professor, Department of Materials Science and Engineering,  
University of Illinois at Urbana-Champaign.

##### Research areas:

- In situ, high temperature ( $\leq 2000^{\circ}\text{C}$ ) synchrotron studies of phase transformations, thermal expansions, phase equilibria and in situ solid state chemical reactions in ceramics
- Geopolymers, their composites and geopolymer-derived ceramics
- Low energy synthesis of ceramic powders and composites
- Structural ceramic composites, bioceramics (design, fabrication, characterization and mechanical evaluation)
- Microstructure characterization by scanning and transmission electron microscopy (SEM, TEM, EDS, HVEM, XPS)
- Mechanisms of ferroelasticity and ferroelastic transformations
- Martensitic transformations in ceramics
- Bioceramics and bioresorbable nanoceramics for gene/drug delivery

Nov 2019: Visiting Professor, Institute for Future Industries, University of South Australia, Mawson Lakes, South Australia.

Visiting Professor, Commonwealth Scientific and Industrial Research Organization (CSIRO), Energy Division, Newcastle, NSW, Australia

June 2011: Visiting Sabbatical Professor, Department of Earth Sciences, Cambridge University, UK.

Jan 1997 - July 1997 (inclusive)

Visiting professor on sabbatical leave at:  
The Institut für Kristallographie und Angewandte Mineralogie,  
(Institute for Crystallography and Applied Mineralogy)  
Ludwig-Maximilians-Universität, München  
Theresienstrasse 41,  
D 80333 München, Germany

Aug 1995: Promoted to Full Professor

Aug. 1987 - 1995:

Tenured Associate Professor, Department of Material Science and Engineering, University of Illinois at Urbana-Champaign.  
Principal investigator, Materials Research Laboratory (1984-1989).

Feb 1984 - Aug 1985:

Visiting Research Associate Professor at the Materials Research Laboratory and Department of Ceramic Engineering, University of Illinois at Urbana-Champaign.

Nov. 1983 - Jan. 1984:

Assistant Research Engineer, Department of Materials Science and Mineral Engineering, University of California, Berkeley.

May 1980 - Nov. 1983:

Visiting Scientist at Max Planck Institut für Metallforschung, Institut für Werkstoffwissenschaften (Stuttgart). Conducted research in the field of transformation toughening of ceramics in collaboration with Dr. M. Rühle and Dr. N. Claussen. Experimental determination of elastic strain field contrast and crystallographic mechanism of the martensitic transformation in composite zirconia-alumina ceramics by 1 MeV high voltage electron microscopy. Microstructural characterization by analytical STEM-TEM electron microscopy, including energy dispersive X-ray (EDX) techniques.

April 1979 - May 1980:

Assistant Research Engineer and Lecturer at the University of California, Berkeley, in the Dept. of Materials Science and Mineral Engineering, working with Prof. A. G. Evans. The research project was to understand the mechanisms of ceramic toughening by martensitic transformations. Experimental techniques included transmission electron microscopy, microchemical analysis by scanning and transmission electron microscopy (with EDX methods) and theoretical martensite analyses by computer calculations. Related to the above, worked with four graduate students and assisted with their doctoral supervision.

Fall Quarters (1977-1979, 3 years):

Lecturer in the Dept. of Materials Science and Mineral Engineering, University of California, Berkeley.

Gave a 4-unit course on Phase Equilibria and Transformations (phase diagrams) to Juniors and Seniors. It was a main-stream course required for a ceramics major, and by six engineering departments. Instruction was supported by two teaching assistants. Set up a laboratory course to complement the lecture course.

April 1977 - April 1979:

Post-doctoral research scientist at Lawrence Berkeley Laboratory, Division of Materials and Molecular Research, University of California, Berkeley. The research project was carried out with Prof. Joseph A. Pask at LBL and in the Dept. of Material Science and Mineral Engineering. The project was a crystal chemical and crystallographic investigation of mullite, using the techniques of ceramic processing, X-ray diffraction and STEM in association with Prof. Gareth Thomas' research group. X-ray diffraction and STEM-EDX work was done with Prof. H. Rudy Wenk in the Dept. of Earth Sciences at U.C.-Berkeley.

Sept. 1976 - April 1977:

Post-doctoral Teaching and Research Fellow in the Chemistry Dept. of the University of Western Ontario, London, Ontario, Canada. The research project involved experimental chemical physics, with Prof. A. R. Allnatt. Tutored and demonstrated first year chemistry for two days per week for the Canadian academic year.

April 1976 - Sept 1976:

At Adelaide University, Dept. of Physical and Inorganic Chemistry, undertook a research project sponsored by a grant from the Australian Research Grants Committee. The project was a crystallographic structure analysis of rubidium nitrate phase IV. Part-time studies for a graduate Diploma of Education, at the University of Adelaide, South Australia.

February 1971 - February 1976:

Studied for a Ph.D. in Solid State Chemistry at Adelaide University, South Australia, Australia.

Title of Thesis: "Crystallographic Mechanisms of Topotactic Structure Changes, especially in Inorganic Nitrate Crystals"

Short Title: "Displacive Transformations in Nitrate Crystals"

Thesis work was done on four projects:

1. The NaCl-type to CsCl-type transformation was studied in the phases I-II-III in  $\text{RbNO}_3$  by optical microscopy, X-ray precession and diffractometry methods, and combinations thereof. Experimental observations were compared with computed martensitic analyses which predicted orientation relations, habit planes and shape changes. The IV-III transformation was observed by transmission electron microscopy.
2. The decomposition of potassium nitrate under electron irradiation in an electron microscope, a martensitic analysis of the structure change being made by the stereographic method.
3. The mechanism of the aragonite-type to calcite-type transformation in  $\text{KNO}_3$  using techniques of x-ray diffraction, electron microscopy, optical microscopy, scanning electron microscopy and computing.

4. A computer martensitic analysis of the zirconia tetragonal to monoclinic transformation using lattice parameters from literature, and based on a coordinate geometry method developed in this laboratory for calculating the input data.

## BOOKS EDITED

1. Advances in Ceramic-Matrix Composites-IX. Edited by Narottam P. Bansal, J.P. Singh, Waltraud M. Kriven and Hartmut Schneider. Ceramic Transactions, vol **153** published by the American Ceramic Society, (2003).
2. 27<sup>th</sup> Annual Conference on Composites, Advanced Ceramics, Materials, and Structures: Parts A and B. Edited by H.-T. Lin and W. M. Kriven. Ceramic Engineering and Science Proceedings, vol **24**, issues 3 and 4 (2003) (180 papers).
3. 64<sup>th</sup> Conference on Glass Problems. Edited by Waltraud M. Kriven. Papers presented at the 64<sup>th</sup> Conference on Glass Problems at the University of Illinois, USA, (2003). Ceramic Engineering and Science Proceedings (CESP) vol. **25**, issue 5, (2004). Published by the American Ceramic Society (2004).
4. Advances in Ceramic-Matrix Composites-X. Edited by J. P. Singh, N. P. Bansal and W. M. Kriven, Ceramic Transactions, vol. **165**, (2005). Published by the American Ceramic Society, Westerville, OH, USA.
5. Mechanical Properties and Performance of Engineering Ceramics and Composites. Edited by Edgar Lara-Curzio, Dongming Zhu and Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 2 (2005) (50 papers).
6. Advanced Ceramic Coatings and Ceramic-Metal Systems. Edited by Dongming Zhu, Kevin Plucknett and Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 3 (2005) (50 papers).
7. Advances in Solid Oxide Fuel Cells. Edited by Narottam Bansal, Dongming Zhu, Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 4 (2005) (35 papers).
8. Advances in Electronic Ceramic Materials. Edited by Sheng, Yao, Bruce Tuttle, Clive Tandall, Dwight Viehland, Dongming Zhu and Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 5 (2005) (40 papers).
9. Advances in Bioceramics and Biocomposites. Edited by Mineo Mizuno, Dongming Zhu and Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 6 (2005) (20 papers).
10. Advances in Ceramic Armor. Edited by Jeff J. Schwab, Dongming Zhu and Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 7 (2005) (30 papers).
11. Developments in Advanced Ceramic and Composites. Edited by Manuel E. Brito, Peter Filip, Charles Lewinsohn, Ali Sayir, Mark Opeka, William M. Mullins,

- Dongming Zhu and Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **26**, issue 8 (2005) (43 papers).
12. Advances in Ceramic-Matrix Composites-XI. Edited by J. P. Singh, N. P. Bansal and W. M. Kriven, Ceramic Transactions, vol. **175**, (2005). Published by the American Ceramic Society, Westerville, Ohio, USA.
  13. The Conference on Glass Problems. Edited by Waltraud M. Kriven. Ceramic Engineering and Science Proceedings, vol **27**, issue 1, (2006).
  14. Developments in Porous, Biological and Geopolymer Ceramics. Edited by Jonathan Salem and Dongming Zhu, General Editors; Manuel Brito, Eldon Case and Waltraud Kriven. Ceramic Engineering and Science Proceedings, Volume **28**, Issue 9 (2007).
  15. Developments in Strategic Materials. Edited by Hua-Tay Lin, Kunihito Koumoto, Waltraud M. Kriven, David P. Norton, Edwin Garcia and Ivar Reimanis, Ceramic Engineering and Science Proceedings, Vol **29** issue 10 (2008).
  16. Mechanical Properties and Performance of Engineering Ceramics and Composites IV. Edited by Dileep Singh and Waltraud M. Kriven. Volume editors - Dileep Singh and Jonathan Salem. Ceramic Engineering and Science Proceedings, Vol **30**, issue 2 (2009).
  17. Strategic Materials and Computational Design, Editors Waltraud M. Kriven, Yanchun Zhou and Miladin Radovic, Volume editors: Sanjay Mathur and Tatsuki Ohji. Ceramic Science and Engineering, Vol. **31**, issue 10 (2010).
  18. Developments in Strategic Materials and Computational Design II, Editors Waltraud M. Kriven, Andrew L. Gyekenyesi, Jingyang Wang. Volume Editors Sajanto Widjaja and Dileep Singh. Ceramic Science and Engineering, Vol. **32**, issue 10 (2011).
  19. Developments in Strategic Materials and Computational Design III, Editors: Waltraud M. Kriven, Andrew L. Gyekenyesi, Gunnar Westin, Jingyang Wang; volume editors Michael Halbig and Sanjay Mathur. Ceramic Science and Engineering, Vol. **33**, issue 10 (2012).
  20. Development in Strategic Materials and Computational Design IV. Editors Waltraud M. Kriven, Jingyang Wang and Yanchun Zhou, Andrew L. Gyekenyesi, Volume editors Soshu Kirhara and Sujanto Widaja. Proceedings of the (2013) Daytona Beach Int. Conf. and Expo on Advanced Ceramics. Ceramic Science and Engineering, vol **34**, issue 10 (2013).
  21. Design, Development and Applications of Structural Ceramics, Composites and Nanomaterials, edited by Dileep Singh, Dongming Zhu, Waltraud M. Kriven,



Sanjay Mathur; and Hua-Tay Lin, volume editor. Ceramic Transactions vol. **244** (2014).

22. Development in Strategic Ceramic Materials. Editors, Waltraud M. Kriven, Dongming Zhu, Kyoung Il Moon, Taejin Hwang, Jingyang Wang, Charles Lewinshon and Yanchun Zhou. Volume Editors, Andrew Gyekenyesi and Michael Halbig. Proceedings of the (2014) Daytona Beach Int. Conf. and Expo on Advanced Ceramics. Ceramic Science and Engineering, vol **35**, issue 8 (2014).
23. Development in Strategic Ceramic Materials. Editors, Waltraud M. Kriven, Jingyang Wang, Dongming Zhu, Thomas Fischer. Volume Editors, Jingyang Wang, and Soshu Kirihara. Proceedings of the (2015) Daytona Beach Int. Conf. and Expo on Advanced Ceramics. Ceramic Science and Engineering, vol **36**, issue 8 (2015).
24. Ceramics for Environmental Systems. Edited by Lianzhou Wang, Nobuhito Imanaka, Waltraud M. Kriven, Manabu Fukushima, Girish Kale. Volume Editors Mrityunjay Singh, Tatsuki Ohji, Alexander Michaelis. Ceramic Transactions vol **257** (2016).
25. Developments in Strategic Ceramic Materials II. Editors, Waltraud M. Kriven, Jingyang Wang, Yanchun Zhu, Dongming Zhu, Gustavo Costa. Volume editors Manabu Fukushima and Andrew Gyekenyesi. Proceedings of the (2016) Daytona Beach Int. Conf. and Expo on Advanced Ceramics. Ceramic Science and Engineering, vol **37**, issue 7 (2016).
26. Proceedings of the 41<sup>st</sup> Int. Conf. on Advanced Ceramics and Composites, Editors: Waltraud M. Kriven, Narottam P. Bansal, Mihails Kusnezoff, Tatsuki Ohji, Yanchun Zhou, Kyoung Il Moon, Josef Matyas, Kiyoshi Shimamura and Soshu Kirihara. Volume Editors: Surojit Gupta and Jinyang Wang. Ceramic Science and Engineering, vol **38**, issue 3 (2017).
27. Proceedings of the 42<sup>nd</sup> Int. Conf. on Advanced Ceramics and Composites, Editors: Jingyang Wang, Waltraud M. Kriven, Tobias Fey, Paolo Colombo, William J. Weber, Jake Amoroso, William G. Fahrenholtz, Kiyoshi Shimamura, Michael Halbig, Soshu Kirihara, Yiquan Wu, Kathleen Shurgart. Volume editors: Valerie Wiesner and Manabu Fukushima. Ceramic Science and Engineering vol **39**, issue 3 (2018).

## **SERVICE ON EDITORIAL BOARDS**

- Contributing Editor for AcerS-NIST Phase Equilibria Diagrams Program (1984-1990)
- Member of the Editorial Board of the Journal of Materials Research (2008-2013)
- Member of the Editorial Board of the Journal of Composites and Nanostructures, published by the Institute of Solid State Physics of the Russian Academy of Sciences (ISSP RAS) Russia (2009-2012)

- Member of the International Editorial Committee for the Journal of the Korean Ceramic Society (2002-2012)
- Member of the Editorial Board of Revista Facultad de Ingenieria-REDIN, Journal of the University of Antioquia, Medellin, Colombia. (2016 - present)
- Associate Editor of the Journal of Ceramic Science and Technology, published by the German Ceramic Society, Berlin, Germany (2017 – present)

### **CONFERENCE ORGANIZER/CO-ORGANIZER**

- Professor Kriven was Secretary and eventual Chair of the Engineering Ceramics Division (ECD) of the American Ceramic Society (2000-2005), and Program Chair of the 29th International Cocoa Beach Conference of Advanced Ceramics and Composites, held in January 2005 at Cocoa Beach, Florida.
- Started the ongoing Focused Sessions and eventually symposia on geopolymers within the American Ceramic Society since 2003. In 2020 will be the 19<sup>th</sup> symposium on geopolymers as part of the International Conference and Exposition of Advanced Ceramics and Composites, organized by the American Ceramic Society in Daytona Beach, Florida. (Earlier it was held in Cocoa Beach, Florida, USA).
- Co-organizer since 2012 of the PacRim Conferences organized by the American Ceramic Society held every two years – organized the geopolymer symposia.
- Organizer since 2012 of the Geopolymer Symposia as part of the Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE), organized by the American Ceramic Society every three years.
- Co-organizer/chair of five Symposia on Phase Transformations in Ceramics: Science and Applications since 2015, as part of the Materials Science and Engineering (MS&T) annual meetings held in the USA
- Co-organizer of ECI conferences on Geopolymers in Hernstein, Austria (2015) and Tomar, Portugal (2018).
- Co-organizer of the ECI conference “Composites at Lake Louise” (CALL 2018) conference, Alberta Canada, (2018).
- Co-organizer of the symposium on Geopolymers, Inorganic Polymers and Sustainable Materials (2020) at the 15<sup>th</sup> International Ceramics Conference (CIMTEC) to be held in Montecatini Terme, Italy in June 15-19, (2020).
- Co-organizer of the symposium on Geopolymers, Inorganic Polymers and Sustainable Materials at the 1<sup>st</sup> Pan American Ceramics Congress, organized by the American Ceramic Society, in Panama City, Panama in Sept 15-19, (2020)
- Co-organizer of ECI conferences on Geopolymers in Hernstein, Austria (2015); Tomar, Portugal (2018); Calabria Italy (2021).
- 

### **REFEREED JOURNAL PUBLICATIONS AND BOOK CHAPTERS:**

1. “Surface Effects Before and After the Aragonite-Type to Calcite-like Transformation in Potassium Nitrate in Relation to Mechanism”, S. W. Kennedy and W. M. Kriven, Journal of Material Science **7** (1972) 1092-1095.

2. "Martensitic Transformation Cubic to Rhombohedral in Rubidium Nitrate", S. W. Kennedy and W. M. Kriven, *Journal of Material Science* **11** (1976) 1767-1769.
3. "Topotaxial Decomposition of Calcite-Type  $\text{KN}_3$  Crystals", S. W. Kennedy and W. M. Kriven, *Journal of Solid State Chemistry* **33** (1980) 71-77.
4. "Structural Transformations in  $\text{KN}_3$ ,  $\text{RbNO}_3$  and  $\text{NH}_4\text{Br}$ ", S. W. Kennedy, W. M. Kriven and W. L. Fraser, International Conference on Martensitic Transformations, (ICOMAT) MIT, Cambridge, USA (1979) 208-213.
5. "The Influence of Grain Boundary Silica Impurity on Alumina Toughness", J. S. Moya, W. M. Kriven and J. A. Pask, *Surfaces and Interfaces in Ceramic and Ceramic-Metal Systems*, J. A. Pask and A. G. Evans (Editors), Berkeley, (1980) 317-322.
6. "Martensitic Transformations in Zirconia-Particle Size Effects and Toughening", A. G. Evans, N. Burlingame, M. Drory and W. M. Kriven, *Acta Metallurgica* **29** (1981) 447-456.
7. "The Martensite Crystallography of Tetragonal Zirconia", W. M. Kriven, W. L. Fraser and S. W. Kennedy, *Advances in Ceramics* **3** (1981) 82-97.
8. "Martensite Theory and Twinning in Composite Zirconia Ceramics", W. M. Kriven, *Advances in Ceramics* **3** (1981) 168-183.
9. "Shear Transformations in Inorganic Materials", W. M. Kriven, Invited review paper, published Proceedings of the International Conference on Solid to Solid Phase Transformations, Ed. H. I. Aaronson, D. E. Laughlin, R. F. Sekerka and C. M. Wayman, (AIME), Pittsburgh, (1982) pp. 1507- 1532.
10. "Martensitic and Other Transformation Mechanisms and Relaxation in  $\text{RbNO}_3$ ", S. W. Kennedy and W. M. Kriven, published Proceedings of the International Conference on Solid to Solid Phase Transformations, Ed. H. I. Aaronson, D. E. Laughlin, R. F. Sekerka and C. M. Wayman, (AIME), Pittsburgh, (1982) pp. 1545-1549.
11. "The II to I Transformation of Aragonite-Type Potassium Nitrate", W. M. Kriven and S. W. Kennedy, published Proceedings of the International Conference on Solid to Solid Phase Transformations, Ed. H. I. Aaronson, D. E. Laughlin, R. F. Sekerka and C. M. Wayman, (AIME), Pittsburgh, (1982) pp. 1551-1555.
12. "Analysis of Strain Around Tetragonal and Monoclinic Zirconia Inclusions", M. Rühle and W. M. Kriven, published Proceedings of the International Conference on Solid to Solid Phase Transformations, Ed. H. I. Aaronson, D. E. Laughlin, R. F. Sekerka and C. M. Wayman, (AIME), Pittsburgh, (1982) pp. 1569-1573.

13. "The Stability of Tetragonal Zirconia Particles in Ceramic Matrices", A. H. Heuer, N. Claussen, W. M. Kriven and M. Rühle, *J. Am. Ceram. Soc.*, **65** [12] (1982) 642-650.
14. "Lattice-Deformational Transformations in Non-Metals", W. M. Kriven, Proceedings of the International Conference on Martensitic Transformations (ICOMAT), Summer Course held in Leuven, Belgium (1982) pp. 9.1-9.26.
15. "Solid Solution Range and Microstructures of Melt-Grown Mullite", W. M. Kriven and J. A. Pask, *J. Am. Ceram. Soc.*, **66** [9], (1983) 649-654.
16. "Stress-Induced Transformations in Composite Zirconia Ceramics", M. Rühle and W. M. Kriven, *Berichte der Bunsengesellschaft für Physikalische Chemie* **87**, (1983) 222-228.
17. "Anomalous Expansion in  $\text{Al}_2\text{O}_3$ - 15 vol.%  $(\text{Zr}_{0.5}\text{Hf}_{0.5})\text{O}_2$ ", W. M. Kriven and E. Bischoff, *Advances in Ceramics*, **12**, (1984) 425-427.
18. "The Transformation Mechanism of Spherical Zirconia Particles in Alumina", W. M. Kriven, *Advances in Ceramics*, **12** (1984), 64-77.
19. "Microcrack Nucleation in Ceramics Subject to a Phase Transformation", Y. Fu, A. G. Evans and W. M. Kriven, *J. Am. Ceram. Soc.*, **67** [9], (1984) 626-630.
20. "Characterization of Copper-Ceramic Interfaces," W. M. Kriven and S. H. Risbud, Electronic Packaging Materials Science. Published by Materials Research Society, Pittsburgh. **Vol 40**, (1985) 323-328.
21. "Microstructure of Non-Stoichiometric Dicalcium Silicate Doped with Potassium Oxide," C-J. Chan, A. Ghose, W. M. Kriven and J. F. Young, Proc. Beijing Int. Symp. Cement and Concrete, China, Vol. **I**, (1986) 11-24.
22. "Electron Diffraction of Precipitates at Copper-Cordierite Interfaces," W. M. Kriven and S. H. Risbud, *Materials Letters*, [12], (1985) 471-474.
23. "Investigation of a Ceramic-Metal Interface Prepared by Anodic Spark deposition," K. A. Koshkarian and W. M. Kriven, *J. de Physique* (1988) **49**, Suppl. [10] C5-213 to 217.
24. "Displacive Transformation Mechanisms in Zirconia Ceramics and Other Non-Metals," W. M. Kriven, in Tailoring Multiphase and Composite Ceramics, Edited by R. E. Tressler, G. L. Messing, C. G. Pantano and R. E. Newnham, Plenum Press, (1986) 223-237.

25. "Particle Size Effect of Dicalcium Silicate in a Calcium Zirconate Matrix", W. M. Kriven, C. J. Chan and E. A. Barinek. *Advances in Ceramics*, (1988) **24A**, pp. 145-155.
26. "Effect of High Temperature Oxidation on the Microstructure and Mechanical Properties of Whisker-Reinforced Ceramics," W. M. Kriven, G. Van Tenderloo, T. N. Tiegs and P. F. Becher, *Ceramic Microstructures 86: Role of Interfaces*, Plenum Press Publ., Edited J. A. Pask and A. G. Evans, Berkeley (1987), 939-947.
27. "Analytical Electron Microscopic Studies of Doped Dicalcium Silicates," C. J. Chan, W. M. Kriven and J. F. Young, *J. Am. Ceram. Soc.*, (1988) **71** [9] pp. 713-719. Paper won the Brunauer Award of the American Ceramic Society, Cements Division (1988).
28. "Possible Alternative Transformation Tougheners to Zirconia: Crystallographic Aspects," W. M. Kriven, *J. Am. Ceram. Soc.* (1988) **71** [12] 1021-1030.
29. "On the Formation and Properties of  $2 \text{ Tb}_2\text{O}_3 \cdot \text{Al}_2\text{O}_3$ ," P. D. Jero and W. M. Kriven, *J. Am. Ceram. Soc.*, (1988) **71** [11] C454-455.
30. "Microstructure and Wear Characterization of Self-Lubricating  $\text{Al}_2\text{O}_3\text{-MoS}_2$  Composite Ceramic Coatings," K. A. Koshkarian and W. M. Kriven, in *New Materials Approaches to Tribology: Theory and Applications*. Edited by L. E. Pope, L. E. Fehrenbacher, W. O. Winet. Publ. by Materials Research Society, Pittsburgh, vol 140, pp. 369-376 (1989).
31. "Investigation of Plasma-Sprayed Dysprosia Coatings," K. R. Venkatachari and W.M. Kriven, *J. Am. Ceram. Soc.*, (1989) **72** [10] 2023-2026.
32. "Martensitic Toughening of Ceramics," W. M. Kriven, (invited Paper), *J. Mater. Sci. and Eng.*, (1990) **A127**, 249-255.
33. "Ceramic Coatings by Anodic Spark Deposition," G. P. Wirtz, S. D. Brown and W. M. Kriven, (invited Paper), *Materials and Manufacturing Processes*, **6** [1] 87-116 (1991), Marcel Dekker, Inc., New York.
34. "Anodic Spark Deposition - A Novel Approach to Ceramic Coatings," S. D. Brown, G. P. Wirtz and W. M. Kriven, *High Performance Ceramic Films and Coatings*, Edited by P. Vincenti, Elsevier Science Publishers, Amsterdam, The Netherlands. *Materials Science Monographs* **67**, 221-232, (1991).
35. "TEM Characterization of Modulated Microstructures in  $\text{CaO-Dy}_2\text{O}_3$  Solid Solutions," Y. J. Kim and W. M. Kriven. *J. Ultramicroscopy*, **37**, 351-361, (1991).

36. "High Resolution Electron Microscopy and Microchemical Characterization of a Polyvinyl Alcohol Acetate/Calcium Aluminate Composite (Macro Defect Free Cement)," O. O. Popoola, W. M. Kriven and J. F. Young, *J. Ultramicroscopy*, **37**, 318-325, (1991).
37. "Microstructural and Microchemical Characterization of a Calcium Aluminate-Polymer Composite (MDF) Cement," O. O. Popoola, W. M. Kriven and J. F. Young, *J. Am. Ceram. Soc.*, **74** [8] 1928-1933 (1991). (Paper received the Brunauer Award of the American Ceramic Society).
38. "Physical Stabilization of the  $\alpha$  to  $\beta$  Transformation in Dicalcium Silicate," C. J. Chan, W. M. Kriven and J. F. Young, *J. Am. Ceram. Soc.*, **75** [6] 1621-1627 (1992).
39. "Interfacial Structure and Chemistry in a Ceramic/Polymer Composite Material," O.O. Popoola and W. M. Kriven, *J. Materials Research* **7** [6] 1545-1552 (1992).
40. "Application of Ultramicrotomy to TEM Specimen Preparation of Particulate Inclusion and Composite Materials," O. O. Popoola, J. J. Cooper, B. P. Jakstys and W. M. Kriven, in Specimen Preparation for Transmission Electron Microscopy III, edited by R. Anderson, B. Tracy and J. Bravman. *Mat. Res. Soc. Symp.Proc.*245, 271-278 (1992).
41. "Preparation and Hydration Kinetics of Pure  $\text{CaAl}_2\text{O}_4$ ," M. A. Gulgun, I. Nettleship, O. O. Popoola, W. M. Kriven and J. F. Young. In Advanced Cementitious Systems: Mechanisms and Properties, edited by F. P. Glasser, P. L. Pratt, T. O. Mason, J. F. Young and G. J. McCarthy. Publ. by Materials Research Society, Pittsburgh, vol **245**, 199-204, (1992)
42. "In Situ Transmission Electron Microscopy (TEM) Investigation of Fracture Mechanisms in a Calcium Aluminate MDF Cement," O. O. Popoola, W. M. Kriven and J. F. Young. In Advanced Cementitious Systems: Mechanisms and Properties, edited by F. P. Glasser, P. L. Pratt, T. O. Mason, J. F. Young and G. J. McCarthy. Publ. by Materials Research Society, Pittsburgh, vol 245, 283-288, 1992.
43. "Chemical Preparation and Phase Stability of  $\text{Ca}_2\text{SiO}_4$  and  $\text{Sr}_2\text{SiO}_4$  Powders," I. Nettleship, J. L. Shull Jr. and W. M. Kriven, *J. European Ceramic Society*, **11** 291-298 (1993).
44. "Phase Transformations in Dicalcium Silicate. I: Fabrication and Phase Stability," I. Nettleship, K. G. Slavick, Y. J. Kim and W. M. Kriven, *J. Am. Ceram. Soc.*, **75** [9] 2400-2406 (1992).

45. "Phase Transformations in Dicalcium Silicate. II: TEM Studies of Crystallography, Microstructures and Mechanisms," Y. J. Kim, I. Nettleship and W. M. Kriven, *J. Am. Ceram. Soc.*, **75** [9] 2407-2419 (1992).
46. "Microstructure-Property Relationships in Macro-Defect-Free Cement," J.A. Lewis and W. M. Kriven. *Mat. Res. Soc. Bull.* **Vol XVIII** [3] pp 25-29 (1993).
47. "Phase Transformations in Dicalcium Silicate. III: Effects of Barium on the Stability of Fine-grained  $\alpha'_L$  and  $\alpha'_H$  Phases," I. Nettleship, K. G. Slavick, Y. J. Kim and W. M. Kriven, *J. Am. Ceram. Soc.*, **76** [10] 2628-2634 (1993).
48. "Kinetics and Crystallography of the Monoclinic (B) to Cubic (C) Transformation in Dysprosia," O. Sudre, K. R. Venkatachari and W. M. Kriven, in Science and Technology of Zirconia V. Technomic Publishing Company, pp 180-189 (1993).
49. "High Temperature Transformation Toughening of Magnesia by Terbia," P. D. Jero and W. M. Kriven, in Science and Technology of Zirconia V. Technomic Publishing Company, 190-197 (1993).
50. "Microstructural Investigation of Fracture-Initiating Nickel Sulfide Inclusions in Glass," O. O. Popoola, J. J. Cooper and W. M. Kriven. *Cer. Eng. and Sci. Proc.*, **14** [3-4] 284-294 (1993).
51. "TEM Study of Synthetic Hillebrandite ( $\text{Ca}_2\text{SiO}_4 \cdot \text{H}_2\text{O}$ )," Y.J. Kim and W. M. Kriven, *J. Materials Research*, **8** [11] 2948-2953 (1993).
52. "Mechanical Properties and Microstructure of  $\text{CaZrO}_3$ - $\text{Ca}_2\text{SiO}_4$  Composites," T. I. Hou and W. M. Kriven, *J. Am. Ceram. Soc.*, **77** [1] 65-72 (1994).
53. "Processing and Mechanical Properties of Alumina Platelet Reinforced Zirconia," I. K. Cherian and W. M. Kriven, *Ceramic Transactions*, **38** 509-520, (1994).
54. "Chemical Synthesis and Characterization of Calcium Aluminate Powders," M. A. Gülgün, O. O. Popoola and W. M. Kriven, *J. Am. Ceram. Soc.*, **77** [2] 531-539 (1994).
55. "Preparation, Microstructure and Mechanical Properties of Silicon Carbide - Dysprosia Composites," S. Kim and W. M. Kriven, *J. Am. Ceram. Soc.*, **80** [12] 2997-3008 (1997).
56. "Mechanical Behavior and Microstructure of SiC and SiC/TiB<sub>2</sub> Ceramics," D. H. Kuo and W. M. Kriven, *J. European Ceramic Soc.*, **18**, 51-57 (1998).
57. "Phase Stability of Chemically Derived Enstatite ( $\text{MgSiO}_3$ ) Powders," C. M. Huang, D. H. Kuo, Y. J. Kim and W. M. Kriven, *J. Am. Ceram. Soc.*, **77** [10] 2625-2631 (1994).

58. "A Transmission Electron Microscopy Study on the Decomposition of Synthetic Hillebrandite ( $\text{Ca}_2\text{SiO}_4 \cdot \text{H}_2\text{O}$ )," Y. J. Kim and W. M. Kriven, *J. Materials Research*, **10** [12] 3084 - 3095 (1995).
59. "XPS Study of Bonding Between Polyvinyl Alcohol and a Titanate Cross Coupling Agent," M. A. Gülgün, W. M. Kriven and O. O. Popoola, *J. Materials Research*, **10** [6] 1565-1571 (1995).
60. "Combustion Synthesized  $\beta'$ -SiAlON Composites Reinforced with SiC Monofilaments," C. M. Huang, Y. Xu, D. Zhu and W. M. Kriven, *J. Materials Science and Engineering*, **A188** (1994) 341-351.
61. "Residual  $-\text{Si}_3\text{N}_4$  Inclusions in Ce-doped  $\text{O}' + \beta$ -SiAlON Composites," Y. Xu, C. M. Huang, W. M. Kriven and A. Zangvil, *J. Am. Ceram Soc. Comm.*, **77** [8] (1994) 223-2216.
62. "Processing and Microstructure Characterization of a Ce-Doped, In situ Fabricated  $\text{O}' + \beta'$ -SiAlON Composite," W. M. Kriven, C. M. Huang, Y. Xu, A. Zangvil and D. N. Coon, *Cer. Eng. and Sci. Proc.*, **15-B** (1994) [5] 1128-1137.
63. "A SiC/Combustion -Synthesized  $\beta'$ -SiAlON Composite," C. M. Huang, Y. Xu, D. Zhu and W. M. Kriven. *Ceramic Engineering and Science Proceedings*, 15-B (1994) [5] 1154-1163. Poster won 3rd Prize at the 18th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 19-24th (1994).
64. "Interfacial Properties of SiC Monofilament Reinforced  $\beta'$ -SiAlON Composites," C. M. Huang, D. Zhu, Y. Xu, T. Mackin and W. M. Kriven, *J. Materials Science and Engineering*, (1995) **A201** 159-168.
65. "Laser Ablated Coatings on Ceramic Fibers for Ceramic Matrix Composites," C. M. Huang, F. Xiong, Y. Xu, A. Zangvil and W. M. Kriven, *J. Materials Science and Engineering*, **A191** (1995) 249-256.
66. "Elastic Properties of Mullite," H. Ledbetter, S. Kim, S.D. Crudele and W. M. Kriven, *J. Am. Ceram. Soc.*, (1998) **81** [4] 1025-1028.
67. "Twinning in Structural Ceramics," W. M. Kriven. (invited review paper) in *Twinning in Advanced Materials*, Edited by M. H. Yoo and M. Wuttig. Published by The Minerals, Metals and Materials Society (TMS), Warrendale, PA., 435-448 (1994).
68. "Interfacial Bonding and Friction in SiC Monofilament/  $\beta'$  SiAlON Composites," C. M. Huang, Y. Xu, D. Zhu, T. Machin and W. M. Kriven, *Ceram. Trans.*, **46** (1994) 815-826.



69. "Fabrication by Colloidal Filtration of Alumina Platelet Reinforced 3Y-TZP: Mechanical Properties," I. K. Cherian and W. M. Kriven, *Ceramic Transactions* **46** (1994) 387-398.
70. "Chemically Bonded Ceramics as an Alternative to High Temperature Composite Processing," M. A. Gülgün, B.R. Johnson and W. M. Kriven. In Better Ceramics Through Chemistry VI, edited by C. Sanchez, C. J. Brinker, M. L. MecCartney and A. K. Cheetham. Publ. by Materials Research Society, Pittsburgh, vol **346**, 511-516 (1994).
71. "High Temperature Phase Transformation in  $Y_4Al_2O_9$ ,  $Gd_4Al_2O_9$  and  $Dy_4Al_2O_9$ ," W. M. Kriven, J. L. Shull, W. D. Porter and C. A. Hubbard. In *Solid → Solid Phase Transformations in Inorganic Materials '94*," 95-100 (1994).
72. "Chemically Bonded Ceramic Matrix Composites: Densification and Conversion to Diffusion Bonding," B. R. Johnson, M. A. Gülgün and W. M. Kriven. In Better Ceramics Through Chemistry VII, Mat. Res. Symp. Proc. 365 67-72 (1995).
73. "Evolution of Mechano-chemistry and Microstructure of a Calcium Aluminate-Polymer Composite: Part I. Mixing Time Effects," M. A. Gülgün, W. M. Kriven, L. S. Tan and A. J. McHugh. *J Mater. Res.* **10** [7] 1746-1755 (1995)
74. "SiC<sub>f</sub>/O'-SiAlON Composite: Properties and Oxidation Retained Properties," C. M. Huang, D. Zhu, Y. Xu, W. M. Kriven and C. Y. Yuh, *J. Materials Science and Engineering*, **A220** [1-2].176-184 (1996)
75. "Chemical Stability, Microstructure and Mechanical Behavior of LaPO<sub>4</sub>-containing Ceramics," D. H. Kuo and W. M. Kriven, *J. Materials Science and Engineering* **A210** [1-2] (1996) 123-134.
76. "A Simple Solution-Polymerization Route for Oxide Powder Synthesis," M. A. Gulgun and W. M. Kriven, *Ceramic Transactions* vol. **62** 57-66 (1995).
77. "Characterization of Yttrium Phosphate and a Yttrium Phosphate/Yttrium Aluminate Laminate," D. H. Kuo and W. M. Kriven, *J. Am. Ceram. Soc., Comm.* **78** [11] 3121-3124 (1995).
78. "Evolution of Mechano-Chemistry and Microstructure of a Calcium Aluminate - Polymer Composite. Part II. Mixing Rate Effects, L. S. Tan, A. J. McHugh, M. A. Gülgün and W. M. Kriven, *J. Mater. Res.* **11** [7] (1996) 1739-1747.
79. "Chemically Bonded Ceramic Processing of Monocalcium Aluminate," B. R. Johnson, M. A. Gülgün and W. M. Kriven, *Ceramic Transactions* **62** (1995) 313-320.

80. "Stereological Observations of Mullite and Zirconia Matrix Composites," I. K. Cherian, M. D. Lehigh, I. Nettleship and W. M. Kriven, *J. Am. Ceram Soc.*, **79** [12] (1996) 3273-3281.
81. "Displacive Phase Transformations and Their Applications in Structural Ceramics," W. M. Kriven, *J. de Physique IV, Colloque C8 vol 5* (1995), pp C8-101-110.
82. "Control of Interfacial Properties Through Fiber Coatings: Monazite Coatings in Oxide/Oxide Composites," D. H. Kuo, W. M. Kriven and T. J. Mackin, *J. Am. Ceram. Soc.*, **80** [12] 2987-2996 (1997).
83. "On the Role of Deformation Twinning in Domain Reorganization and Reorientation in Ferroelastic Crystals," P. Müllner and W. M. Kriven, *J. Mater. Res.*, **7** (1997) 1771-1776.
84. "Microstructure and Mechanical Response of Lanthanum Phosphate/Yttrium Aluminate and Yttrium Phosphate/Yttrium Aluminate Systems," D. H. Kuo and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **17B** (1996) 233-240.
85. "Shear Induced Transformation in Enstatite," D. Zhu and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **17A** (1996) 383-390.
86. "MoSi<sub>2</sub>-β' SiAlON Particulate Ceramic Composite," C. M. Huang, C. Y. Yuh, M. Farooque, D. Zhu, Y. Xu and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **17A** (1996) 295-302.
87. "Interfacial Bonding of Carbon-Coated, Glass Fiber Reinforced Cement," C. M. Huang, D. Zhu, C. X. Dong and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **17B** (1996) 258-265.
88. "Carbon-Coated Glass Fiber Reinforced Cement Composites: I. Fiber Push-out and Interfacial Properties," C. M. Huang, D. Zhu, C. X. Dong, W. M. Kriven, R. Loh and J. Huang, *J. Am. Ceram. Soc.* **80** [9] (1997) 2326-2332.
89. "Development of Yttrium Phosphate as an Oxide/Oxide Interphase Material," D. H. Kuo and W. M. Kriven, Proc. 2nd Int. Meeting of Pacific Rim Ceramic Societies (PACRIM 2), Cairns, Australia, July 15-17, (1997), published in CD ROM format.
90. "Interface Properties of YPO<sub>4</sub>/Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> Systems: A Double Sandwich System and a Fiber Model Composite," D. H. Kuo and W. M. Kriven, *Ceramic Transactions* **74** (1996) 71-82.

91. "Tape Cast  $\text{MoSi}_2/\beta'$ -SiAlON Composite Reinforced with SiC Monofilaments," C. M. Huang, W. T. Y. Ho, C. Y. Yuh and M. Farooque, D. Zhu and W. M. Kriven, *Ceramic Transactions* **74** (1996) 459-470.
92. "Properties and Microstructure of  $\text{MoSi}_2 - \beta'$  SiAlON Particulate Ceramic Composites," C. M. Huang, C. Y. Yuh, M. Farooque, D. Zhu, Y. Xu and W. M. Kriven, *J. Am. Ceram. Soc.* **80** [12] (1997) 2837-2843. (Presented at 20th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 7-11th (1996). Won second prize in the Poster Competition).
93. "A Strong and Damage-Tolerant Oxide Laminate," D. H. Kuo and W. M. Kriven, *J. Am. Ceram. Soc.* **80** [9] (1997) 2421-2424.
94. "Shrinkage Free, Alumina-Glass, Dental Composites by Aluminum Oxidation," S. J. Lee, W. M. Kriven and H. M. Kim, *J. Am. Ceram. Soc.*, **80** [8] (1997) 2141-2147.
95. "Bonding Behavior of a Cu/CuO Thick Film on a Low-firing Ceramic Substrate," S.-J. Lee, W. M. Kriven, J.-H. Park and Y.-S. Yoon, *J. Materials Research*, **12** [9] (1997) 2411-2418.
96. "Phase Transformation in  $\text{KNbO}_3$  Perovskite Ceramic," O. O. Popoola and W. M. Kriven, *Philosophical Magazine Letters*, **75** [1] 1-5 (1997)
97. "Synthesis and Microstructure of Mullite Fibers Grown from Deeply Undercooled Melts," W. M. Kriven, D. Zhu and M. H. Jilavi, K. R. Weber, B. Cho, J. Felten, and P. C. Nordine. *Ceramic Microstructures*, edited by A. P. Tomsia and A. M. Glaeser, Plenum Pub., (1998) 173-180.
98. "Nanocrystalline  $\text{NbAl}_3$ -Al Multilayer Thin Films Deposited by Eximer Laser Ablation," H. Chung, M. H. Jilavi, T. P. Duffey, J. Mazumder and W. M. Kriven, *Acta Scripta*, **38** [3] 429-435 (1998).
99. "Microstructure of Nanocrystalline  $\text{NbAl}_3$ /Al Microlaminated Thin Films Deposited by Pulsed Eximer Laser Ablation," H. Chung, M. H. Jilavi, T. P. Duffey, J. Mazumder and W. M. Kriven, *J. Thin Solid. Films*, in press.
100. "Oxide Laminates with High Strength and Work-of-Fracture," D. H. Kuo and W. M. Kriven, *Mat. Res. Soc. Symp.*, *Interfacial Engineering for Optimized Properties*; edited by C. L. Briant, C. B. Carter, and E. L. Hall; vol. **458** (1997) 477-488.
101. "Microstructure and Mechanical Evaluation of Yttrium Phosphate-containing and Lanthanum Phosphate-containing Zirconia Laminates," D. H. Kuo and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **18** [3] (1997) 129-136.

102. "Microstructure and Interfacial Properties of a Laser Ablation Coated, Fiber-Reinforced Ceramic Composite," D. Zhu, H. Chung, M. Jilavi, W. M. Kriven, and J. Mazumder, *Cer. Eng. and Sci. Proc.* **18** [3] (1997) 105-112.
103. "Synthesis and Characterization of Mullite and YAG Fibers Grown from Deeply Undercooled Melts," D. Zhu, M. H. Jilavi, W. M. Kriven. *Cer. Eng. and Sci. Proc.* **18** [3] (1997) 31-38.
104. "Crystallization and Densification of Nano-size, Amorphous Cordierite Powder Prepared by a Solution-Polymerization Route," S. J. Lee and W. M. Kriven, *J. Amer. Ceram. Soc.*, **81** [10] 2605-2612 (1998).
105. "Fracture of Multilayer Oxide Composites," D. H. Kuo and W. M. Kriven, *J. Mater. Sci. and Eng.* **A241**, 241-250. (1998).
106. "Crystallography and Microstructural Studies of Phase Transformations in Dysprosia ( $Dy_2O_3$ )," Y. J. Kim and W. M. Kriven, *J. Mater. Res.*, **13** [10] 2920-2931 (1998).
107. "Preparation and Microstructure Characterization of Anodic Spark Deposited Barium Titanate Films," J. Schreckenbach, F. Schlottig, G. Marx, W. M. Kriven, O. O. Popoola, M. H. Jilavi and S. H. Brown, *J. Mater. Res.*, **13** [4] 1437-1443 (1999).
108. "Polymerized Organic-Inorganic Synthesis of Mixed Oxides," M. A. Gülgün, M. H. Nguyen and W. M. Kriven, *J. Amer. Ceram. Soc.*, **82** [3] 556-560 (1999).
109. "Synthesis of Oxide Powders via a Polymeric Steric Entrapment Precursor Route," M. H. Nguyen, S. J. Lee and W. M. Kriven, *J. Mater. Res.*, **14** [8] 3417-3426 (1999).
110. "Preparation of Ceramic Powders by a Solution-Polymerization Route Employing PVA Solution," S. J. Lee and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **19** [4] 469-476 (1998).
111. "Mullite/Cordierite Laminates with  $\beta \rightarrow \alpha$  Cristobalite Transformation Weakened Interphases," W. M. Kriven and S. J. Lee, *Cer. Eng. and Sci. Proc.* **19** [3] 305-316 (1998).
112. "Preparation of Portland Cement Components by PVA Solution Polymerization," S.-J. Lee, E. A. Benson and W. M. Kriven, *J. Am. Ceram. Soc.* **82** [8] 2049-2055 (1999).
113. "Growth and Crystallization of YAG and Mullite-Composition Glass Fibers," J. K. R. Weber, B. Cho, A. D. Hixson, J. G. Abadie, P. C. Nordine, W. M. Kriven, B. R. Johnson and D. Zhu, *J. Europ. Ceram. Soc.*, **19** [13] 2543-2550 (1999).

114. "High Temperature Single Crystal Properties of Mullite" W. M. Kriven, J. Palko, S. Sinogeikin, J. D. Bass, A. Sayir, G. Brunauer, H. Boysen, F. Frey and J. Schneider, *J. Europ. Ceram. Soc.*, **19** [13] 2529-2541 (1999).
115. "Barium Titanate and Barium Orthotitanate Powders Through an Ethylene Glycol Polymerization Route," S. J. Lee, M D. Biegalski and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **20** [3] 11-18 (1999).
116. "A Submicron-Scale Duplex Zirconia and Alumina Composite by Polymer Complexation Processing," S. J. Lee and W. M. Kriven, *Cer. Eng. and Sci. Proc.* **20** [3] 69-76 (1999).
117. "Powder Synthesis of Barium Titanate and Barium Orthotitanate via an Ethylene Glycol Polymerization Route," S. J. Lee, M D. Biegalski and W. M. Kriven, *J. Mater. Res.*, **14** [7] 3001-3006 (1999).
118. "The Preparation and Characterization of Alumina-Leucite ( $\text{KAlSi}_2\text{O}_6$ ) Composites," D.-K. Kim, J. L. Shull and W M. Kriven, *Ceramic Transactions*, **103**, 63-73 (2000). In *Advances in Ceramic Matrix Composites V*, edited by N. P. Bansal, J. P. Singh and E. Ustundag.
119. "Fabrication of Low Thermal Expansion and Low Dielectric Ceramic Substrates by Control of Microstructure," S. -J. Lee and W. M. Kriven, *J. Ceramic Processing Research*, **4** [3] 118-121 (2003).
120. "Synthesis of Oxide Powders via Polymeric Steric Entrapment," (invited review paper) W. M. Kriven, S. J. Lee, M. A. Gülgün, M. H. Nguyen and D. K. Kim, in *Innovative Processing/Synthesis: Ceramics, Glasses, Composites III*. *Ceramic Transactions*, vol **108**, 99-110 (2000).
121. "Toughened Oxide Composites Based on Porous Alumina Platelet Interphases," S. J. Lee and W. M. Kriven, *J. Am. Ceram. Soc.*, **84** [4] 767-774 (2001).
122. "High Temperature Crystal Structure of a 3:2 Mullite from Neutron Diffraction Data," G. Brunauer, H. Boysen, F. Frey, T. Hansen and W. Kriven, *Zeitschrift für Kristallographie*, **216** 284-290 (2001).
123. "Electrosynthesis and Microstructural Characterization of Anodic  $\text{VO}_x$  Films," J. P. Schreckenbach, D. Butte, G. Marx, B. R. Johnson and W. M. Kriven, *J. Mater. Res.*, **15** [7] 1483-1489 (2000).
124. "Physico-Chemical Characteristics of Corrosion Scales in Iron Pipes," P. Sarin, V. L. Snoeyink, J. Bebee, W. M Kriven and J. A. Clement, *Water Research*, **35** [12] 2961-2969 (2001)

125. "Suspension Processing, Microstructure and Mechanical Properties of Alumina Platelet Reinforced 3Y-TZP," I. K. Cherian and W. M. Kriven. Part. 1. Ceramic Bulletin, **80** [11] 60-67 (2001); Part 2. Ceramic Bulletin, **80** [12] 57-63 (2001).
126. "Elastic Constants of Yttria ( $Y_2O_3$ ) Monocrystals to High Temperatures," J. W. Palko, S. V. Sinogeikin, Ali Sayir, W. M. Kriven and J. D. Bass, J. Appl. Phys., **89** [12] 7791-7796 (2000).
127. "Complete Elastic Tensor for Mullite ( $\sim 2.5Al_2O_3 \cdot SiO_2$ ) to High Temperatures Measured from Textured Fibers," J. W. Palko, A. Sayir, S. V. Sinogeikin, W. M. Kriven and J. D. Bass, J. Am. Ceram. Soc., **85** [8] 2005-2012 (2002).
128. "Crystallization Kinetics of Yttrium Aluminum Garnet ( $Y_3Al_5O_{12}$ )," B. R. Johnson and W. M. Kriven, J. Mater Res., **16** [6] 1795-1805 (2001).
129. "Crystal Structure Development during Devitrification of Amorphous Mullite," B. R. Johnson, W. M. Kriven and J. Schneider, J. Europ. Ceram. Soc., **21** 2541-2562 (2001).
130. "Elastic Constants of Mullite Containing Alumina Platelets," H. Ledbetter, S. Kim, M. Dunn, Z. Xu, S. Crudele and W. M. Kriven, J. Europ. Ceram. Soc., **21** 2569-2576 (2001).
131. "Hot Stage Transmission Electron Microscopy Study of Phase Transformations in Hexacelsian ( $BaAl_2Si_2O_8$ )," Z. Xu, J. L. Shull, and W. M. Kriven, J. Mater. Res., **17** [6] 1287-1297 (2002).
132. "Design of Oxide Composites with Debonding Interphases," W. M. Kriven Ceramic Transactions, (invited review paper), Ceramic Transactions Vol. **128**, 69-88, (2001). In Advances in Ceramic Matrix Composites VII. Published by the American Ceramic Soc., Westerville, OH.
133. "Thermal Expansion and Phase Transitions up to 850°C of a Celsian-Hexacelsian ( $BaAl_2Si_2O_8$ ) Mixture," J. Schneider and W. M. Kriven, pp 257-261 in High Temperature Ceramic Materials, edited by W. Krenkel, R. Naslain and H. Schneider, Wiley-VCH Weinheim, Germany (2001).
134. "Crystallization Mechanism of Amorphous Mullite and the Alumina-Silica Phase Diagram," W. M. Kriven, (invited lecture) Mat. Res. Symp. vol. **702**, 303-309 (2002).
135. "Synthesis of Low-firing Anorthite Powder by the Steric Entrapment Route," S. J. Lee, Ch. H. Lee and W. M. Kriven, Ceram. Eng. and Sci. Proc. **23** [3] 33-40 (2002).

136. "Preparation and Characterization of Praseodymium Calcium Manganate," M. W. Jung, J. Tao, W. M. Kriven and J. Schneider, *Mater. Chem. Phys.*, **78** [3] 778-784 (2002).
137. "Iron Release from Corroded Iron Pipes in Drinking Water Distribution Systems: Effect of Dissolved Oxygen," P. Sarin, V. L. Snoeyink, J. Bebee, K. K. Jim, M. A. Beckett, W. M. Kriven and J. A. Clement, *Water Research*, **38** [3] 1259-1269 (2004).
138. "Iron Release from Corroded Unlined Cast Iron Pipe: Effect of Ph, Alkalinity and Orthophosphates in a Soft New England Water," P. Sarin, J. A. Clement V. L. Snoeyink and W. M. Kriven, *J. American Water Works Association*, **95**, [11] 85-96, (2003).
139. "Synthesis and Hydration Study of Portland Cement Components by an Organic Steric Entrapment Method," S. J. Lee and W. M. Kriven, *Materials and Structures*, **38** [No. 275] 87-92 (2005).
140. "In-situ, in Air, High Temperature Studies of Oxide Systems using the Thermal-Imaging Technique," L. F. Siah, J. Schneider and W. M. Kriven, *Advances in X-ray Analysis*, vol. **46** 264-269 (2003).
141. "Mullite ( $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$ )–Aluminum Phosphate Laminated Composite Fabricated by Tape Casting," Dong-Kyu Kim and Waltraud M. Kriven, *J. Am. Ceram. Soc. Communication*, **86** [11] 1962-1964 (2003).
142. "Mullite ( $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$ )–Aluminum Phosphate ( $\text{AlPO}_4$ ), Oxide, Fibrous Monolithic Composites," D. -K. Kim and W. M. Kriven, *J. Am. Ceram. Soc.*, **87** [5] 794-803 (2004).
143. "Fibrous Monoliths of Mullite -  $\text{AlPO}_4$  and Alumina/YAG – Alumina Platelets," D. K. Kim and W. M. Kriven, *Materials Sci. Eng., Part A*, **380** [1-2] 237-244 (2004).
144. "Indentation–Induced Amorphization of Mullite Single Crystals," M. Schmücker, H. Schneider and W. M. Kriven, *J. Am. Ceram. Soc.*, **86** [10] 1821-1822 (2003).
145. "High Temperature Microhardness of Single Crystal Mullite," W. M. Kriven, L. F. Siah, M. Schmücker and H. Schneider, *J. Am. Ceram. Soc.*, **87** [5] 970-972 (2004).
146. "Microstructure Characterization of Oxide Coatings Deposited by Pulsed Eximer Laser Ablation," M. H. Jilavi, W. M. Kriven, H. Chung and J. Mazumder, *J. Mater. Res.*, **18** [7] 1623-1630 (2003).

147. "Strontium Hafnate Phases by Anodic Spark Conversion," J. P. Schreckenbach, N. Meyer, G. Marx, B. -T. Lee and W. M. Kriven, *Appl. Surf. Science*, **205**, 97-101 (2003).
148. "Iron Corrosion Scales: Model for Scale Growth, Iron Release and Colored Water Formation," P. Sarin, V. L. Snoeyink, D. A. Lyttle and W. M. Kriven, *J. Environmental Engineering (ASCE)* **130**, [4], 364-373 (2004).
149. "Bio-resorbable Nanoceramics for Gene and Drug Delivery," W. M. Kriven, S. -Y. Kwak, M. A. Wallig and J.-H. Choy, invited paper, *Mater. Res. Bull.* **29** [1] 33-37 (2004).
150. "Microstructure and Microchemistry of Fully-Reacted Geopolymers and Geopolymer Matrix Composites," W. M. Kriven, J. L. Bell and M. Gordon, *Ceramic Transactions* vol. **153**, 227-250 (2003).
151. "Composite Cold Ceramic Geopolymer in a Refractory Application," D. C. Comrie and W. M. Kriven, *Ceramic Transactions* vol. **153**, 211-225 (2003).
152. "Fabrication and Grain Growth in YAG and Mullite Fibers," W. M. Kriven, K. Jurkschat, B. R. Johnson, W. Yoon and C. Chiritescu, *Ceramic Transactions* vol. **153**, 27-45 (2003).
153. "Fabrication of Biocompatible Calcium Phosphate Ceramics using Eggshell," S. J. Lee and W. M. Kriven, *Cer. Eng. and Sci. Proc.*, vol **24** [3] 203-208 (2003).
154. "Transformation Toughening of a Calcium Zirconate Matrix by Dicalcium Silicate under Ballistic Impact," W. M. Kriven, B. R. Rosczyk, K. Kremeyer, B. Song, W. Chen, *Cer. Eng. and Sci. Proc.*, vol **24** [3] 383-388 (2003).
155. "Synthesis of Mixed Conducting Oxides by an Organic Steric Entrapment Method," W. M. Kriven, B. R. Rosczyk, M. I. Bertoni and T. O. Mason, *Cer. Eng. and Sci. Proc.*, vol **24** [3] 287-292 (2003).
156. "Inorganic Delivery Vector for Intravenous Injection," S. W. Kwak, W. M. Kriven, M. Wallig and J. H. Choy, *Biomaterials*, **25** [28] 5995-6001 (2004).
157. "*In situ* High Temperature Phase Transformations in Rare Earth Niobates," K. Jurkschat, P. Sarin, L. F. Siah and W.M. Kriven, *Advances in X-ray Analysis*, vol. **47** 357-362 (2004).
158. "Nanoceramics as Drug Delivery Carriers," W. M. Kriven, S. W. Kwak, R. B. Clarkson, B. E. Kitchell, M. A. Wallig, T. Martin-Jimenez and J. H. Choy, *Cer. Eng. and Sci. Proc.* vol. **25** [4] 537-542 (2004).



159. "Effect of Alkali Choice on Geopolymer Properties," W. M. Kriven and J. L. Bell, *Cer. Eng. and Sci. Proc.* vol. **25** [3-4] 99-104 (2004).
160. "Calcium Phosphate Ceramics as Substrate for Cartilage Cultivation," R. Janssen, S. Nagel-Heyer, C. Goepfert, R. Pörtner, D. Toykan, O. Krummhauer, M. Morlock, P. Adamietz, N. M. Meenen, W. M. Kriven, D. K. Kim, A. Tampieri and G. Celotti, *Cer. Eng. and Sci. Proc.* **25** [4] 523-528 (2004).
161. "Geopolymer Refractories for the Glass Manufacturing Industry," W. M. Kriven, J. L. Bell and M. Gordon, *Cer. Eng. and Sci. Proc.* vol. **25** [1] 57-79 (2004).
162. "Comparison of Naturally and Synthetically-Derived, Potassium-Based Geopolymers," M. Gordon, J. Bell and W. M. Kriven, *Ceramic Transactions*, vol. **165**. *Advances in Ceramic Matrix Composites X*, edited by J. P. Singh, N. P. Bansal and W. M. Kriven 95-106 (2005).
163. "Microstructural Characterization of Metakaolin-based Geopolymers," P. Duxson, G. C. Lukey, J. S. J. van Deventer, S. W. Mallicoat, W. M. Kriven *Ceramic Transactions*, vol. **165**. *Advances in Ceramic Matrix Composites X*, edited by J. P. Singh, N. P. Bansal and W. M. Kriven 71-85 (2005).
164. "Microstructure and Indentation Fracture of Dysprosium Niobate," B. T. Lee and W. M. Kriven, *J. Mater. Res.*, **20** [6] 1422-1427 (2005).
165. "Toughening of Mullite/Cordierite Laminates by Transformation Weakening of  $\beta$ -Cristobalite Interphases," W. M. Kriven and S. J. Lee, *J. Am. Ceram. Soc.*, **88** [6] 1521-1528 (2005).
166. "SOFC Powder Synthesis by the Organic Steric Entrapment Method," W. M. Kriven and B. R. Rosczyk, *Fuel Cell Technologies: State and Perspectives*. Edited by N. Sammes, A. Smirnova and O. Vasylyev. Kluwer Academic Publishers, Dordrecht, The Netherlands. pp. 381-394 (2005).
167. "*In-situ*, High-temperature Synchrotron Powder Diffraction Studies of Oxide Systems In Air Using A Thermal-image Furnace," L. F. Siah, W. M. Kriven and J. Schneider, *Measurement Science and Technology*, **16** 1291-1298 (2005).
168. "Understanding the Relationship between Geopolymer Composition, Microstructure and Mechanical Properties," P. Duxson, J. L. Provis, G. C. Lukey, S. W. Mallicoat, W. M. Kriven and J. S. J. van Deventer, *Colloids and Surfaces A – Physicochemical and Engineering Aspects*, **269** [1-3] 47-58 (2005).
169. "Use of Geopolymeric Cements as a Refractory Adhesive for Metal and Ceramic Joins," J. L. Bell, M. Gordon and W. M. Kriven, *Ceramic Engineering and Science Proceedings*. Edited by D.-M. Zhu, K. Plucknett and W. M. Kriven, vol **26**, [3] 407-413 (2005).

170. "Novel Alkali-Bonded Ceramic Filtration Membranes," S. Mallicoat, P. Sarin and W. M. Kriven, *Ceramic Engineering and Science Proceedings*. Edited by M. E. Brito, P. Filip, C. Lewinsohn, A. Sayir, M. Opeka, W. M. Mullins, D.-M. Zhu and W. M. Kriven, vol **26**, [8] 37-44 (2005).
171. "Effect of Reinforcements on Properties of Self-setting Calcium Phosphate Cement," N. C. Bhorkar and W. M. Kriven, *Ceramic Engineering and Science Proceedings*. Edited by M. Mizuno, D.-M. Zhu and W. M. Kriven, vol. **26**, [6] 95-102 (2005).
172. "High Temperature Tensile Testing Method for Monofilament Ceramic Fibers," B. M. Yee, P. Sarin and W. M. Kriven, *Ceramic Engineering and Science Proceedings*. Edited by E. Lara-Curzio, D. -M. Zhu and W. M. Kriven, vol. **26**, [2] 67-74 (2005).
173. "Nanoceramics Intercalated with Gd-DTPA for Potential Imaging of Systems in *Vivo*," S.-Y. Kwak, W. M. Kriven, R. B. Clarkson, B. J. Tucker and R. L. Belford, *Ceramic Engineering and Science Proceedings*. Edited by M. Mizuno, D.-M. Zhu and W. M. Kriven, vol . **26**, [6] 55-62 (2005).
174. "Investigation on Growth of Textured and Single Crystal Oxide Fibers using a Quadrupole Lamp Furnace," W. Yoon and W. M. Kriven, *Ceramic Engineering and Science Proceedings*. Edited by E. Lara-Curzio, D.-M. Zhu and W. M. Kriven, vol **26**, [2] 51-58 (2005).
175. "Modeling Speciation in Highly Concentrated Alkaline Silicate Solutions," John L. Provis, Peter Duxson, Grant C. Lukey, Frances Separovic, Waltraud M. Kriven and Jannie S. J. van Deventer, *Industrial and Engineering Chemistry Research*, **44** [23], 8899-8908 (2005).
176. "Thermal Conversion and Microstructural Evaluation of Geopolymers or "Alkali Bonded Ceramics" (ABCs)," M. Gordon, J. Bell and W. M. Kriven. *Ceramic Transactions*, vol. **175**. Advances in Ceramic Matrix Composites XI. Edited by N. P. Bansal, J. P. Singh and W. M. Kriven, 225-236 (2005).
177. "Intrinsic Microstructure of Geopolymers and Geopolymer-based Materials," W. M. Kriven, J. Bell, M. Gordon and Gianguo Wen, pp 179-183 in Geopolymer, Green Chemistry and Sustainable Development Solutions, edited by Joseph Davidovits. Proc. World Congress Geopolymer, 2005, St. Quentin, France. Published by the Geopolymer Institute, St. Quentin, France (2005).
178. "Oxide Laminated Composites with Aluminum Phosphate ( $AlPO_4$ ) and Alumina Platelets as Crack Deflecting Materials," D. K. Kim and W. M. Kriven, *Composites Part B: Engineering*, **B37** 509-514 (2006).

179. “High Temperature Phase Transformations in Dysprosium Titanate,” W. M. Kriven, K. Jurkschat and L.-F. Siah, Solid → Solid Phase Transformations in Inorganic Materials ‘05. Edited by J. M. Howe, D. E. Laughlin, J. K. Lee, D. J. Srolovitz and U. Dahmen, Published by the TMS Society, 1015-1022, (2006).
180. “Phase Transformations in Rare Earth Niobates,” W. M. Kriven, P. Sarin and L. F. Siah, Solid→Solid Phase Transformations in Inorganic Materials ‘05. Edited by J. M. Howe, D. E. Laughlin, J. K. Lee, D. J. Srolovitz and U. Dahmen, Published by the TMS Society, 1023-1028, (2006).
181. “Rapid, *In-situ*, Ultra-high Temperature Investigations of Ceramics using Synchrotron X-ray Diffraction,” P. Sarin, R. P. Haggerty, W. Yoon, K. Knapp, P. Zschack and W. M. Kriven. Mechanical Properties and Performance on Engineering Ceramics and Composites II. Edited by Rajan Tandon; volume editors Andrew Wereszczak and Edgar Lara-Curzio. Ceramic Engineering and Science Proceedings, Vol. **27** [2] 313-324 (2006).
182. “Quadrupole Lamp Furnace for *In-situ* High Temperature (up to 2050K) Synchrotron Powder X-ray Powder Diffraction Studies in Air,” P. Sarin, W. Yoon, K. Jurkschat, P. Zschack and W. M. Kriven, Review of Scientific Instruments, vol **77** no. 093906 (2006).
183. “Microstructure and Nanoporosity in As-set Geopolymers,” W. M. Kriven, J. L. Bell and M. Gordon. Mechanical Properties and Performance of Engineering Ceramics II, Ceramic Engineering and Science Proceedings, Cocoa Beach, Vol. **27**, Issue 2, 313-324 (2006).
184. “Effect of Alkali and Si/Al Ratio on the Development of Mechanical Properties of Metakaolin-based Geopolymers,” P. Duxson, S. W. Mallicoat G. C. Lukey, W. M. Kriven and J. S. J. van Deventer, Colloids and Surfaces A-Physicochemical and Engineering Aspects, **292** 8-20 (2007).
185. “Intrinsic Microstructure and Properties of Metakaolin-Based Geopolymers,” W. M. Kriven, J. L. Bell, S. W. Mallicoat and M. Gordon, contributed chapter to Proc. of Int. Workshop on Geopolymer Binders – Interdependence of Composition, Structure and Properties, Weimar, Germany, 71-86 (2007).
186. “Growth of Textured Mullite Fibers using a Quadrupole Lamp Furnace,” W. Yoon, P. Sarin and W. M. Kriven, J. Europ. Ceram. Soc., **28** 455-463 (2007).
187. “Effect of Transition-metal-ion doping on High Temperature Thermal Expansion of 3:2 Mullite – An *In-situ*, High Temperature, Synchrotron diffraction Study,” P. Sarin, W. Yoon, R. P. Haggerty, N. C. Bhorkar, C. Chiritsecu and W. M. Kriven, J. Europ. Ceram. Soc., **28** 353-365 (2007).

188. "Phase Transformations in the High Temperature Form of Pure and TiO<sub>2</sub> - stabilized Ta<sub>2</sub>O<sub>5</sub>", G. L. Brennecka, D. A. Payne, P. Sarin J.-M. Zuo and W. M. Kriven, *J. Am. Ceram. Soc.*, **90** [9] 2946-2953 (2007).
189. "Corrosion Protection Assessment of Concrete Reinforcing Bars with a Geopolymer Coating," W. M. Kriven, M. Gordon, B. L. Ervin and H. Reis. *Cer. Eng. and Sci. Proc.*, **28** [9] 373-381 (2007). In Developments in Porous, Biological and Geopolymer Ceramics, edited by Manuel Brito, Eldon Case, W. M. Kriven, volume editors Jonathan Salem and Dongming Zhu, published by the American Ceramic Society.
190. "Concepts for Energy Absorption and Dissipation in Ceramic Armor," D. K. Kim, J. L. Bell, W. M. Kriven and V. Kelsey," *Cer. Eng. Sci. Proc.* **28** issue [5] 57-70 (2007). Advances in Ceramic Armor III, edited by Jonathan Salem and Dongming Zhu, (series editors); Lisa Prokurat Franks, (editor).
191. "Laser Scanning Confocal Microscopy Analysis of Metakaolin-based Geopolymers," J. L. Bell, W. M. Kriven, A. P. R. Johnson, F. Caruso and J. S. J. van Deventer. *Cer. Eng. Sci. Proc.* **28** [9] 273-282 (2007). In Developments in Porous, Biological and Geopolymer Ceramics, edited by Manuel Brito, Eldon Case, W. M. Kriven, volume editors; Jonathan Salem and Dongming Zhu, series editors; published by the American Ceramic Society.
192. "Organic Steric Entrapment (PVA) Technique for Preparation of a Pore Self-Forming, Macro-/Mesoporous, Gehlenite Ceramic," D. Jia, D. K. Kim and W. M. Kriven. *Cer. Eng. Sci. Proc.* **28** [9] 67-76 (2008). In Developments in Porous, Biological and Geopolymer Ceramics, edited by Manuel Brito, Eldon Case, W. M. Kriven (editors); Jonathan Salem and Dongming Zhu (series editors); published by the American Ceramic Society.
193. "Sintering Behavior of Gehlenite. Part I. Self-forming, Macro-/Mesoporous Gehlenite – Pore Forming Mechanism, Microstructure, Mechanical and Physical Properties," D. Jia, D.-K. Kim and W. M. Kriven, *J Am. Ceram. Soc.*, **90** [6] 1760-1773 (2007).
194. "Sintering Behavior of Gehlenite. Part II. Microstructure and Mechanical Properties" D. Jia and W. M. Kriven, *J Am. Ceram. Soc.*, **90** [8] 2766-2770 (2007).
195. "Processing and Characterization of Multiphase Ceramic Composites. Part I: Duplex Composites Formed In-Situ" D.-K. Kim and W. M. Kriven, *J. Am. Ceram. Soc.*, **91** [3] 784-792 (2007).
196. "A Polymer Solution Technique for the Synthesis of Nano-sized Li<sub>2</sub>TiO<sub>3</sub> Ceramic Breeder powders," Ch.-H. Jung, S.-J. Lee, W. M. Kriven, J.-Y. Park and W.-S. Ryu, *Journal of Nuclear Materials*, **373** 194-198 (2007).

197. "Processing and Characterization of Multiphase Ceramic Composites. Part II: Triplex Composites with a Wide Sintering Temperature Range," D. K. Kim and W. M. Kriven. *J. Amer. Ceram. Soc.*, **91**, [3] 793 – 798 (2008).
198. "Processing and Characterization of Multiphase Ceramic Composites. Part III: Strong, Hard and Tough, High Temperature, Quadruplex and Quintuplex Composites," D. K. Kim and W. M. Kriven. *J. Am. Ceram. Soc.*, **91** [3] 799-805 (2008).
199. "Creep Characteristics of Alumina, Nickel Aluminate Spinel, Zirconia Composites," R. P. Dillon, D.-K. Kim, J. E. R Tujillo, W. M. Kriven and M. L. Mecartney, *J. Materials Research*, **23** [2] 556-564 (2008).
200. "Temperature Dependence of Silicon Hardness: Experimental Evidence of Phase Transformations," Vladislav Domnich, Yvonne Aratyn, Waltraud M. Kriven and Yuri Gogotsi, *Reviews on Advanced Materials Science*, **14** 14-34 (2008).
201. "Atomic Structure of a Cesium Aluminosilicate Geopolymer: A Pair Distribution Function Study," J. L. Bell, P. Sarin, J. L. Provis, R. P. Haggerty, P. E. Driemeyer, P. J. Chupas, J. S. J. van Deventer and W. M. Kriven, *Chemistry of Materials*, **20** [14] 4768-4776 (2008).
202. "Preparation of Ceramic Foams from Metakaolin-based Geopolymer Gels," J. L. Bell and W. M. Kriven *Cer. Eng. and Sci Proc.*, vol 29 (2008). In *Developments in Strategic Materials*. Edited by Hua-Tay Lin, Kunihito Koumoto, Waltraud M. Kriven, David P. Norton, Edwin Garcia and Ivar Reimanis, Vol 29 issue 10 pp 97-112 (2008).
203. "Thermal, Mechanical and Phase Stability of LaCoO<sub>3</sub> in Reducing and Oxidizing Environments," M. Radovic, S. A. Speakman, L. F. Allard, E. A. Payzant, E. Lara-Curzio, W. M. Kriven, J. Lloyd, L. Fegely, N. Orlovskaya, *J. Power Sources*, **184** 77-83 (2008).
204. "X-ray Pair Distribution Function Analysis of Potassium Based Geopolymer," J. L. Bell, P. Sarin, P. E. Driemeyer, R. P. Haggerty, P. J. Chupas and W. M. Kriven, *Journal of Materials Chemistry, J. Mater. Chem.*, **18** [48], 5974 - 5981 (2008).
205. "Formation of Ceramics from Metakaolin-based Geopolymers: Part I. Cs-based Geopolymer," J. L. Bell, P. E. Driemeyer and W. M. Kriven, *J. Am. Ceram. Soc.*, **92** [1] 1551-2916 (2009). <https://doi.org/10.1111/j.1551-2916.2008.02790.x>
206. "Formation of Ceramics from Metakaolin-based Geopolymers: Part II. K-based Geopolymer," J. L. Bell, P. E. Driemeyer and W. M. Kriven, *J. Am. Ceram. Soc.*, **92** [3] 607-615 (2009). <https://doi.org/10.1111/j.1551-2916.2008.02922.x>

207. "A Curved Image Plate Detector System for High Resolution Synchrotron X-Ray Diffraction," P. Sarin, R.P. Haggerty, W. Yoon, M. Knapp, A. Berghauser, P. Zschack, E. Karapetrova, N. Yang and W. M. Kriven, *Journal of Synchrotron Radiation*, **16** part [2] 273-282 (2009).
208. "Formation of an Iron-Based Geopolymer Analogue," J. L. Bell and W. M. Kriven, *Cer. Eng. and Sci. Proceedings Vol 30*, issue 2, pp x-x. "Mechanical Properties and Performance of Engineering Ceramics and Composites IV". Edited by Dileep Singh and Waltraud M. Kriven, *Ceramic Engineering and Science Proceedings*, Vol **30**, issue [2] 301-312 (2009).
209. "The Ageing Process of Alkali Activated Metakaolin," C. H. Rüscher, E. Mielcarek, W. Lutz, A. Ritzmann and W. M. Kriven, *Microporous Mesoporous Materials, Proc. of Pacrim 09*, **215** 315-324 (2010).
210. "Powder Diffraction by Fixed Incident Angle Reflection Using a Curved Position Sensitive Detector," Ryan P. Haggerty, Pankaj Sarin, Jean-Francois Berar, Zlatomir Apostolov and Waltraud M. Kriven, *Journal of Applied Crystallography*, **43**, 560-569 (2010).
211. "In-situ Studies of Oxidation of ZrB<sub>2</sub> and ZrB<sub>2</sub>-SiC Composites at High Temperatures," P. Sarin, P. Driemeyer, R. P. Haggerty, D.-K. Kim, J. L. Bell and W. M. Kriven, *J. European Ceramic Society*, **30** 2375-2386 (2010).
212. "Weakening of Alkali-Activated Metakaolin during Aging Investigated by the Molybdate Method and Infrared Absorption Spectroscopy," C. H. Rüscher, E. Mielcarek, W. Lutz, A. Ritzmann and W. M. Kriven, *J. Am. Ceramic Society*, **93** [9] 2585-2590 (2010).
213. "Fabrication of Structural, Leucite Glass-Ceramics from Potassium-Based Geopolymer Precursors," N. Xie, J. L. Bell and W. M. Kriven, *J. Am. Ceram. Soc.*, **93** [9] 2644-2649 (2010).
214. "Inorganic Polysialates or "Geopolymers", W. M. Kriven, (invited paper), *American Ceramic Society Bulletin*, **89** [4] 31-34 (2010).
215. "Effect of High Tensile Strength Polypropylene Chopped Fiber Reinforcements on the Mechanical Properties of Sodium Based Geopolymer Systems," D. R. Lowry and W. M. Kriven, in Strategic Materials and Computational Design, edited by Waltraud M. Kriven, Yanchun Zhou and Miladin Radovic. *Cer. Eng. Sci. Proc.* **31** [10] 47-56 (2010).
216. "Properties of Basalt Fiber Reinforced Geopolymer Composites," E. Rill, D. Lowry and W. M. Kriven, in Strategic Materials and Computational Design,

- edited by Waltraud M. Kriven, Yanchun Zhou and Miladin Radovic. *Cer. Eng. Sci. Proc.* **31** [10] 57-69 (2010).
217. "Sintering Behavior and Biocompatibility of Calcium Phosphates Fabricated by Cuttlefish Bone and Phosphoric Acid," S.-J. Lee, M.-H. Lee, W. M. Kriven and N.-S. Oh, *Tissue Engineering and Regenerative Medicine*, **7** [5] 556-560 (2010).
  218. "Porous Biphasic Calcium Phosphate Scaffolds from Cuttlefish Bone," P. Sarin, S.-J. Lee, Z. D. Apostolov and W. M. Kriven, *J. Am. Ceram. Soc.*, **94** [8] 2362-2370 (2011).
  219. "Microwave Enhanced Drying and Firing of Ceramics," T. Gubb, I. Baranova, S. M. Allan, M. L. Fall, H. S. Shulman and W. M. Kriven, *Cer. Eng. Sci. Proc.* **32** [10] 35-44 (2011).
  220. "An Experimental Study on the Effects of SiC on the Mechanical and Sintering Properties of Cr<sub>3</sub>C<sub>2</sub>-NiCr Cermets," A. Ozer and W. M. Kriven, *Cer. Sci. and Eng. Proc.* **32** [2] 271-279 (2011).
  221. "Effect of Polymer Addition on the Crystallite Size and Sinterability of Hydroxyapatite Prepared with CaO Powder and Phosphoric Acid," S.-J. Lee, Ji-Yeon Kwak and W. M. Kriven, *J. Ceramic Processing Research* **13** [3] 243-247 (2012).
  222. "Humidity Effects on the Completion of Geopolymerization in Dilute Evaporative Slurries," B. E. Glad and W. M. Kriven, *Cer. Sci. and Eng. Proc.* **33** [10] 25-30 (2012).
  223. "The Effect of Basalt Chopped Fiber Reinforcement on the Mechanical Properties of Potassium Based Geopolymer," S. S. Musil, G. P. Kutyla and W. M. Kriven, *Cer. Sci. and Eng. Proc.* **33** [10] 31-42 (2012).
  224. "The Effect of 3Y<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> Produced by the Steric Entrapment Method on the Mechanical and Sintering Properties of Cr<sub>3</sub>C<sub>2</sub> Based Cermets," A. Ozer, W. M. Kriven and Y. K. Tür, *Mater. Sci. and Eng. A*, **556**, 878-884 (2012).
  225. "Polymer Adhesion to Geopolymer via Silane Coupling Agent Additives," B. E. Glad, C. Han and W. M. Kriven, *J. Am. Ceram. Soc.*, **95** [12] 3758-3762 (2012).
  226. "In-situ Synchrotron X-ray Diffraction Study of the Cubic to Rhombohedral Phase Transformation in Ln<sub>6</sub>WO<sub>12</sub> (Ln = Y, Ho, Er, Yb)," Z. D. Apostolov, P. Sarin, R. P. Haggerty, W. M. Kriven. *J. Am. Ceram. Soc.*, **96** 987-994 (2013).
  227. "Thermal Properties and Phase Transition of 2ZrO<sub>2</sub>•P<sub>2</sub>O<sub>5</sub> Studied by In Situ, X-ray Synchrotron Diffraction," J. Angelkort, P. Sarin, Z. D. Apostolov, Z. A. Jones and W. M. Kriven. *J. Am. Ceramic Soc.*, **96** [4] 1292-1299 (2013).

228. CTEAS: A GUI based Program to Determine Thermal Expansion from HTXRD,” Z. A. Jones, P. Sarin, R. P. Haggerty and W. M. Kriven. *J. Applied Crystallography*, **46** 550-553 (2013).
229. “Alumina Region of the Lithium Aluminosilicate System: a New Window for Temperature Ultrastable Materials Design,” Olga Garcia-Moreno, W. M. Kriven, Jose S. Moya, Ramon Torrecillas, *J. Am. Ceram. Soc. Communication* **96** [7] 2039-2041 (2013).
230. “Primary Pulse Transmission in Coupled Steel Granular Chains Embedded in PDMS Matrix: Experiment and Modeling,” M. Arif Hasan, Shinhu Cho, Kevin Remick, Alexander F. Vakakis, D. Michael McFarland and Waltraud M. Kriven. *International Journal of Solids and Structures*, **50** [20/21] 3207–3224 (2013).
231. “The Effective Size of Vacancies in Aliovalently Doped SrTiO<sub>3</sub> Perovskites, ” Rick Uvic, Kevin Tolman, Kokfoong Chan, Nicole Lundy, Steven Letourneau, Waltraud M. Kriven, *J. Alloys and Compounds*, **575** 239-245 (2013).
232. “Optimization of Gas Adsorption Porosimetry for Geopolymer Analysis,” Brayden E. Glad and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **96** [11] 3643-3649 (2013).
233. “Green Composite: Sodium-based Geopolymer Reinforced with Chemically Extracted Corn Husk Fibers,” S. S. Musil, P. F. Keane and W. M. Kriven. *Cer. Sci. and Eng. Proc.*, vol **34** [10] 123-133 (2013).
234. “Crackling Noise During Failure of Alumina under Compression: Effect of Porosity,” Pedro O. Castillo-Villa, Jordi Baro, Antoni Planes, Ekhard K. H. Salje, Pathikumar Sellappan, Waltraud M. Kriven and Eduard Vives, *J. Physics: Condensed Matter*, **25** 292202 (9 pp) (2013).
235. “A Forming Technique to Produce Spherical Ceramic Beads using Sodium Alginate as a Precursor Binder Phase,” C. J. Espinoza Santos, T.-S. Wei, B. Cho and W. M. Kriven, *J. Am. Ceram. Soc.*, **96** [11] 3379-3388 (2013).
236. “Geopolymer with Hydrogel Characteristics via Silane Coupling Agent Additives,” B. E. Glad and W. M. Kriven, *J. Am. Cer. Soc.*, **97** [1] 295 - 304 (2014).
237. “In Situ Synchrotron X-Ray Diffraction Study of the Rhombohedral to HT-Cubic Phase Transformation in Ln<sub>6</sub>WO<sub>12</sub> where Ln = Y, Ho, Er, Yb,” Z. D. Apostolov, P. Sarin, R. W. Hughes and W. M. Kriven, *J. Am. Ceram. Soc.*, **96** 1256-1263 (2014).



238. “In situ Mechanical Properties of Chamotte Particulate Reinforced, Potassium Geopolymer,” S. S. Musil and W. M. Kriven, *J. Am. Cer. Soc.*, **97** [1] 295 - 304 (2014).
239. “The Tetragonal - Monoclinic, Ferroelastic Transformation in Yttrium Tantalate and Effect of Zirconia Alloying,” Samuel Shian, Pankaj Sarin, Mary Gurak, Mor Baram, Waltraud M. Kriven and David R. Clarke, *Acta Materialia*, **69** 196-202 (2014).
240. “Development of a Gas-fed Capillary Source for Pulsed High-Density Plasma Applications,” M. V. Pachulo, F. Stefani, L. L. Raja, R. D. Bengston, G. A. Henkelman, A. C. Tas and W. M. Kriven, *IEEE Transactions on Plasma Science*, **42** [10] 3245 - 3252 (2014).
241. “Thermal Expansion of  $\text{Ln}_6\text{WO}_{12}$  (Ln = Y, Ho, Er, Yb) and  $\text{Ln}_2\text{WO}_6$  (Ln = Gd, Dy, Ho) - an *In Situ* Synchrotron X-ray Diffraction Study,” Z. D. Apostolov, P. Sarin, R. W. Hughes and W. M. Kriven, *J. Am. Ceram. Soc.*, **97** [8] 2496-2505 (2014).
242. “Predicting Failure: Acoustic Emission of Berlinite under Compression,” Guillaume F. Nataf, Pedro O. Castillo-Villa, Pathikumar Sellappan, Waltraud M. Kriven, Eduard Vives, Antoni Planes and Ekhard K. H. Salje, *J. Physics: Condensed Matter*, **26** No. 275401 (9 pp) (2014).
243. “Lattice Constant Prediction of Defective Rare Earth Titanate Perovskites,” Steven P. Letourneau, Zhen Zhen, Josh Owens, Kevin Tolman, Rick Uvic and Waltraud M. Kriven, *J. Solid State Chemistry*, **219** 99-107 (2014).
244. “The Thermal Expansion of  $\text{HfO}_2$  and  $\text{ZrO}_2$ ,” R. P. Haggerty, P. Sarin, Z. D. Apostolov, P. E. Driemeyer and W. M. Kriven, *J. Am. Ceram. Soc.*, **97** [7] 2213-2222 (2014).
245. “High Temperature Properties and Ferroelastic Phase Transitions in Rare-earth Niobates,” Pankaj Sarin, Robert W. Hughes, Daniel R. Lowry, Zlatomir D. Apostolov and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **97** [10] 3307–3319 (2014).
246. “Synthetic Aragonite ( $\text{CaCO}_3$ ) as a Potential Additive in Calcium Phosphate Cements: First Evaluation in a Tris-free SBF at  $37^\circ\text{C}$ ,” Jin H. Lee, Andrew S. Madden, Waltraud M. Kriven and A. Cuneyt Tas, *J. Am. Ceram. Soc.*, **97** [10] 3052-3061 (2014).
247. “In Situ Carbothermal Reduction/Nitridation of Geopolymer Composites Containing Carbon Nanoparticles,” Cengiz Bagci, Gregory P. Kutyla and W. M. Kriven, *Ceramic Engineering and Science Proceedings*, **35** [10] 15-28 (2014).

248. "Sodium Geopolymer Reinforced with Jute Weave," Kaushik Sankar and W. M. Kriven, *Ceramic Engineering and Science Proceedings*, **35** [10] 39-60 (2014).
249. "Potassium Geopolymer Reinforced with Alkali-treated Figue," Kaushik Sankar and W. M. Kriven, *Ceramic Engineering and Science Proceedings*, **35** [10] 61-78 (2014).
250. "Rice Husk Ash as a Silica Source in Geopolymer Formulation" Un Heo, K. Sankar, S. S. Musil and W. M. Kriven, *Ceramic Engineering and Science Proceedings*, **35** [10] 87-102 (2014).
251. "Experimental Study of Nonlinear Bands and Propagating Breathers in Ordered Granular Media Embedded in Matrix," M. Arif Hasan, Shinhu Cho, Kevin Remick and Alexander F. Vakakis, D. Michael McFarland and Waltraud M. Kriven, *Granular Matter*, **17** [1] 49-72 (2014).
252. "Wave Propagation through Alumina - Porous Alumina Laminates," Pathikumar Sellappan, Erheng Wang, Christian J. Espinoza Santos, Tommy On, John Lambros and Waltraud M. Kriven, *J. Europ. Ceram. Soc.*, **35** 197-210 (2014).
253. "Synthesis and Thermal Expansion of  $\beta$ -Eucryptite Powders Produced by the Inorganic-Organic Steric Entrapment Method," K. C. Seymour and W. M. Kriven, *J. Am. Ceram. Soc.*, **97** [10] 3087-3091 (2014).
254. "Emergence and Extinction of a New Phase during On-Off Experiments Related to Flash Sintering of 3YSZ," Jean-Marie Lebrun, Timothy G. Morrissey, John S. C. Francis, Kevin C. Seymour, Waltraud M. Kriven and Rishi Raj, *J. Am. Ceram. Soc.*, **98** [5] 1493-1497 (2015).
255. P. Sarin, V. L. Snoeyink, D. E. Hay, and W. M. Kriven, "X-ray Microdiffraction Studies on Iron Corrosion Scales from Corroded Drinking Water Distribution Pipes," for *Journal of Water Supply Research and Technology – AQUA* (2014).
256. "Investigation of Vacancies in Lead Lanthanum Zirconate Titanate," Kevin R. Tolman, R. Uvic, Meagan Papac, Kevin C. Seymour, Scott J. Mc Cormack, Waltraud M. Kriven and Hans Kungl, *J. Solid State Chemistry* **225**, 359-367 (2015). <http://dx.doi.org/10.1016/j.jssc.2014.12.024>
257. "Highly Porous Geopolymers through Templating and Surface Interactions," Brayden E. Glad and Waltraud M. Kriven, *J. Am. Ceram. Soc.* **98** [7] 2052-2059 (2015).
258. "Design and Fabrication of Spherical Ceramic Beads by the Vibration Method," Christian J. Espinoza Santos, Arif Nelson, Elena Mendoza, Randy Ewoldt and Waltraud M. Kriven, *J. European Ceram. Soc.*, **35** [13] 3587-3594 (2015).

259. "Structural Effect of Aliovalent Doping in Lead Perovskites," Kevin R. Tolman, R. Ubic, Meagan Papac, Kevin C. Seymour, Scott J. McCormack, Waltraud M. Kriven and Hans Kungl, *J. Solid State Chemistry*, **225** 359-367 (2015).
260. "Crystal Structure and Thermal Expansion of a CsCe<sub>2</sub>Cl<sub>7</sub> Scintillator," A. Zhuravleva, A. Lindsey, B. Chakoumakos, R. Custelcean, F. Meilleur, R. W. Hughes, W. M. Kriven and C. L. Melcher. *J. Solid State Chemistry*, **227** 142-149 (2015).
261. "Thermal Expansion of the Orthorhombic Phase in the Ln<sub>2</sub>TiO<sub>5</sub> System," Kevin C. Seymour, Robert W. Hughes and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **98** [12] 4096–4101 (2015). DOI: 10.1111/jace.13821
262. "Effects of Time, Temperature, and Pressure on the Microstructure of Spark Plasma Sintered Silicon Carbide", Thomas A. Carlson, Charles R. Welch, Waltraud M. Kriven, and Charles P. Marsh, *Journal of Ceramic Processing Research*, **16** [3] 303-307 (2015).
263. "Synthesis of LiFePO<sub>4</sub> Powder by the Organic-Inorganic Steric Entrapment Method," D. Ribero and W. M. Kriven, *J. Materials Research*, **30** [14] 2133-2143 (2015).
264. "Properties of Granite Particulate-Reinforced, Potassium Geopolymer," Daniel S. Roper, Gregory P. Kutyla and Waltraud M. Kriven, *Ceramic Engineering and Science Proceedings*, Cer. Eng. Sci. Proc. vol **36** [8] 3-10 (2015).
265. "Ceramic Felt-Reinforced Geopolymer Composites," Elias C. Koehler and Waltraud M. Kriven, *Cer. Eng. Sci Proc.* vol **36** [8] 11-19 (2015).
266. "Experimental Study of Embedded-in-Matrix and Non-Embedded Ordered Granular Chains Under Impulsive Excitation," Arik Avagyan, David Chiao, Nathan Dostart, Kaiyuan Zhu, Shinhu Cho, Kevin Remick, Alexander F. Vakakis, D. Michael McFarland and Waltraud M. Kriven, *Acta Mechanica*, **227** [9] 2511-2527 (2016).
267. "Electric Field Induced Texture in Titania During Experiments Related to Flash Sintering," S. K. Jha, J. M. Lebrun, K. C. Seymour, W. M. Kriven and R. Raj, *Communication to the J. European Ceramic Society*, **36** 257-261 (2016).
268. "Properties of Geopolymer Composites Reinforced with Basalt Chopped Strand Mat or Woven Fabric," Daniel R. Ribero and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **99** [4] 1192-1199 (2016). <https://doi.org/10.1111/jace.14079>.
269. "Synthesis and Characterization of Silicon Carbide Powders Converted from Metakaolin-based Geopolymers," Cengiz Bagci, Gregory P. Kutyla, Kevin C.

- Seymour and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **99** [7] 2521–2530 (2016) <https://DOI:10.1111/jace.14254>.
270. “Broadening of Diffraction Peak Widths and Temperature Non-uniformity during Flash Experiments,” Jean-Marie Lebrun, Shikhar K. Jha, Scott J. McCormack, Waltraud M. Kriven and Rishi Raj, *J. Am. Ceram. Soc.*, **99** [10] 3429–3434 (2016), DOI: 10.1111/jace.14326.
271. “Relationship between the Orthorhombic and Hexagonal Phases in Dy<sub>2</sub>TiO<sub>5</sub>,” Kevin C. Seymour, Daniel Ribero, Scott J. McCormack and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **99** [11] 3739–3744 (2016). DOI: 10.1111/jace.14354.
272. “Synthesis of NaTi<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub> by the Organic Entrapment Method and its Thermal Expansion Behavior,” Daniel Ribero, Kevin C. Seymour and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **99** [11] 3586–3593 (2016). <https://doi:10.1111/jace.14420>.
273. “Properties of Cork Particle Reinforced Sodium Geopolymer Composites,” Daniel S. Roper, Gregory P. Kutyla and Waltraud M. Kriven, *Cer. Eng. Sci. Proc.* **37** [7] 79–82 (2016).
274. “Strength Improvements in Clay-based Ceramic Reinforced with Discontinuous Basalt Fiber,” Gregory P. Kutyla, Patrick F. Keane, Waltraud M. Kriven, Thomas Carlson and Charles P. Marsh, *Cer. Eng. Sci. Proc.* **37** [ 2] 227–234 (2016).
275. “Bamboo-Geopolymer Composites: A Preliminary Study,” Ruy A. Sa Ribeiro, Marilene G. Sa Ribeiro, Kaushik Sankar, Gregory P. Kutyla and Waltraud M. Kriven, *Cer. Eng. Sci Proc.* **37** [7] 135–144 (2016). <https://doi.org/10.1002/9781119321811.ch13>
276. “Mixed Alkali Regional Metakaolin-based Geopolymer,” Ruy A. Sa Ribeiro, Marilene G. Sa Ribeiro, Kaushik Sankar, Gregory P. Kutyla and Waltraud M. Kriven, *Cer. Eng. Sci Proc.* **37** [7] 123–134 (2016). <https://doi:10.1002/9781119321811.ch12>
277. “Geopolymer-Bamboo Composite – a Novel Sustainable Construction Material,” Ruy A. Sa Ribeiro, Marilene G. Sa Ribeiro, Kaushik Sankar and Waltraud M. Kriven, *Construction and Building Materials*, **123** [10] 501–507 (2016). <http://dx.doi.org/10.1016/j.conbuildmat.2016.07.037>
278. Potassium-based Geopolymer Reinforced with Bamboo Fibers,” Kaushik Sankar , Ruy A. Sa Ribeiro, Marilene G. Sa Ribeiro and Waltraud, *J. Am. Ceram. Soc.*, **100** [1] 49–55 (2017). <https://doi.org/10.1111/jace.14542>

279. “Mica Platelet Reinforced Geopolymer Composite,” Patrick F. Keane, Gregory P. Kutyla, John Wight, William Rickard and Waltraud M. Kriven, *Cer. Eng. Sci. Proc.* **37** [7] 13-20 (2016).
280. “Geopolymer Reinforced with E-Glass Leno Weaves,” Kaushik Sankar and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **100** [6] 2492-2501 (2017). <https://doi.org/10.1111/jace.14783>.
281. Waltraud M. Kriven “Geopolymer-Based Composites”. In: Beaumont, P. W. R. and Zweben, C. H. (eds.), *Comprehensive Composite Materials II*. vol. **5**, ch. 9 pp. 269–280. (2018) 5.9 Oxford: Academic Press. <https://doi.org/10.1016/B978-0-12-803581-8.09995-1>
282. “A Review of Particle- and Fiber-Reinforced Metakaolin-Based Geopolymer Composites,” Ruy A. Sa Ribeiro, Marilene G. Sa Ribeiro and Waltraud M. Kriven, *J. Ceramic Science and Technology*, **8** [3] 307-322 (2017). DOI: 10.4416/JCST2017-00048
283. “Microstructural Damage of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> by High Energy Density Plasma and Impurities,” Q. Yang, K. Kalathiparambil, D. T. Elg, D. Ruzic and W. M. Kriven, *Acta Materialia*, **132** 479-490 (2017).
284. “Fully Reacted and High Strength Geopolymer Made of Diatomite as a Fumed Silica Alternative,” Cengiz Bagci, Gregory P. Kutyla and Waltraud M. Kriven, *Ceramics International* **43** [17] 14784 - 14790 (2017).
285. “*In-situ* Measurements of Lattice Expansion Related to Defect Generation During Flash Sintering,” J. -M. Lebrun, C. S. Hellberg, S. K. Jha, W. M. Kriven, A. Steveson, K. S. Seymour, N. Bernstein, S. C. Erwin and R. Raj, *J. Am. Ceram. Soc., J. Am. Ceram. Soc., Rapid Communication* **100** [11] 4965-4970 (2017). <https://doi.org/10.1111/jace.15071>
286. “Sodium Silicate Activated Slag - Fly Ash Binders: Part I – Processing, Microstructure and Mechanical Properties,” Kaushik Sankar, Peter Stynoski, Ghassan K. Al-Chaar and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **101** [6] 2228-2244 (2017). <https://doi.org/10.1111/jace.15391>
287. “Slag-Fly Ash and Slag-Metakaolin Binders: Part II – Properties of Precursors and NMR Study of Poorly-Ordered Phases”, Kaushik Sankar, Andre Sutrisno and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **102** 3204-3227. <https://doi.org/10.1111/jace.16224>
288. “Sodium Silicate Activated Slag - Fly Ash Binders: Part III – Composition of Soft Gel and Calorimetry,” Kaushik Sankar, Peter Stynoski and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, **102** 3175-3190 (2019). <https://doi.org/10.1111/jace.16219>

289. “Microstructure and Flexure Strengths of Dolomite Particulate-Reinforced Geopolymer Composites,” Patrick F. Keane and Waltraud M. Kriven, *Proceedings of the 42 Int. Conf. on Advanced Ceramics and Composites*. Editors: Waltraud M. Kriven et al. vol **39**, issue 3, 173-181 (2019).
290. “Crystal Structure Solution for the  $A_6B_2O_{17}$  (A = Zr, Hf | B = Nb, Ta) Superstructure”, Scott J. McCormack and Waltraud M. Kriven, *Acta Cryst B* **75**, 227-234 (2019). <https://doi.org/10.1107/S2052520619001963>
291. “In-situ Investigation of  $Hf_6Ta_2O_{17}$  Anisotropic Thermal Expansion and Topotactic, Peritectic Transformation,” Scott J. McCormack, Richard Weber and Waltraud M. Kriven, *Acta Materialia* **161** 127 – 137 (2018). <https://doi.org/10.1016/j.actamat.2018.08.029>
292. “In situ Determination of the  $HfO_2$ - $Ta_2O_5$  Temperature Phase Space up to 3000°C,” Scott J. Mc Cormack, Kuo-Pin Tseng, Richard Weber, Denys Kapush, Alexandra Navrotsky and Waltraud M. Kriven. *J. Am. Ceram. Soc.*, **102** [8] 4848-4861 (2019). <https://doi.org/10.1111/jace.16271>.
293. “Reply to Comments on “In-situ Determination of the  $HfO_2$ - $Ta_2O_5$  Temperature Phase Diagram up to 3000 °C”,” Scott J. Mc Cormack, Kuo-Pin Tseng, Richard Weber, Denys Kapush, Alexandra Navrotsky and Waltraud M. Kriven. *J. Am. Ceram. Soc.*, **102** [11] 7028-7030 (2019). <https://doi.org/10.1111/jace.16529>
294. “Temperature Gradients for Thermophysical and Thermochemical Property Measurements to 3000 °C for an Aerodynamically Levitated Spheroid,” Scott J. McCormack, Richard Weber, Anthony Tamalonis and Waltraud M. Kriven, *Review of Scientific Instruments*, **90** [1] (2019) <https://doi.org/10.1063/1.50557>
295. “Amazonian Metakaolin Reactivity for Geopolymer Synthesis,” Ruy A. Sá Ribeiro, Marilene G. Sá Ribeiro, Gregory P. Kutyla and Waltraud M. Kriven. *Advances in Materials Science and Engineering*, Vol (2019) Article ID 8950764, 7 pages. <https://doi.org/10.1155/2019/8950764>
296. “ $\alpha$ -Alumina and Spinel React into Single Phase High-alumina Spinel in < 3 Seconds during Flash Sintering,” David Kok, Devinder Yadav, Emanuele Sortino, Scott J. McCormack, Kuo-Pin Tseng, Waltraud M. Kriven, Rishi Raj and Martha L. Mecartney, *J. Am. Ceram. Soc.*, **102** [2] 644-653 (2019). <https://doi.org/10.1111/jace.15927>
297. “High Entropy, Phase-constrained, Stabilized Lanthanide Sesquioxide,” Kuo-Pin Tseng, Qun Yang, Scott J. Mc Cormack and Waltraud M. Kriven, *J. Am. Ceram Soc.*, **103** [1] 569–576 (2020). <https://doi.org/10.1111/jace.16689>
298. “Formation of  $\alpha/\beta$ - $Si_3N_4$  Nanoparticles by Carbothermal Reduction and Nitridation of Geopolymers,” Cengiz Bagci, Qun Yang and Waltraud M. Kriven,

- J. Am. Ceram. Soc., **102** [11] 6542-6551 (2019).  
<https://doi.org/10.1111/jace.16529>
299. “Development of Mechanical Properties in Dental Resin Composite: Effect of Filler Size and Filler Aggregation State,” Henry A. Rodriguez, Waltraud M. Kriven and Herley Casanova, Materials Science and Engineering Materials Science and Engineering C, **101** [8] 274-282 (2019).
300. “Influence of Pore Structure on the Strength Behavior of Particle- and Fiber-reinforced, Metakaolin-based Geopolymer Composites,” Ange-Therese Akono, Seid Koric and Waltraud M. Kriven, Cement and Concrete Composites, **104** No. 103361 (2019) <https://doi.org/10.1016/j.cemconcomp.2019.103361>
301. “Mechanical Properties and Characterization of Alumina Platelet Reinforced Geopolymer Composites,” Gregory P. Kutyla and Waltraud M. Kriven, J. Am. Ceram. Soc., **103** 5178–5185 (2020). <https://doi.org/10.1111/jace.17169>
302. “Directions of Zero Thermal Expansion and the Peritectic Transformation in HfTiO<sub>4</sub>”, Scott J. McCormack, William A. Wheeler, Benjamin S. Hulbert and Waltraud M. Kriven, Acta Materialia, **200** [11] 187-199 (2020)  
<https://doi.org/10.1016/j.actamat.2020.08.060>
303. “Mechanical Behavior of K-geopolymers Reinforced with Silane-coated Basalt Fibers,” Ana Carolina Constância Trindade, Flávio de Andrade Silva and Waltraud M. Kriven, J. Am. Ceram. Soc., **104**, 437–447. (2021).  
<https://dx.doi.org/10.1111/jace.17446>
304. “Tailorable Thermal Expansion in Leucite-Pollucite Materials Derived from Geopolymers for Environmental Barrier Coatings,” Andrew J. Steveson and Waltraud M. Kriven, J. Am. Ceram. Soc. **104** [7] 3397-3410 (2021)  
<https://doi.org/10.1111/jace.17630>
305. “Bone Ash Geopolymer Reinforced Geopolymer Composites,” Abdul W. Bhuiya, Michael Hu, Kaushik Sankar, Patrick F. Keane, Daniel Ribero, and Waltraud M. Kriven, J. Am. Ceram. Soc., vol **104** [6] 2767-2779 (2021).  
<https://dx.doi.org/10.1111/jace.17621>
306. “Amorphous Self-Healed, Chopped Basalt Fiber-Reinforced, Geopolymer Composites” Patrick F. Keane, John S. Foltz, Vimanyu Chadha, Charles P. Marsh and Waltraud M. Kriven, J. Am. Ceram. Soc., vol **104** issue 7, 3443-3451 (2021).  
<https://doi.org/10.1111/jace.17648>
307. “Relative Importance of Al(V) and Reinforcement to the Flexural Strength of Geopolymer Composites” Devon M. Samuel, Andre Sutrisno and Waltraud M. Kriven, J. Am. Ceram. Soc., **104**:3452–3460 (2021).  
<https://dx.doi.org/10.1111/jace.17656>

308. “Amorphous Self-Glazed, Chopped Basalt Fiber Reinforced, Geopolymer-based Composites” Vimanyu Chadha and Waltraud M. Kriven, *International Journal of Applied Ceramic Technology* **18**:1097–1105 (2021). <https://doi.org/10.1111/ijac.13743>
309. “Thermal Expansion and Phase Transformation in the Rare Earth Di-Titanate ( $\text{Ln}_2\text{Ti}_2\text{O}_7$ ) System,” Benjamin S. Hulbert, Scott J. McCormack, Kuo-Pin Tseng, and Waltraud M. Kriven, *Acta Crystallographica Section B* **77**, <https://doi.org/10.1107/S2052520621004479>
310. “Geopolymers and Geopolymer-derived Composites,” Waltraud M. Kriven, in *Encyclopedia of Materials: Technical Ceramics and Glasses*. Edited by Francis A. Cambier and Anne Leriche, in press (2021). <http://dx.doi.org/10.1016/B978-0-12-818542-1.00100-4>
311. “Acid Resistance of Metakaolin-based, Bamboo Fiber Reinforced Geopolymers,” Marilene G. Sá Ribeiro, Marilia G. Sá Ribeiro, Mauro R. Sardela, Patrick F. Keane, Waltraud M. Kriven and Ruy A. Sá Ribeiro, *Construction and Building Materials*, **302** 124194 (2021). <https://doi.org/10.1016/j.conbuildmat.2021.124194>
312. “Comparative Study of Titanate Syntheses by the Organic Steric Entrapment Method,” B. R. Rosczyk, S.-J. Lee and W. M. Kriven. *Int. J. Applied Ceramic Technology*, in press (2021).
313. “A New Class of Entropy Stabilized Oxides: Commensurately Modulated  $\text{A}_6\text{B}_2\text{O}_{17}$  ( $\text{A} = \text{Zr}, \text{Hf}, \text{B} = \text{Nb}, \text{Ta}$ ) Structures,” Albert A. Voskanyan, Kristina Lilova, Scott J. McCormack, Waltraud M. Kriven and Alexandra Navrotsky. *Acta Materialia*, in press (2021)
314. “Geopolymer Composite Reinforced with Chopped Abaca Fiber,” Daniel S. Roper, Gregory P. Kutyla and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, in preparation (2021).
315. “Characterization of Lateritic Soil Geopolymer Composites for Ceramics and Engineering Construction Applications,” Marilene G. Sá Ribeiro, Mauro R. Sardela, Patrick F. Keane, Juan S. Lopez, Waltraud M. Kriven, Ruy A. Sá Ribeiro. *J. Am Ceram. Soc.*, in preparation (2021).
316. “Potassium Geopolymer Reinforced with Brazilian Curaua and Malva Fibers,” Kaushik Sankar and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, in preparation (2021).
317. “High Temperature Cesium-based Geopolymer Composites Reinforced with Alumina Chopped Fibers,” Timothy P. Dietz, and W. M. Kriven, *J. American Ceramic Society*, in preparation.



318. "Thermal Expansion of Geopolymer-derived Aluminosilicates," John A. Beach, Pankaj Sarin and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, in preparation (2021).
319. "Milled Carbon Fiber-Reinforced, Geopolymer Composites. Part I. Intrinsic Mechanical Properties," Shinhu Cho and Waltraud M. Kriven, *J. Am. Ceramic Society*, in preparation (2021).
320. "Milled Carbon Fiber-Reinforced, Geopolymer Composites. Part II. Effect of Fiber Length on Dynamical and Static Mechanical Properties," Shinhu Cho, Robert D. Schmidt, Eldon D. Case and Waltraud M. Kriven, *J. American Ceramic Society*, in preparation (2021).
321. "Mechanical, Thermal and Electrical Properties of Potassium Geopolymer Containing Graphene Nanoplatelets," Shinhu Cho, Thomas A. Carlson, Charles P. Marsh and W. M. Kriven, *J. American Ceramic Society*, in preparation (2021).
322. "Method to Characterize Phase Transformation Kinetics at High Temperature," Kevin C. Seymour, Scott J. McCormack, Daniel Ribero and Waltraud M. Kriven, *J. Solid State Chemistry*, in preparation (2021).
323. "Displacive Transformations in  $\text{Ln}_2\text{WO}_6$  - a Thermo-analytical Study," Zlatomir D. Apostolov, Pankaj Sarin, Robert W. Hughes and Waltraud M. Kriven, *J. Am. Ceram. Soc.*, in preparation (2021).
324. "Fibrous Monolithic, Calcium Phosphate Composite for Bone Templates," Dong-Kyu Kim, Natalie L. Smith, L. John Farner IV and Waltraud M. Kriven. *J. Am. Ceram. Soc.*, in preparation (2021).
325. "In situ Studies of the Monoclinic to Tetragonal Phase Transformations in Hafnia and Comparison with Zirconia," R. P. Haggerty, P. Sarin, W. M. Kriven, in preparation for *J. Am. Ceram. Soc.*, (2021).
326. "In situ High Temperature Synchrotron Studies of Metastable and Stable Phases and their Transformations in Tantalum ( $\text{Ta}_2\text{O}_5$ )" P. Sarin, R. P. Haggerty, W. M. Kriven, *J. Am. Ceram. Soc.*, in preparation (2021).
327. "Crystallographic Studies on Thermal Expansion Properties of  $\text{Gd}_2\text{SiO}_5$ ," P. Sarin, D. R. Lowry, Z. D. Apostolov, Z. A. Jones, and W. M. Kriven, in preparation for *J. Am. Ceram. Soc.* (2021).
328. "High Temperature Phase Transformations in Rare-earth Monosilicates," P. Sarin, D. R. Lowry, Z. D. Apostolov, Z. A. Jones, and W. M. Kriven, in preparation (2021).
329. "Structural Studies of  $\text{M-RETaO}_4$  (RE = Nd, Sm, Gd, Dy, Ho, Er) by High

- Temperature, In-situ Synchrotron X-ray Diffraction,” R. W. Hughes, P. Sarin, Z. D. Apostolov, K. C. Seymour and W. M. Kriven, J. Solid State Chemistry, in preparation
330. “Structural Studies of  $M'$ -RETaO<sub>4</sub> (RE =Sm, Gd, Dy, Ho, Er) by High Temperature In situ Synchrotron X-ray Diffraction,” R. W. Hughes, P. Sarin, Z. D. Apostolov, K. C. Seymour and W. M. Kriven J. Solid State Chemistry, in preparation
331. “High Temperature Investigation of the Thermal Expansion of YbTaO<sub>4</sub> and LuTaO<sub>4</sub>,” R. W. Hughes, P. Sarin, Z. D. Apostolov, K. C. Seymour and W. M. Kriven, J. Am. Ceram. Soc., in preparation
332. “Three-dimensional Thermal Expansions in the Seven Crystal Systems,” (a review paper) P. Sarin, Z. A. Jones, Z. D. Apostolov, R. W. Hughes and W. M. Kriven, J. Am. Ceram. Soc., in preparation
333. “Thermal Expansions and Phase Transformation in Mullite-type Silicates, Germanates and Gallates,” P. Sarin, P. Sellapan, Z. D. Apostolov and W. M. Kriven, J. Am. Ceram. Soc., in preparation.
334. “Toughening of Titania Fibrous Monoliths by Transformation Weakening of Enstatite (MgSiO<sub>3</sub>) Interphases,” W. M. Kriven, C. M. Huang, D. Zhu, Y. Xu, in preparation for J. Amer. Ceram. Soc., in preparation
335. “Shear Induced Transformation and Plasticity in Enstatite,” D. Zhu and W. M. Kriven, J. Amer. Ceram. Soc., in preparation
336. “Dislocations and Low Angle Grain Boundaries in Mullite,” W. M Kriven. R. A. Gronsky and J. A. Pask,” J. Amer. Ceram. Soc. in preparation
337. “High Temperature Transformation Toughening of Magnesia by Terbia,” P. D. Jero and W. M. Kriven, J. Amer. Ceram. Soc., (2020) in preparation.
338. “Leucite Glass-Ceramics Converted from Potassium-based Geopolymer. Crack Analysis during Conversion,” Ning Xie, J. L. Bell and W. M. Kriven, J. Amer. Ceram. Soc., in preparation
339. “X-ray Microdiffraction Studies on Iron Corrosion Scales from Corroded Drinking Water Distribution Pipes,” P. Sarin, V. L. Snoeyink, D. E. Hay, and W. M. Kriven, for *Journal of Water Supply Research and Technology – AQUA* (2020).

## **PUBLISHED CONFERENCE PROCEEDINGS**

1. "Different Mechanisms and Relations in the Aragonite to Calcite-Type Transformation in Potassium Nitrate," S. W. Kennedy, M. Odlyha and W. M. Kriven, published Proceedings of the Royal Australian Chemical Institute, Solid State Conference, Sydney, Australia, (1976).
2. "Strain Analysis Around Tetragonal Zirconia Inclusions", W. M. Kriven and M. Ruhle, Proc. 10th International Congress on Electron Microscopy, Hamburg, 2 (1982) 103-104.
3. "Strain Analysis in Ceramic Composites," W. M. Kriven, (invited paper). Proc. 44th Annual Meeting Electron Microscopy Society of America (EMSA), Edit. G. W. Bailey, Albuquerque, (1986) 494-497.
4. "Microstructural Development of Rapidly Solidified, Phase-Separated  $\text{SiO}_2\text{-Al}_2\text{O}_3$  Glass" A. P. Tagliavere, W. M. Kriven and S. H. Risbud, Proc. 44th Annual Meeting Electron Microscopy Society of America (EMSA), Edit. G. W. Bailey, Albuquerque, (1986) 442-3.
5. "Microstructure Characterization of Non-Stoichiometric Dicalcium- Silicates Doped with Aluminum Oxide," C. J. Chan, W. M. Kriven and J. F. Young, Proc. 44th Annual Meeting Electron Microscopy Society of America (EMSA), Edit. G. W. Bailey, Albuquerque, (1986) 452-453.
6. "Precursors to Crystallization in Amorphous  $\text{CdGeAs}_2$ ", R. F. Speyer, W. M. Kriven and S. H. Risbud. Proc. 44th Annual Meeting Electron Microscopy Society of America, (EMSA), Edit. G. W. Bailey, Albuquerque, (1986) 454-455.
7. "Examination of  $\text{CaO-Dy}_2\text{O}_3$  for Potential Use as a High Temperature Transformation Toughening System", M. M. Fleming and W. M. Kriven. Proc. 46th Annual Meeting of the Electron Microscopy Society of America (EMSA), Milwaukee, Aug. (1988), 790-791.
8. "TEM Studies of Modulated Structures in the Monoclinic (B) Phase of  $\text{CaO-Stabilized Dy}_2\text{O}_3$ ", Y. J. Kim and W. M. Kriven. Proc. 46th Annual Meeting of the Electron Microscopy Society of America (EMSA), Milwaukee, WI Aug. (1988), 580-581.
9. "Microstructural Characterization of Laser-Melted Roller-Quenched Dicalcium Silicate," C. J. Chan, K. R. Venkatachari, W. M. Kriven and J. F. Young. Proc. 46th Annual Meeting of the Electron Microscopy Society of America (EMSA), Milwaukee, WI, Aug. (1988), 582-583.
10. "Electron Microscopy of a Macro Defect Free Cement," O. Popoola, W.M. Kriven and J.F. Young. Electron Microscopy 1990, vol 4, pp 1068-1069. Proc.12th Int. Congr. for Electron Microscopy, Washington, Seattle, (1990). San Fransisco Press publishers.

11. "HREM Studies of Modulated Structures of the Monoclinic (B) Phase in CaO-Dy<sub>2</sub>O<sub>3</sub> Solid Solutions," Y.J. Kim and W.M. Kriven. Electron Microscopy 1990, vol 4, pp 218-219. Proc.12th Int. Congr. for Electron Microscopy, Washington, Seattle, (1990). San Fransisco Press publishers.
12. "Microstructural Characterization of Ca<sub>2</sub>SiO<sub>4</sub> Particles in a CaZrO<sub>3</sub> and a MgO Matrix," Y.J. Kim, E.S. Mast, T.I. Hou, and W. M. Kriven. Electron Microscopy 1990, vol 4, pp 1050-1051. Proc.12th Int. Congr. for Electron Microscopy, Washington, Seattle, (1990). San Fransisco Press publishers.
13. "TEM Characterization of a Modulated  $\beta$  Phase in Polycrystalline Dicalcium Silicate," Y.J. Kim, I. Nettleship and W.M. Kriven. Proc. 49th Annual Meeting of the Electron Microscopy Society of America (EMSA), San Jose, California (1991). G.W. Bailey editor, San Fransisco Press, pp 946-947.
14. "Microstructural and Microchemical Characterization of Nickel Sulfide Inclusions in Plate Glass," J.J. Cooper, O.O. Popoola and W.M. Kriven. Proc. 49th Annual Meeting of the Electron Microscopy Society of America (EMSA), San Jose, California (1991). G.W. Bailey editor, San Fransisco Press, pp 962-963.
15. "The Microstructure and Microchemistry of Organoceramics," W.M. Kriven and O.O. Popoola, (Invited paper), Microbeam Analysis - 1991, pp 167-170. D.G. Howitt, editor, San Fransisco Press.
16. "Effect of Dysprosia Dispersions on the Properties of Silicon Carbide Composites," S. Kim and W. M. Kriven. Proc. First Inter. Symp. on Science of Engineering Ceramics '91. Symposium held in Koda, Japan, Oct. 21-23 (1991). Edited by S. Kimura and K. Niihara, The Ceramic Society of Japan, Tokyo, (1991), pp 63-68.
17. "TEM Characterization of the  $\alpha'$  and  $\beta$  Phases in Polycrystalline Distrontium Silicate (Sr<sub>2</sub>SiO<sub>4</sub>)," Y. J. Kim, J. L. Shull and W. M. Kriven. Proc. 50th Annual Meeting of the Electron Microscopy Society of America (EMSA). Edited by G. W. Bailey, J. Bentley and J. A. Small, pp 354-355 (1992).
18. "Transformation Mechanisms in Dicalcium and Distrontium Orthosilicates," Y. J. Kim, J. L. Shull, B. N. Sun and W. M. Kriven. Proc. Int'l. Conf. on Martensitic Transformations, (ICOMAT '92). Publ. by Monterey Institute for Advanced Studies, Monterey CA, USA. 683-688 (1993).
19. "Characterisation of Nickel Sulphide Stones in Glass," J. J. Cooper, O. O. Popoola and W. M. Kriven. in Adding the Value, (Proceedings of Austceram '92, International Ceramics Conference and Exhibition), held in Australia, August 16-24th 1992. Published by CSIRO, Melbourne, Australia. Vol 1, pp 186-191, (1992).

20. "Microstructure and Phase Transformation in  $\text{KNbO}_3$ ," O. O. Popoola and W. M. Kriven. Proc. 51st Annual Meeting of Microscopy Society of America. Publ. San Francisco Press, pp 956-957 (1993).
21. "TEM Characterization of Synthetic Hillebrandite: Structure, Microstructure and Dehydration," Y. J. Kim and W. M. Kriven. Proc. 51st Annual Meeting of Microscopy Society of America. Publ. by San Francisco Press, pp 932-933 (1993).
22. "Phase Transformations in Ceramics," W. M. Kriven (invited paper). Proc. 51st Annual Meeting of Microscopy Society of America. Publ. by San Francisco Press, pp 952-953 (1993).
23. "In Situ TEM Study of Hillebrandite ( $\text{Ca}_2\text{SiO}_4 \cdot \text{H}_2\text{O}$ ) Decomposition," Y. J. Kim and W. M. Kriven, Proc. 13th Int. Congr. on Electron Microscopy (ICEM 13), Paris. (1994) Vol 2A, 545-547.
24. "*In Situ* Fabricated Ce-Doped  $\text{O}' + \beta'$  SiAlON Composites," C. M. Huang, Y. Xu, A. Zangvil and W. M. Kriven. Proc. 5th Int. Symp. on Ceramic Materials And Components for Engines," Paper No. P3/5 May 29th-June 1st 1994. Shanghai, China, in press.
25. "In-situ TEM study of the Cubic to Tetragonal Phase Transformations in  $\text{KNbO}_3$ ," O. O. Popoola and W. M. Kriven. Proc. 13th Int. Congr. on Electron Microscopy (ICEM 13), (Paris. (1994) Vol 2A, 549-551).
26. "Characterization of Macro Defect Free Processing in a Banbury Type Mixer," M. A. Gulgun and W. M. Kriven, Proc. 52nd Annual Meeting of Microscopy Society of America. Publ. by San Francisco Press, pp 650-651 (1994).
27. "SiC Monofilament Reinforced  $\beta'$ - and  $\text{O}'$ -SiAlON Composites," C. M. Huang, Y. Xu, D. Zhu and W. M. Kriven. Proc Int. Conf. on Composites Engineering (ICCE/1), Ed. David Dui. 269-270 (1994).
28. "High Strength SiC Monofilament-reinforced MDF Cement," W. M. Kriven\*, C. M. Huang, D. Zhu and P. G. Desai. In Proc. of First Int. Conf. on Composites Engineering (ICCE/1). Edited by D. Hui, New Orleans, (1994) 223-224 .
29. "Characterization of Corrosion Scales in Water Distribution Pipes Using Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray Spectroscopy (EDS)," J. L. Shull, W. M. Kriven and A. S. McAnally. Proc. 53rd Annual Meeting of Microscopy Society of America. Edited by G. W. Bailey, M. H. Ellisman, R. A. Hennigar and N. J. Zaluzic. Published by Jones and Begell Publishing, New, York, pp 548-549 (1995)
30. "Characterization of Tubercles in Cast Iron Water Distribution Pipes Using Scanning Electron Microscopy (SEM) and Energy Dispersive Spectroscopy (EDS)," P. Sarin, W. M. Kriven and V. L. Snoeyink. Microscopy and Microanalysis '97, vol 3,

supplement 2 (Proc. 53rd Annual Meeting of Microscopy Society of America) (1997), 787-788.

31. "Nanocrystalline NbAl<sub>3</sub> Powders and NbAl<sub>3</sub>/Al Multilayers by Laser Ablation Deposition," J. Mazumder, H. Chung, T. Yamamoto, T. P. Duffey, H. Sehitoglu, M. H. Jilavi and W. M. Kriven, (Conference paper C), *Nanostruct. Materials (USA)* vol **9** [1-8] 75-78 (1997).
32. "Analysis and Interpretation of the Physical, Chemical and Biological Characteristics of Distribution System Pipe Scales," J. Clement, V. Snoeyink, A. Camper, A. Sandvig, P. Sarin and W. M. Kriven, 1998 Water Quality Technology Conference, San Diego, California, Nov 1-5 (1998).
33. "A Pipe Loop System for Evaluating Iron Uptake in Distribution Systems," V. L. Snoeyink, K. Kim, R. Sarin, D. Lytle, W. Kriven and J. Clements, 1998 Water Quality Technology Conference, San Diego, California, Nov 1-4 (1998).
34. "Systematic Study of Corrosion Scales and their Effect on Release of Iron Particles in Drinking Water," P. Sarin, K. Kim, D. Lytle, M. A. Beckett, W. M. Kriven and V. L. Snoeyink. Conf. on Particle Measurement and Characterization in Drinking Water Treatment, Nashville, Tennessee, March 1999.
35. "Development of Oxide Fibrous Monolith Systems," K.C. Goretta, D. Singh, W. A. Ellingson, W. M. Kriven, J. C. McNulty and F. W. Zok, *Cer. Eng. and Sci. Proc.*, In "Proceedings of 23rd Annual Conference on Ceramic, Metal & Carbon Composites, Materials and Structures" (AMPTIAC, Rome, NY, 2000), Paper CB-0140.
36. "Mechanism of Release of Iron Corroded Iron/Steel Pipes in Water Distribution Systems," P. Sarin, J. Bebee, M. A. Beckett, K. K. Jim, D. A. Lytle, J. A. Clement, W. M. Kriven and V. L. Snoeyink, Proc. American Water Works Annual Conference 2000, Denver, Colorado, June 11-15, (2000) pp 1-12.
37. "Analyses and Interpretation of the Physical, Chemical and Biological Characteristics of Distribution System Pipe Scales." J. A. Clement, A. Sandvig, V. Snoeyink W.M. Kriven, P. Sarin, Proc. Water Quality Technology Conf. San Diego, CA, Nov.1-4 (1998)
38. "High Temperature Structure Analysis of 3:2-Mullite," G. Brunauer, F. Frey,\* H. Boysen, T. Hansen W. M. Kriven. Presented as a poster at the XVIII International Crystallography Congress, held in Glasgow, Scotland, Aug 4-13 1999. Extended abstract on page 476 of abstract book.
39. "Release of Iron from Corroded Iron/Steel Pipes in Water Distribution Systems – Effect of Stagnation Time and pH," P. Sarin, J. Bebee, M. A. Beckett, K. K. Jim,

- D. A. Lytle, J. A. Clement, W. M. Kriven and V. L. Snoeyink. Proc. International Distribution Research Symposium, Denver, Colorado, June 2000.
40. "Development of Red Water Control Strategies," Final Report for AWWARF 368 project, AWWA Research Foundation, Denver, CO 80235-3098 (submitted Sept. 2000) in press) pp 1-12.
  41. "TEM Characterization of Pseudotetragonal Mullite," B. R. Johnson and W. M. Kriven, Proc. Microscopy and Microanalysis Society Annual Meeting, vol **7**, supplement 2, 426-427 (2001).
  42. "Anodic Spark Deposition and Microstructure Characterization of Hafnium Oxide Conversion Films," J. P. Schreckenbach, N. Meyer, G. Marx, B.-T. Lee and W. M. Kriven, Proc. 11th Conf. on Solid State Analytics, Chemnitz, Germany, June 25-28th, vol **A29** p.92 (2001).
  43. "Interaction of Corrosion Scales in Old Iron/Steel Drinking Water Distribution Pipes," P. Sarin, V. L. Snoeyink and W. M. Kriven, Proc. American Chemical Society Conference. Held in Orlando, Florida, Aug 7-12<sup>th</sup> (2001).
  44. "*In-Situ*, in Air, High Temperature Studies of Oxide Systems using the Thermal-Imaging Technique," L. F. Siah, J. Schneider and W. M. Kriven, Proc. ICDD Denver CO, 2002, **46** (2003).
  45. "Nanoporosity in Geopolymeric Cements," J. L. Bell and W. M. Kriven, Microscopy and Microanalysis '04, (Proc. 62<sup>nd</sup> Annual Meeting of Microscopy Society of America) vol **10**, 590-591 (2004).
  46. "Geopolymers: Nanoparticulate, Nanoporous Ceramics made under Ambient Conditions," W. M. Kriven, M. Gordon and J. L. Bell Microscopy and Microanalysis '04, (Proc. 62<sup>nd</sup> Annual Meeting of Microscopy Society of America) vol **10**, 404-405 (2004).
  47. "Graphite Fiber Reinforced Geopolymer Molds for Near Net shape Casting of Molten Diferrous Silicide," M. Gordon, J. Bell, W. M. Kriven and D. Comrie, Proc. Int. Workshop on Geopolymers, Sept. 28<sup>th</sup> – 29<sup>th</sup> 2005, Curtin University, Perth Western Australia.
  48. "Microstructure of Geopolymers and Geopolymer-based Materials," W. M. Kriven, J. L. Bell. M. Gordon and Jianguo Wen. Proc. NSF Int. Workshop on Geopolymers, held in Perth, Western Australia, Sept 28-29<sup>th</sup> 2005.
  49. "Nanoporosity and Microporosity in Geopolymer Gels," J. L. Bell, M. Gordon and W. M. Kriven. Microscopy and Microanalysis '06, (Proc. 64<sup>th</sup> Annual Meeting of Microscopy Society of America) vol **12**, pp 552-553 (2006).

50. "Formation of Nanocrystalline Zeolites in Geopolymer Gels," J. L. Bell, P. Sarin and W. M. Kriven. Microscopy and Microanalysis '06, (Proc. 64<sup>th</sup> Annual Meeting of Microscopy Society of America) vol **12**, pp 738-739 (2006).
51. "Processing, Microstructure, and Properties of Carbon Nanotube Reinforced Silicon Carbide, T. A. Carlson, C. P. Marsh, W. M. Kriven, C. R. Welch and P. B. Stynoski, Proc. SEM XII International Congress and Exposition on Experimental and Applied Mechanics, (2012).
52. "Chopped Fiber, Felt and Basalt Weave Reinforced Geopolymer Composites," Daniel Ribero, Elizas Koehler, Gregory Kutyla, S. S. Musil and W. K. Kriven. Proceedings of the ECI International Conference on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," in press (2016).
53. "Low-Cost Synthesis of Silicon-Based Ceramic Powders from Na, K, and Cs Geopolymer," Cengiz Bagci, Greg P. Kutyla and Waltraud. M. Kriven. Proceedings of the ECI International Conference on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," in press (2016).
54. "The Characterization of the Orthorhombic to Hexagonal Phase Transformation in Dy<sub>2</sub>TiO<sub>5</sub>," Kevin C. Seymour, Daniel R. Rodriguez and Waltraud M. Kriven, Proc. International Conference on Solid-Solid Phase Transformations in Inorganic Materials (PTM 2015).
55. "Phase Transformations in Fergusonite-Type Rare Earth Tantalates," R. W. Hughes, Z. D. Apostolov, P. Sarin and W. M. Kriven. Proc. International Conference on Solid-Solid Phase Transformations in Inorganic Materials (PTM 2015).
56. "Geopolymer Reinforced with Bamboo for Sustainable Construction Materials," Ruy A. Sá Ribeiro, Waltraud M. Kriven, Marilene G. Sá Ribeiro, Kaushik Sankar, Ires P. A. Miranda, Fernando L. Almeida. Proc. 16th Non-Conventional Materials and Technologies (2015) Conference, Winnepeg, CA Aug 10-13<sup>th</sup> (2015).
57. "<sup>23</sup>Na and <sup>27</sup>Al MAS-NMR on Slag-Fly Ash Binders and Slag-Metakaolin Binders," Kaushik Sankar, Andre Sutrisno and Waltraud M. Kriven. Proceedings of the 6<sup>th</sup> International Slag Valorisation Symposium, held on April 1<sup>st</sup>-5<sup>th</sup> (2019), Mechelen, Belgium. Editors Annelies Malfilet, Arne Peys and Andrea Di Maria. Published by Madebyan, Belgium. ISBN 9789082825961.x
58. "Thermo-Mechanical Response of a Hot Surface Ignition Device under Aircraft Compression Ignition Engine Conditions," Sang-Guk Kang, Je Ir Ryu, Austen H. Motily, Prapassorn Numkiatsakul, Tonghun Lee, Waltraud M. Kriven, Kenneth S. Kim, and Chol-Bum M. Kweon. Proceeding of the ASMR 2021 Internal Combustion Engineer Deivision Fall Technical Conference (ICEF2021) to be held on Oct 13-15 (2021), Virtual online conference ICFF2021-67858.



**FURTHER PAPERS IN PREPARATION FROM COMPLETED WORK:**

- “Kinetics and Crystallography of the Monoclinic (B) to (C) Transformation in Dysprosia. Parts I and II,” O. Sudre, K.R. Venkatachari and W. M. Kriven. For the Journal of the American Ceramic Society.
- “High Temperature Transformation Toughening of Magnesia by Terbia,” P.D. Jero and W. M. Kriven. For the Journal of the American Ceramic Society.
- “The Oriented Decomposition of Dolomite, Ca Mg (CO<sub>3</sub>)<sub>2</sub>,” W. M. Kriven For J. Am. Ceram Soc., Communication.
- “Oxide Ceramic Sponges,” S. J. Lee, J. Chaney and W. M. Kriven. J. Amer. Ceram. Soc., in preparation.
- The Aragonite to Calcite-type Transformation Mechanism in Potassium Nitrate,” W. M. Kriven and S. W. Kennedy. In preparation for The American Mineralogist. (3/4 written)

## GRADUATE THESES SUPERVISED

“Examination of the CaO-Dy<sub>2</sub>O<sub>3</sub> System for Potential Use as a Transformation Toughening System” by Mary M. Fleming.  
M.S. thesis submitted Dec. 1987.

“The Development of Dicalcium Silicate as a Transformation Toughener” by Elizabeth A. Barinek.  
M.S. thesis submitted Dec. 1987.

“Investigation of Monoclinic (B) to Cubic (C) Transformation of Dysprosium Sesquioxide (Dy<sub>2</sub>O<sub>3</sub>)” by Olivier Sudre.  
M.S. thesis submitted Dec. 1987.

“Investigation of the Lanthanide Sesquioxides as High Temperature Transformation Toughening Agents” by Paul D. Jero.  
Ph.D. thesis submitted March 1988.

“Effect of Phase Transformations, Chemical Doping and Matrix Constraint on the Microstructural Development of Dicalcium Silicate” by Chin-Jong Chan.  
Ph.D. thesis submitted July 1988. Co-advised with Prof. J. F. Young.

“Investigation of a Self-Lubricating Alumina Coating Formed by Anodic Spark Deposition” by Kent Allen Koshkarian.  
M.S. thesis submitted July 1988.

“Processing and Characterization of Alumina Platelet Reinforced Mullite Composites” by Scott D. Crudele.  
M.S. thesis submitted July 1989.

“Control of β-Dicalcium Silicate Particle Size for Dispersion in a Magnesia Matrix” by Eric Sidney Mast.  
M.S. thesis submitted December 1990.

“Preparation, Microstructure and Properties of Silicon Carbide - Dysprosia Composites” by Shin Kim.  
Ph.D. thesis submitted June 1991.

“Preparation, Properties and Microstructures of Dicalcium Silicate-Calcium Zirconate Composites” by Tien -I Hou.  
Ph.D. thesis submitted July 1991.

“Crystallography and Microstructural Studies of Phase Transformations in Two Ceramic Systems: Dysprosia ( $\text{Dy}_2\text{O}_3$ ) and Dicalcium Silicate ( $\text{Ca}_2\text{SiO}_4$ )”  
by Youn Joong Kim.  
Ph.D. thesis submitted August 1991.

“Investigation of Nickel Sulfide (NiS) as a Possible Transformation Toughener,”  
by Jemima Jane Cooper  
M. S. thesis submitted June 1992.

“Mechanical Properties and Phase Stability of Dicalcium Silicates,”  
by Kurt Gordon Slavick  
M. S. thesis submitted August 1992.

“Chemical Preparation and Phase Stability of Strontium Orthosilicate ( $\text{Sr}_2\text{SiO}_4$ ),”  
by James Lee shull, Jr.  
M.S. thesis submitted June 1993.

“Processing, Microstructure and Mechanical Properties of Alumina Platelet Reinforced 3Y-TZP and Mullite Composites,”  
by Isaac Kollenmareth Cherian.  
Ph. D. Thesis submitted May 1995.

“Phase Transformation Weakening in Fibrous Ceramic Composites: An Investigation of the Enstatite ( $\text{MgSiO}_3$ )/Titania ( $\text{TiO}_2$ ) System,”  
by Steven Chad Mirek  
M.S. Thesis submitted July 1995.

“Processing and Microstructure of Standard and Modified Macro-Defect-Free Cements,”  
by Mehmet Ali Gülgün  
Ph. D. Thesis submitted Dec 1995.

“Processing of Calcium Aluminate-based Chemically Bonded Ceramic Composites at Elevated Temperatures and Pressures,”  
Bradley Richard Johnson  
M. S. Thesis submitted Aug 1996

“Investigation of Oxide Fiber/Oxide Matrix Composites with a Weak Interphase,”  
Dong-Hau Kuo  
Ph. D. Thesis submitted Nov 1996

“An Investigation of Several “Transformation Weakeners” for Ceramic Composite Interfaces,”  
James Lee Shull  
Ph. D. thesis submitted January 1997

“A New Polymer Route to the Synthesis of Mixed Oxide Ceramics,”  
My Hoang Nguyen  
M. S. Thesis submitted Aug 1997

“Determination of the Elastic Tensor of Mullite ( $\sim 2.5\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ ) and Yttria ( $\text{Y}_2\text{O}_3$ ) as a Function of Temperature,”  
James Wayne Palko  
M. S. Thesis submitted Oct 2000

“Kinetics and Pathways for Crystallization of Amorphous Mullite and YAG,”  
Bradley Richard Johnson  
Ph. D. Thesis, submitted March 2001

“Design of Sintered, Tough, Oxide Laminate and Fibrous Monolithic Composites”  
Dong-Kyu Kim  
Ph. D. Thesis, submitted February 2002

“*In Situ*, in Air, High Temperature Phase Transformations in  $\text{RNbO}_4$  and  $\text{R}_2\text{TiO}_5$  (R = Dy and Y), using a thermal-Image Furnace,”  
Lay Foong Siah  
Ph. D. Thesis submitted April 2002

“Iron Release from Corrosion scales in Old Iron/Steel Drinking Water Distribution Pipes,”  
Pankaj Sarin  
Ph. D. Thesis submitted Nov 2002

"Synthesis and Characterization of Solid Oxide Fuel Cell and Titanate Materials,"  
Benjamin R. Roszyk  
M. S. Thesis, submitted Jan 2005.

“Growth of Textured Mullite Fibers using Polycrystalline Precursors”  
Wonki Yoon  
Ph. D. Thesis, submitted April 2007

“Structural Evolution and Ceramic Formation in Metakaolin-based Geopolymers”  
Jonathan Lee Bell  
Ph. D. Thesis, submitted Aug 2008

“High Temperature Structural Evolution of Hafnia”  
Ryan P. Haggerty  
Ph. D. Thesis, submitted April 28<sup>th</sup> 2011

“Determination of the CTE Tensor of Materials from High Temperature X-ray Diffraction”  
Zachary Aaron Jones  
M. S. Thesis, submitted Dec 12<sup>th</sup> 2012

“Porosity Control of Alkali-activated Aluminosilicates via Functional Alkoxysilane Additives,”  
Brayden Edward Glad, Ph. D. thesis submitted April 2013

“Processing, Microstructure and Properties of Carbon Nanotube and Silicon Carbide Composites,”  
Thomas August Carlson, M. S. thesis submitted April 2013

“High-Temperature Structural Evolution of the Refractory Rare-Earth Tungsten Oxides,”  
Zlatomir Dimitrov Apostolov, Ph. D. thesis submitted Jan 2014

“Role of Point Defects in Perovskite Microwave Resonators”,  
Steven P. Letourneau, M. S. thesis submitted April 2014

“Novel Inorganic Composites using Porous Alkali-activated, Aluminosilicate Binders”,  
Sean Steven Musil, Ph. D. thesis submitted June 2014

“Design and Fabrication of Granular Media and Laminated Composites for the study of Stress Wave Mitigation,”  
Christian J. Espinoza Santos, Ph.D. submitted July 2014

“Synthesis and Microstructural Characterization of Phosphate Cathode Materials Prepared by a Polymeric Steric Entrapment Precursor Route,”  
Daniel Ribero-Rodriguez, MS thesis, July 2014

“Geopolymer Composites and their Application to Stress Wave Mitigation,”  
Shinhu Cho, Ph. D. thesis, Aug 2015

“Thermal Expansion and Phase Transformation Behavior in the Rare Earth Titanate System,”  
Kevin. C. Seymour, Ph. D. Dec 2015

“Biologically Reinforced Geopolymer Composites,”  
Daniel S. Roper, M.S. March 2017

“Materials Development for Multicomponent Systems with Variable Oxidation States,”  
Daniel Ribero-Rodriguez, Ph.D. July 2017

“Setting and Nanostructure of Slag-Fly Ash Binders,”  
Kaushik Sankar, Ph.D. Feb 2019

“Phase Equilibria, Thermal Expansion and Symmetry Relations within the  $\text{HfO}_2$  -  $\text{Ta}_2\text{O}_5$ - $\text{TiO}_2$ - Ternary System up to  $3000^\circ\text{C}$ ,”  
Scott J. McCormack, Ph.D. May 2019

“Geopolymer Derived Ceramics and Composites,”  
Andrew J. Steveson, Ph. D. May 2020

“Chemical Selection Rules of Single-Phase, High Entropy Oxides,”  
Kuo-Pin Tseng, Ph. D. May 2020

### **STUDENTS GRADUATED TO DATE**

|                            |        |   |
|----------------------------|--------|---|
| Mary Margaret Fleming      | M. S.  | 1988                                    |
| Elizabeth Anne Barinek     | M. S.  | 1988                                    |
| Olivier Sudre              | M. S.  | 1988                                    |
| Kent Allen Koshkarian      | M. S.  | 1988                                    |
| Paul Daniel Jero           | Ph. D. | 1989                                    |
| Chin Jong Chan             | Ph. D. | 1989                                    |
| Scott D. Crudele           | M. S.  | 1989                                    |
| Eric Sidney Mast           | M. S.  | 1990                                    |
| Shin Kim                   | Ph. D. | 1991                                    |
| Tien I Hou                 | Ph. D. | 1991                                    |
| Youn Joong Kim             | Ph. D. | 1991                                    |
| Jemima Jane Cooper         | M. S.  | 1992                                    |
| Kurt Gordon Slavick        | M. S.  | 1992                                    |
| James Lee Shull            | M. S.  | 1993                                    |
| Isaac Kollenmareth Cherian | Ph. D. | 1995                                    |
| Carol Beckman              | M. S.  | 1995 (by course work)                   |
| Steven Chad Mirek          | M. S.  | 1995                                    |
| Mehmet Ali Gulgun          | Ph. D. | 1995                                    |
| Bradley Richard Johnson    | M. S.  | 1996                                    |
| Dong-Hau Kuo               | Ph. D. | 1996                                    |
| James Lee Shull            | Ph. D. | 1997                                    |
| My Nguyen                  | M. S.  | 1997                                    |
| Elizabeth Benson           | M. S.  | 1998 (by senior thesis and course work) |
| Susan Pinchot              | M. S.  | 1999 (by course work)                   |
| James Palko                | M. S.  | 2000                                    |
| Bradley Richard Johnson    | Ph. D. | 2001 (March)                            |
| Dong Kyu Kim               | Ph. D. | 2002 (Feb)                              |

|                           |        |  |
|---------------------------|--------|--|
| Lay Foong Siah            | Ph. D. | 2002 (April)   |
| Seung-Doh Shin            | Ph. D. | (2001-2 ex Seoul National University)                                |
| Su-Jin Kim                | Ph. D. | (2001-2 ex Seoul National University)                                |
| Pankaj Sarin              | Ph. D. | 2002 (Nov)   |
| Sonia Achard              | M. S.  | 2003 (Dec)   |
| Benjamin R. Rosczyk       | M. S.  | 2005 (Jan)   |
| Nilesh Borkhar            | M. S.  | 2005 (Aug), by course work   |
| Sarah Mongeau             | M. S.  | 2005 (Aug), by course work   |
| Bo Moon Yee               | M. S.  | 2005 (Sept)  |
| Adan Castillo             | M. S.  | 2006, (Dec), by course work  |
| Wonki Yoon                | Ph. D. | 2007 (May)   |
| Michael Cauchy            | M. S.  | 2007 (May), by course work   |
| Dae Hwi Lim               | M. S.  | 2007 (Oct), by course work   |
| Scott Sheridan            | M. S.  | 2008 (Sept)  |
| Ning Xie                  | Ph. D. | (Sept 2007 – Sept 2008) on exchange from<br>Harbin University, China |
| Jonathon Lee Bell         | Ph. D. | 2008 (Aug)   |
| Ryan Paul Haggerty        | Ph. D. | 2011 (April)   |
| Zachary A. Jones          | M. S.  | 2012 (Dec)   |
| Brayden Edward Glad       | Ph. D. | 2013 (April)   |
| Thomas August Carlson     | M. S.  | 2013 (April)   |
| Zlatomir Apostolov        | Ph. D. | 2014 (Jan)   |
| Steven Letourneau         | M. S.  | 2014 (April)   |
| Sean S. Musil             | Ph. D. | 2014 (June)  |
| Christian Espinosa-Santos | Ph. D. | 2014 (July)  |
| Daniel Ribero             | M. S.  | 2014 (July)  |
| Shinhu Cho                | Ph. D. | 2015 (Aug)   |
| Kevin Seymour             | Ph. D. | 2015 (Dec)   |
| Daniel Roper              | M. S.  | 2017 (March)   |
| Daniel Ribero             | Ph. D. | 2017 (July)  |
| Kaushik Sankar            | Ph. D. | 2019 (Feb)   |
| Scott J. McCormack        | Ph. D. | 2019 (May)   |
| Gregry Kutyla             | M. S.  | 2020 (May)   |
| Andrew Jacob Steveson     | Ph. D. | 2020 (May)   |
| Kuo-Pin (David) Tseng     | Ph. D. | 2020 (May)   |



## **CURRENT GRADUATE STUDENTS ADVISED**

|                            |                       |
|----------------------------|-----------------------|
| Benjamin Scott Hulbert     | Ph. D.                |
| Devon Miles Samuel         | Ph. D.                |
| Allison Susan Brandvold    | Ph. D.                |
| Prapassorn H. Numkiatsakul | Ph. D.                |
| Tyler Wineger              | Ph. D.                |
| Dylan Blake                | M. S. (by coursework) |

### **Undergraduate researchers:**

Patrick McNutt, Janak Bachkaniwala, Nathaniel J Inumerable

## **POST-DOCTORAL RESEARCH ASSOCIATES**

- Dr. Abdul Wazad Bhuiya, Daffodil University, Bangladesh (Aug 2015 – June 2017)
- Dr. Qun Yang, Chinese Academy of Sciences, China (April 2015- Dec (2016)
- Dr. Cuneyt Tas, University of Iowa, USA (May 2012 – April 2014)
- Dr. Robert Hughes, University of Glasgow, UK (April 2012 – March 2014)
- Dr. Pathikumar Sellappan, ex France (June 2011 – July 2014)
- Dr. Joachim Angelkort, ex Goethe Institute fur Kristallographie, Bayreuth, Germany, May 2011 – May 2012)
- Dr. Nipa Yossakda, Finesse Company, San Jose, California (2007- April 2013)
- Dr. Pankaj Sarin, ex UIUC, former Ph. D. student, (Dec 2002-June 2013)
- Dr. Dong-Kyu Kim, ex UIUC, former Ph. D. student, (Jan 2002-April 2008)
- Dr. Kersten Jurkschat, ex Oxford University, UK, (Sept 2002-Sept 2004)
- Dr. Seo-Young Kwak, ex Seoul National University, Korea, Sept 2001-Sept 2004
- Dr. Mehmet Gülgün, ex UIUC, ex Tokyo Institute of Technology, former Ph. D. student, April 1996 to Sept 1996.
- Dr. Sang Jin Lee (ex Korea) partially supported by the Korean Institute of Metals, April 1995 - Aug 1999.
- Dr. Mohammad Jilavi, ex Max Planck Institut für Metallforschung, Stuttgart, Germany, March 1995 - April 1996.
- Dr. Peter Müllner (ex Erdgenoschische Technische Hochschule, Zurich, Switzerland) who was supported by a Fellowship from the Swiss Government, Jan 1995 - Dec 1995.
- Dr. Dong Zhu (ex University of Illinois at Urbana-Champaign), March 1994 - Jan 1998
- Dr. Chao Huang (ex University of Wyoming, Laramie), May 1992 - Sept 1994
- Dr. Youn Joong Kim (former Ph.D. student, ex UIUC), Sept 1991-Sept 1993.
- Dr. I. Nettleship (ex UC Santa Barbara) September 1989–January 1992.
- Dr. O. O. Popoola (ex Case Western Reserve University), Aug 1989–Aug 1993
- Dr. K. R. Venkatachari (ex Cornell University), Sept. 1986–April, 1988.

## **VISITING SCIENTISTS**

- Dr. Ruy and Marilene Sa Ribiero, National Institute of Amazon Researchers (INPA), Manaus Brazil
- Dr. Abdul Wazed Bhuiya, Daffodil International University, Bangladesh (Jan 2015 – June 2017)
- Dr. Cengiz Bagci, Hitit University, Turkey (Sept 2014 – February 2015)
- Ali Ozer, exchange Ph. D. student from Turkey, July 1<sup>st</sup> 2010 to July 31<sup>st</sup> (2011)
- Ercin Ersundu, exchange Ph.D. student from Turkey, June-Dec (2010)
- Dr. Nipa Yossakda, post-doctoral research associate, sent from Finesse Company, Stanford, CA for 5 years.
- Prof. Bum Rae Cho, ex Department of Advanced Materials Engineering, Keimyung University, Korea.
- Prof. Sang Jin Lee, ex Mokpo University, Korea, Jan 2008 – Aug 2009
- Prof. Hanlian Liu, ex Shangdong University, China, Sept 2007 – Sept 2008
- Prof. Dechang Jia, ex Harbin University, China, Nov Nov 2005 – Nov 2006
- Dr. Joachim Schreckenbach from the Chemistry Department of the University of Chemnitz, Germany, visited for 4 months from Nov 1992 to March 1993.
- Ms Kaori Sasaki (M. S.), sent from the Inax Company in Japan for Sept 1993 - Aug 1994.
- Mr Falko Schlottig (Ph. D. student) from the Chemistry Department of the University of Chemnitz, Germany, visited for 6 weeks in Sept - Oct. 1995.
- Mr. Diethardt Butte (Ph. D. student) from the Chemistry Department of the University of Chemnitz, Germany, visited for 4 weeks in Sept - Oct. 1998.
- Mr. Diethardt Butte (Ph. D. student) from the Chemistry Department of the University of Chemnitz, Germany, visited for 4 weeks in Sept - Oct. 1999.
- Prof. Mie Won Yung, Professor of Chemistry, Sungshin Women's University, Seoul, Korea. Visited on sabbatical leave for 10 months, Oct 2000-Aug 2001.
- Prof. Byong-Taek Lee, Kongju National University, Division of Advanced Materials Engineering, Kongju, Chungnam, Korea. On sabbatical leave from March 21<sup>st</sup> 2001- 2002.
- Mr. Peter Duxson, exchange student from the University of Melbourne, Victoria, Australia for the summer and Fall semester (4 months, 2004).
- Mr. John L. Provis, Fullbright Scholar on leave from the University of Melbourne, Victoria, Australia (Jan – Nov 2005).
- Prof. Dechang Jia, Harbin University, China Nov (2006)-Nov (2007)
- Ms Elzbieta Mielcarek, exchange student from the University of Hannover, Germany, Jan to March 2009

## **INVESTIGATOR'S GRADUATE AND POST-DOCTORAL ADVISORS**

- Dr. S. W. Kennedy, B. Sc. (Hons) and Ph. D. thesis advisor (1970–1976) University of Adelaide, South Australia – Deceased.
- Professor J. A. Pask, post-doctoral advisor, (1977–1979) - Deceased Department of Material Science and Mineral Engineering,

University of California, Berkeley

- Professor A. G. Evans, post-doctoral advisor, (1979–1980) - Deceased  
Department of Material Science and Engineering,  
University of California, Berkeley. Now at UC-Santa Barbara.
- Dr. Manfred Rühle, post-doctoral advisor, (1980–1983 inclusive) – Retired  
Max-Planck-Institut für Metallforschung, Stuttgart, Germany

## **CURRENT AND FORMER RESEARCH COLLABORATORS**

- Prof. Frank Bruno, South Australian Chair in Energy, Future Industries Institute, University of South Australia, Mawson Lakes, Australia
- Prof. Rishi Raj, Dept. of Mechanical Science and Engineering, University of Colorado, Boulder, CO
- Prof. Michael Carpenter, Department of Earth Sciences, Cambridge, UK.
- Prof. Ekhard Salje, Department of Earth Sciences, Cambridge University, UK.
- Professor Fritz Frey and Dr. Julius Schneider, Ludwig Maximilians University, Institute for Crystallography and Applied Mineralogy, Theresienstrasse 41, D80333 München Germany.
- Prof. Dr. Hartmut Schneider, Institute for Materials Research, German Aerospace Center, 51147 Cologne, Germany
- Dr. Ali Sayir, NASA Glenn, Cleveland Ohio
- Professor Jay Bass, Dept. of Geology, UIUC
- Prof. Vernon Snoeyink, Dept. of Civil Engineering, UIUC.
- Prof. Carolyn Dry, Architecture Department, UIUC.
- Prof. Barbara Kitchell, clinical practitioner specialist, Department of Veterinary Clinical Medicine, UIUC
- Professor Nicole Griffon, Assistant Professor, Small Animal Clinician, Dept. of Veterinary Medicine, UIUC.
- Prof. Ken Sandhage, Dept. of Materials Science and Engineering, The Ohio State University
- Prof. Mehmet A. Gülgün, Assistant Professor, Dept. of Materials Science, Faculty of Engineering and Natural Sciences, Sabanci University, 81474 Tuzla, Istanbul, Turkey.
- Prof. Sang-Jin Lee, Assistant Professor, Dept. of Materials Science and Engineering, College of Engineering, Mokpo National University, Chonnam, Korea
- Prof. Mie Won Yung, Professor of Chemistry, Sungshin Women's University, Seoul, Korea. Visited on sabbatical leave for 10 months, Oct 2000-Aug 2001.
- Prof. Byong-Taek Lee, Kongju National University, Div, of Advanced Materials Engineering, Kongju, Chungnam, Korea. On sabbatical leave from March 21<sup>st</sup> 2001- 2002.
- Prof. Doh-Yeon Kim, School of Materials Science and Engineering, Seoul National University, Korea. Sharing joint Ph.D. student on leave from SNU.

- Prof. K. S. Hong, School of Materials Science and Engineering, Seoul National University, Korea. Sharing joint Ph.D. student on leave from SNU.
- Prof. Jin Ho Choy, Dept. of Chemistry and Biomolecular Engineering, Seoul National University, Korea.

### INVITED KEYNOTE (PLENARY) LECTURES

1. "Shear Transformations in Inorganic Materials." AIME invited review paper and keynote lecture presented at International Conference on Solid to Solid Phase Transformations, Carnegie Mellon University, Pittsburgh, USA, on Aug. 10-14th (1981).
2. "Lattice-deformational transformations in non-metals," W. M. Kriven\*, invited lecture presented at Int. Conf. on martensitic transformations (ICOMAT), summer course, Leuven, Belgium, August (1982).
3. "Possible Transformation Tougheners Alternative to Zirconia- Crystallographic Aspects", an invited paper per Prof. S. Somiya, presented in Sept. 4-5th (1986) at Advanced Ceramics II Lecture Meeting held at Tokyo Institute of Technology, Japan.
4. "Possible Transformation Tougheners Alternative to Zirconia: Crystallographic Aspects." Keynote Address at the International Ceramic Conference, Workshop on Transformation Toughening. Held in Sydney, Australia, Aug. (1988).
4. "Displacive and Martensitic Transformations in Ceramics," W. M. Kriven.\* Invited keynote lecture presented at International Conference on Solid to Solid Phase Transformations in Inorganic Materials '94. Held in Pittsburgh in July 17-22, (1994).
5. "Current Trends in Structural Ceramics," W. M. Kriven, invited plenary lecture presented at the Austceram '94, International Ceramic Conference. Held in Sydney, Australia, July 25-27, (1994).
6. "TEM Studies of Calcium Silicate Hydrates," W. M Kriven.\* Invited lecture presented at Festive Symposium in honor of Professor T. Mitsuda of the Nagoya Institute of Technology, Ceramics research Laboratory. Held in Nagoya, Japan, Feb 24th (1995)
7. "Displacive Transformations and Their Applications in Structural Ceramics," W. M. Kriven,\* invited keynote lecture and review paper presented at the Int. Conf. on Martensitic Transformations (ICOMAT 95), held in Lausanne, Switzerland, Aug 20-25th (1995).

8. "Phase Transformations and Their Applications in Ceramics," W. M. Kriven,\* invited lecture at Symposium to honor Professor Jack Christian on his 70th birthday. Held at Oxford University, UK, March 29th (1996).
9. "Design of Oxide Composites with Transformation Weakened, Debonding Interphases, W. M. Kriven.\* Presented at the Int. Workshop on Oxide/Oxide Composites, held in Irsee, Germany, June 22-24th (1998).
10. "Progress in Microstructural Design for Tough, Oxide Ceramic Composites," W. M. Kriven,\* (invited keynote lecture) presented at Australian International Conference on Ceramics (Austceram) 2000, held in Sydney Australia, June 25<sup>th</sup> – 28<sup>th</sup> (2000).
11. "Design of Oxide Composites with Debonding Interphases, W. M. Kriven. Presented at Int. Conf. on Materials Science and Technology, April 2-4, (2001) Cairo, Egypt.
12. "Oxide Ceramics with Debonding Interphases", W. M. Kriven\*. Invited plenary lecture presented at the Annual Meeting of the Korean Ceramics Society, held in Seoul, Korea, April 19th (2002).
13. (*Seminar Series*) A two-day seminar series was given to graduate students and interested faculty at Seoul National University, in the Dept. of Materials Science and Engineering, Seoul, Korea, April 17th-18th (2002). The topics were: (i) "Synthesis of Highly Reactive Oxide Powders by the Organic Steric Entrapment Method" and (ii) "Phase Transformations in Oxide Ceramics".
14. "*In situ*, High Temperature, Synchrotron Studies of Oxide Ceramics using a Quadrupole Furnace," W. M. Kriven\*. Invited Plenary lecture at National Workshop on Sample Environments for Neutron Scattering Experiments (SENSE). Held in Tallahassee, Florida, USA, Sept 24<sup>th</sup> –26<sup>th</sup> (2003).
15. "Ceramic Powder Synthesis and a New Toughening Mechanism in Ceramic Composites," W. M. Kriven,\* NATO Advanced Research Workshop on Fuel Cell Technologies: State and Perspectives," Kyiv, Ukraine, June 6-10<sup>th</sup> (2004).
16. "Current Topics in Ceramic Materials Science Needing TEM Studies," W. M. Kriven.\* Presented at First Korean Basic Science Institute, High Voltage Electron Microscope User Workshop, held in Daejeon, Korea, June 30<sup>th</sup> (2004).
17. "Geopolymers: More than just a Cement," W. M. Kriven (Plenary lecture). Presented at Geopolymer 2005, Int. Conf. on Geopolymers, held in St. Quentin, June 29<sup>th</sup> – June 30<sup>th</sup>, (2005) in St. Quentin, France.
18. "Microstructure of Geopolymers and Geopolymer-based Materials," Geopolymers as Ceramic Matrix Composites, W. M. Kriven. Plenary lecture

- presented at Int. Conf. and Workshop on Geopolymers and Geopolymer Concrete in Civil Engineering, Perth, Western Australia, Australia, Sept 28<sup>th</sup> – 29<sup>th</sup> (2005).
19. “From Geopolymers to Ceramics,” W. M. Kriven, J. L. Bell and P. Sarin. Invited keynote lecture presented at 3<sup>rd</sup> International Conference on Alkali Activated Materials - Research, Production and Utilization. Presented in Prague, Czech Republic, Jun 21-22<sup>nd</sup> (2007).
  20. “From Geopolymers to Ceramics,” W. M. Kriven, J. Bell and P. Sarin. Invited keynote lecture presented at 4<sup>th</sup> Int. Conf. on Advanced Materials (ICAMP-4), held in Sydney, Australia, July 4<sup>th</sup> – 6<sup>th</sup> (2007).
  21. Invited lecture at Honorary Colloquium for Dr. Nils Claussen, Technische Universitat Hamburg-Harburg, part of the Deutsche Keramische Gesellschaft (DKG) and Deutsche Gesellschaft für Materialkunde (DGM) Feb 25<sup>th</sup> (2008).
  22. “Ceramics Without Sintering: Inorganic Polymers,” W. M. Kriven,\* J. Bell, P. Sarin and P. E. Driemeyer,” Invited Keynote Lecture to be presented at FORUM 2008, of the World Academy of Ceramics, Siena, Italy July 5<sup>th</sup> – 8<sup>th</sup> (2008)
  23. “In situ, High Temperature Studies of Monoclinic to Tetragonal Phase Transformation in HfO<sub>2</sub>”, W. M. Kriven,\* R. P. Haggerty, P. Sarin, Z. Apostolov. Invited Keynote Lecture, presented at the 8<sup>th</sup> European Symposium on Martensitic Transformations (ESOMAT), held in Prague Sept 7<sup>th</sup> – 11<sup>th</sup> (2009).
  24. “Microstructure and Properties of Metakaolin-based Geopolymers,” W. M. Kriven,\* presented at Annual Meeting of the Cements Division of the American Ceramic Society, Purdue, IN, July 11<sup>th</sup>- 13<sup>th</sup> (2010) and at Int. Conf. of Cements Microscopy Soc. Held in New Orleans, March 29, (2010) New Orleans.
  25. “Atomic Structure and Microstructure of Geopolymer and Crystallized Geopolymer Ceramics,” W. M. Kriven. Invited lecture presented at Conferences Internationales Materiaux et Technologies (CIMTEC) 2010. Held in Montecatini Terme, Tuscany, Italy, June 6<sup>th</sup>-11<sup>th</sup> (2010).
  26. “Geopolymers and Environmental Stability,” W. M. Kriven. Presented at the Gordon Conference on Solid State Studies in Ceramics, held in New Hampshire, USA, Aug 15<sup>th</sup> – 20<sup>th</sup> (2010).
  27. “In Situ, High Temperature, Synchrotron Studies of Monoclinic to Tetragonal Phase Transformation in HfO<sub>2</sub> and Ta<sub>2</sub>O<sub>5</sub> – doped HfO<sub>2</sub> System,” W. M. Kriven, R. P. Haggerty, P. Sarin, Z. D. Apostolov and Z. A. Jones. Invited lecture presented at 7<sup>th</sup> International Conference on High Temperature Ceramic Matrix Composites (HT-CMC 7) held in Bayreuth, Germany, Sept 20 -22<sup>nd</sup> (2010).

28. “Geopolymer Composites – Low Energy, Ecofriendly and Sustainable Ceramics – a Potential Partial Solution to Global Warming,” W. M. Kriven\*. The Nicholson Memorial Lecture presented at 2015 Composites at Lake Louise Conference, ECI conference at Lake Louise, Alberta, Canada, Nov 3-7<sup>th</sup> (2015).
29. “Microstructural Investigation of Carbothermally reacted Geopolymer Composites made under Specific Alkaline Conditions,” Cengiz Bagci, G. P. Kutyla and W. M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing, held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
30. “Geopolymers as Sustainable Construction Materials,” W. M. Kriven. Presented at the Advanced Ceramics and Application IV Conference organized by the Serbian Ceramic Society and held in Belgrade, Serbia Sept 21-23<sup>rd</sup> (2015).
31. “Sustainable Geopolymer Composites,” W. M. Kriven. Presented at the 6<sup>th</sup> Amazon and Pacific Green Materials Congress and Sustainable Construction Materials LAT-RILEM Conference. Held in Cali, Colombia, South America, April 27<sup>th</sup> – 29<sup>th</sup> (2016).
32. “Geopolymers: Ceramic Composites made at Ambient Temperatures or Precursors to Structural Ceramic Powders,” W. M. Kriven. Presented at the Advanced Ceramics and Applications Conference of the Serbian Ceramic Society. Held in Belgrade, Serbia, Sept 21<sup>st</sup>- 23<sup>rd</sup> (2016).
33. “Geopolymers: Structural Inorganic Polymers,” W. M. Kriven. James A. Mueller Award, Plenary Lecture presented at 41<sup>st</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) Daytona Beach, FL, USA.
35. “Geopolymers: Versatile Ceramic Composites made at Ambient Temperature, or Precursors to HT Structural Ceramic Powders,” W. M. Kriven. Plenary lecture presented at the 92<sup>nd</sup> Annual Meeting of the German Ceramic Society, in conjunction with the Symposium on High-Performance Ceramics. Held on March 19<sup>th</sup> – 23<sup>rd</sup> (2017) in Technical Universität, Berlin, Germany.
36. “Low Energy Syntheses of Ceramic Nanopowders,” Daniel Ribero, Cengiz Bagci, Qun Yang and Waltraud M. Kriven\*. Plenary Lecture presented at the 6<sup>th</sup> Serbian Ceramic Society Conference, Sept 18-20<sup>th</sup> (2017), held in Belgrade, Serbia.
37. “Low Energy Synthesis of Ceramic Nanopowders,” W. M. Kriven. Plenary lecture presented at Composites at Lake Louise (2017), held at Lake Louise, Alberta, Canada Nov 12-16<sup>th</sup> (2017).
38. “<sup>23</sup>Na and <sup>27</sup>Al MAS-NMR on Slag-Fly Ash Binders and Slag-Metakaolin Binders,” Kaushik Sankar and Waltraud M. Kriven. Plenary lecture presented at 6<sup>th</sup> International Slag Valorisation Symposium, held on April 1<sup>st</sup>-5<sup>th</sup> (2019),

Mechelen, Belgium.

39. "Geopolymers: Versatile Ceramics made under Ambient Conditions," Plenary Lecture presented at Int. Conf. on Composites at Lake Louise, Alberta Canada (CALL 2019), Nov 10<sup>th</sup> -14<sup>th</sup> (2019).
- 40 "In situ, In Air, High Temperature Synchrotron Studies of Ceramics to 3,000°C", Waltraud M. Kriven. Plenary Lecture presented at 6<sup>th</sup> Conference of Bangladesh Crystallographic Association. Virtual conference held in Dhakar Jan 15<sup>th</sup> -16<sup>th</sup> 2021.

#### **INVITED LECTURES:**

1. "Ceramic Martensite Crystallography" on April 23 (1980) and "Crystal Chemistry and Ceramics" on May 5th (1980) at Department of Materials Science and Mineral Engineering, University of California, Berkeley, California, USA.
2. "Ceramic Martensite Crystallography" on June 2 (1980) per Dr. M. Rühle at: Werkstoffwissenschaftliches Seminar Series of the Institut für Metallkunde der Universität Stuttgart and MPI für Metallforschung, Stuttgart, West Germany.
3. "Transformation Toughening in ZrO<sub>2</sub> Ceramics" in July 1980 per Dr. J. Moya at: Instituto de Cerámica y Vidrio, Consejo de Investigaciones, Arganda del Rey, Madrid, Spain.
4. "Martensitic Transformations in Non-metals" on Dec. 5th 1980 per Prof. L. Delaey at: Dept. Metallkunde, Katholieke Universiteit Leuven, Leuven, B-3030.Heverlee - Leuven Belgium.
5. "Martensitic Transformations and Toughening of Ceramics" in January 1982 per Prof. J. S. Bowles at: School of Metallurgy, University of New South Wales, Sydney, NSW, Australia.
6. "Martensitic Transformations of Non-metals and their Application to the Toughening of Ceramics" on January 8th (1983) per Dr. R. Gotthardt, Colloque de Science des Matériaux series at: Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland.
7. "Transformation Toughening in Zirconia Ceramics" on December 1st (1983) per Prof. C. G. Bergeron at: Materials Research Laboratory and Dept. of Ceramic Engineering, University of Illinois at Urbana-Champaign, Illinois, USA.
8. "Transformation Toughening of Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> Ceramics and Possible Alternatives to Zirconia" on June 22nd (1984) per Dr. U. Chowdhry at: Central Research and Development Department, E. I. DuPont de Nemours & Co., Wilmington, Delaware USA.



9. "The Martensitic Transformation in Zirconia" per Dr. W. Rhodes on August 3rd, (1984) at General Telephone and Electronics (GTE) Laboratories Incorporated, Waltham, Massachusetts, USA
10. "Transformation Toughening in ZrO<sub>2</sub> Ceramics-Where to from here?" per Dr. H. Sowman on January 20th (1985) at the Advanced Inorganic Materials Research Division, 3M Company, St. Paul, Minnesota, USA.
11. "Displacive Transformations in Zirconia Ceramics and Other Non-metals," per Dr. R. Tucker on March 14th (1985) at Union Carbide Research Center, Speedway Labs, Indianapolis, USA.
12. "Strengthening Mechanisms in Ceramics," per Dr. R. D. Young and Dr. T. Francis, on March 29th (1985) at the Alcoa Technical Center, Pittsburgh, PA, USA.
13. "Displacive Transformations in Zirconia Ceramics and Other Non-metals" per Prof. G. Wallwork, on April 19th (1985) at the School of Material Science, University of New South Wales, Sydney, NSW, Australia.
14. "Transformation Toughening in Composite Zirconia Ceramics," per Prof. M. Bruce, on Aug. 12th (1985) at the Dept. of Physical and Inorganic Chemistry, University of Adelaide, Adelaide, South Australia.
15. "Transformation Toughening of Composite Ceramics - Origin of the Particle Size Effect," per Dr. L. Cox, on Jan. 30th (1986) at the American Society for Metals (ASM) Meeting, Indianapolis Chapter, Indianapolis, USA.
16. "Strain Analysis in Ceramic Composites," an invited paper presented at the American Society for Electron Microscopy (EMSA) Fall Meeting, Aug. 10-15 (1986). Albuquerque, USA.
17. "Transformation Mechanisms in Confined Zirconia Particles and in Other Potential New Tougheners of Ceramics," invited by the Chemistry and Physics of Metals Committee of the Metallurgical Society (TMS) of AIME. Presented at the Fall Meeting in Orlando, Florida, October 5-9 (1986).
18. "New Development in Electron Microscopy of Ceramics," per Dr. R. V. Heath, in March (1987) at Indianapolis Chapter of the American Society of Metals, Indianapolis, USA.
19. "Possible Transformation Tougheners Alternative to Zirconia-Crystallographic Aspects," per Prof. E. Case on Oct. 20th 1987 at the Dept. of Metallurgy, Mechanics and Materials Science, Michigan State University, East Lansing, MI, USA.

20. "Possible Transformation Tougheners Alternative to Zirconia: Crystallographic Aspects," per Dr. C. P. Ballard on April 5th, 1988 at Allied Signal Inc., Morristown, New Jersey, USA.
21. "High Temperature Transformation Toughening with the Lanthanide Sesquioxides," per Dr. David St. John, on Aug. 19th, 1988. Given at the Dept. of Mining and Metallurgical Engineering, University of Queensland, Brisbane, Australia.
22. "High Temperature Transformation Toughening of Ceramics with the Lanthanide Sesquioxide," Departmental Colloquium presented on September 26th, 1988 at the Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, IL.
23. "Martensitic Toughening in Ceramics" Invited lecture at DOE-sponsored International Workshop on First-Order Displacive Phase Transformations. Held in Berkeley, California, on October 23-28th, 1988.
24. "Microstructure and Microchemistry of Organo-Ceramics", W. M. Kriven and O.O. Popoola. Invited lecture presented at the Microbeam Analysis Society (MAS) Symposium on Interfaces, held in San Jose, California, Aug 5-9th 1991.
25. "SEM and TEM in Materials Science," W.M. Kriven. Invited lecture, American Chemical Society Annual Meeting, Tutorial Sessions in Materials Science, New York, NY, Aug 25th 1991.
26. "On Phase Transformation Mechanisms in Dicalcium Silicate ( $\text{Ca}_2\text{SiO}_4$ )," Y.J. Kim and W. M. Kriven\*. Invited lecture presented at the Fall meeting of the American Geophysical Union held in San Fransisco, California, Dec 9-13th 1991.
27. "Phase Transformations and Toughening Mechanisms in Composite Ceramics," W. M. Kriven. Invited lecture presented at the Materials Science and Engineering Departmental Colloquium, University of Illinois at Urbana-Champaign, on February 10th 1992.
28. "Phase Transformations and Toughening Mechanisms in Composite Ceramics," W. M. Kriven. Invited lecture presented at the Materials Science and Engineering Departmental Seminar, Massachussetts Institute of Technology (MIT), on February 18th 1992.
29. "Toughening Mechanisms in Non-Zirconia Composites," W. M. Kriven. Invited lecture to be presented at the Annual Meeting of the American Ceramic Society, April 12-16th, 1992 in Minneapolis, MN.

30. "Phase Transformations and Toughening Mechanisms in Composite Ceramics," W. M. Kriven. Invited lecture presented at the Materials Science and Engineering Departmental Seminar, Illinois Institute of Technology (IIT), on April 30th 1992.
31. "Martensitic Transformations in Ceramics," W. M. Kriven\*. Presented at the International Conference on Martensitic Transformations (ICOMAT '92). Held in Monterey, CA, July 20-24th 1992.
32. "Transformation Mechanisms in Dicalcium Silicate and Distrontium Orthosilicates," Y. J. Kim, J.L. Shull, B. N. Sun and W. M. Kriven\*. Presented at the International Conference on Martensitic Transformations (ICOMAT '92). Held in Monterey, CA, July 20-24th 1992.
33. "Electron Microscopy Observations of Micromechanical Behavior in Ceramic Composites," W. M. Kriven. Invited seminar presented in the Materials Science and Engineering Laboratory, National Institute of Science and Technology (NIST), Gaithersburg, MD., per Dr. S. M. Wiederhorn. Held on Oct 29th (1992).
34. "Phase Transformations in Ceramics," W. M. Kriven\*. Invited talk, presented at the Microscopy Society of America (MSA) Annual Meeting, held in Cincinnati in Aug 1-6, (1993).
35. "Twinning in Structural Ceramics," W. M. Kriven.\* Invited lecture presented at TMS Annual Meeting in Symposium on Twinning in Advanced Materials. Held in Pittsburgh, PA, Oct 17-21, 1993.
36. "Volume Changes During Transformation in Ceramics," W. M. Kriven.\* Invited lecture presented at the ASM Annual Meeting in Symposium on Effect of Plastic Deformation on the Thermodynamics, Kinetics and Mechanisms of Phase Transformations,". Held in Pittsburgh, PA, Oct 17-21, 1993.
37. "Ceramics Via Organic and Inorganic Synthesis," W. M. Kriven\*. Invited lecture presented to the Illinois Association of Chemistry Teachers, Annual Meeting at the University of Illinois at Urbana-Champaign, March 4th (1994)
38. "Current Trends in Structural Ceramics," W. M. Kriven, invited lecture presented at the Pacific Coast Regional Meeting of the American Ceramic Society, Oct 19-22, (1994), Los Angeles.
39. "Electron Microscopy Characterization of Melt-Grown Mullites and Mullite Fibers," W. M. Kriven,\* R. A. Gronsky and J. A. Pask, M. H. Jilavi, D. Zhu, J. J. Felten, J. K. R. Weber and P. C. Nordine, (invited) paper presented at Int. Conf. on Ceramic Microstructures'96: Control at the Atomic Level," held June 24-27 (1996), in Berkeley, CA, USA.

40. "Displacive Transformations and their Applications in Structural Ceramics," W. M. Kriven\* Invited lecture presented at the Crystallographic Colloquium, Institut für Kristallographie und Angewandte Mineralogie der Ludwig-Maximilian-Universität München, Theresienstrasse 41, D-80333 München; per Professor F. Frey, 16th May 1997.
41. "Chemical Synthesis of Oxide Powders via Polymeric Steric Entrapment," W. M. Kriven. \* Invited lecture per Professor Peter Greil (Head), presented at the Institute of Werkstoffwissenschaften III, (Materials Science) University of Erlangen-Nürnberg, Germany, June 1997.
42. "Toughening of Ceramic Composites by Transformation Weakening of Interphases," W. M. Kriven\*, S. J. Lee, C. M. Huang, D. Zhu, Y. Xu and S. M. Mirek. Invited poster presented at Int. Workshop on Multiscale Materials Prediction: Fundamentals and Industrial Applications," held at MIT, MA, USA, Sept 14-16, (1997).
43. "Synthesis of Oxide Powders by a Steric Complexation Precursor Route," W. M. Kriven\*, invited keynote lecture presented at The 4th IUMRS International, Conference in Asia Makuhari, Chiba, Japan, September 16-18, 1997.
44. "Mullite/Cordierite Laminates with  $\beta \rightarrow \alpha$  Cristobalite Transformation Weakened Interphases," W. M. Kriven\* and S. J. Lee, (invited paper), 22 nd Am. Ceram. Soc. Annual Meeting on Composites, Advanced Ceramics, Materials and Structures, held at Cocoa Beach, Florida, Jan 20-24 (1998).
45. "High Temperature Single Crystal Properties of Mullite ( $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$ )," W. M. Kriven,\* J. Palko, S. Sinogeikin, J. D. Bass, A. Sayir, G. Brunauer, H. Boysen, F. Frey and J. Schneider. Presented at Int. Conf. on "New Developments in High Temperature Ceramics, Istanbul, Turkey, Aug. 12-15th (1998).
46. "Amorphous Precursors to Oxide Fibers and Powders," W. M. Kriven. Invited lecture per Profs. Werner Mader and Hartmut Schneider, presented at the Institute for Inorganic Chemistry, University of Bonn, Germany, Aug. 19th (1998).
47. "Design of Oxide Ceramic Composites with Transformation Weakened, Debonding Interphases," W. M. Kriven\*. Presented at Workshop on Advanced Materials for Extreme Environments: New Experimental Opportunities in Neutron Scattering, held at the Argonne National Laboratory, Sept. 11-12th 1998.
48. "Oxide Laminated Composites with Graceful Failure," W. M. Kriven\* invited lecture, to be presented at The Minerals, Metals and Materials (TMS) Society Fall Meeting, Symposium on Processing and Properties of Advanced Structural Ceramics, held in Rosemont IL Oct 11-15, (1998).

49. "Design of Oxide Ceramic Composites with Transformation Weakened, Debonding Interphases," W. M. Kriven,\* Invited lecture per Prof. P. Pirouz, presented as a Colloquium, at the Department of Materials Science and Engineering, Case Western Reserve University, Cleveland, Ohio, Feb 22nd 1999.
50. "Design of Oxide Ceramic Composites with Debonding Interphases," W. M. Kriven,\* Invited lecture per Prof. Ersan Ustundag, presented as a Colloquium, at the Department of Materials Science and Engineering, California Institute of Technology, Los Angeles, March 31st 1999.
51. "Synthesis of Oxide Powders via Polymeric Steric Entrapment," (invited paper), W. M. Kriven\*, S. J. Lee, M. A. Gulgun, M. Nguyen and D. K. Kim. Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
52. "Oxide Fibers and Interphase Debonding Mechanisms," W. M. Kriven,\* B. R. Johnson, S. J. Lee, C. M. Huang, D. Zhu and Y. Xu. Presented at Int. Conf. On Processing of Fibers and Composites, held in May 21-26, 2000, Tuscany Italy.
53. "Synthesis and Hydration Study of Portland Cement Components by Polymer Complexation Processing," S. J. Lee, E. A. Benson and W. M. Kriven\* invited lecture presented at Australian International Conference on Ceramics (Austceram) 2000, held in Sydney Australia, June 25<sup>th</sup> – 28<sup>th</sup> 2000.
54. "High Temperature, Displacive Transformations in Oxide Ceramics," W. M. Kriven,\* presented at the 2000 Denver X-ray Conference, in the special session on Phase Transformations and Reactions. Held in July 31<sup>st</sup>-Aug 4<sup>th</sup> at Denver, Colorado, USA.
55. "Crystallization Mechanisms and Microstructures in Mullite," W. M. Kriven\* and B. R. Johnson, invited lecture presented at Mullite 2000 Workshop, held on the Isle of Mull, Aug 28<sup>th</sup> to 30<sup>th</sup>, 2000.
56. "Preparation of Titanate Powders by an Ethylene Glycol Method," S. J. Lee, B. R. Rosczyk and W. M. Kriven. Presented at Int. Symposium on Soft Solution Processing, Dec. 11-13, 2000, at Tokyo Institute of Technology, Tokyo, Japan.
57. "Design of Oxide Composites with Debonding Interphases," W. M. Kriven. Invited lecture presented at 25<sup>th</sup> Annual International Conf. on Advanced Ceramics and Composites, Jan 21-26 (2001) Cocoa Beach, Florida.
58. "Design of Oxide Laminates and Fibrous Monolithic Composites," W. M. Kriven\* and D.-K. Kim. Invited lecture presented at 103rd Annual Meeting of the American Ceramic Society, Indianapolis, April 22-25 (2001).

59. "From Zirconia to Shape Memory Ceramics," W. M. Kriven\*. Invited lecture given as part of the Special Session in Honor of Professor Arthur H. Heuer on his 65<sup>th</sup> Birthday, as part of the 103rd Annual Meeting of the American Ceramic Society, Indianapolis, April 22-25 (2001).
60. "Colored Water Formation in Old Iron/Steel Drinking Water Distribution Pipes" P. Sarin\*, V.L. Snoeyink, and W.M. Kriven, Invited talk at the Australian Water Quality Center, Adelaide, South Australia, Australia, April 12, (2001).
61. "Corrosion Scales - A Source of "Red Water" in Old Iron/Steel Drinking Water Distribution Pipes" P. Sarin\*, V.L. Snoeyink, and W.M. Kriven, Invited talk given at the Center for Manufacturing Science and Technology, Commonwealth Scientific and Industrial Research Organization, Clayton, Victoria, Australia, April 11, (2001).
62. "A Conceptual Model for Iron Release from Corrosion Scales," P. Sarin\*, V. L. Snoeyink, J. Bebee, M. A. Beckett, K. K. Jim, D. A. Lytle, J.A. Clement and W. M. Kriven, Invited Talk at US Environmental Protection Agency (EPA), Cincinnati, OH, August 17th, (2001).
63. "Drinking Water Quality Deterioration in Distribution Systems: Colored Water Formation and Its Control" - Association of Environmental Engineering and Science Professors' Distinguished Lecture Series, 2001 V. L. Snoeyink,\* P. Sarin, W. M. Kriven et al. Presented at several (over 12) different universities in US during Spring (2001).
64. "Crystallization Mechanisms of Amorphous Mullite and the Al<sub>2</sub>O<sub>3</sub>-2SiO<sub>2</sub> Phase Diagram," W. M. Kriven,\* presented at the Annual Meeting of the Materials Research Society, Boston, MA, Dec (2001).
65. "Energy Dissipation by Martensitic Transformations in Ceramics," W. M. Kriven,\* Pacific Rim (PAC RIM) 4 Conf., held in Maui, Hawaii, Nov 4-8 (2001).
66. "A Multilayer, High Strength, High Toughness, Debonding Oxide Composite for Armor Plating," D. H. Kuo and W. M. Kriven,\* Pacific Rim (PAC RIM) 4 Conf., held in Maui, Hawaii, Nov 4-8 (2001).
67. "Bioresorbable Ceramics," W. M. Kriven,\* S.-J. Lee, D.-K. Kim, L. J. Farhner, Pacific Rim (PAC RIM) 4 Conf., held in Maui, Hawaii, Nov 4-8 (2001).
68. "Oxide Fibrous Monoliths," W. M. Kriven,\* D. K. Kim and S. J. Kim, presented at 104<sup>th</sup> Annual Meeting of the American Ceramic Society, held in St. Louis, April 28<sup>th</sup>-May 1<sup>st</sup> (2002).

69. "Oxide Fibrous Monoliths," W. K. Kriven,\* D.-K. Kim and S.-J. Kim. Presented at 10th Int. Congress and 3rd Forum on New Materials (CIMTEC 2002), held in Florence, Italy, July 14-18th (2002).
70. "Ceramics for Structural and Biomaterial Applications," Invited lecture given as part of the Ceramics Seminar series in the Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign; Oct 10<sup>th</sup> (2002).
71. "*In-situ*, High-temperature Synchrotron Powder Diffraction Studies of Oxide Systems In Air Using A Thermal-image Furnace," W. M. Kriven,\* invited lecture presented at the Argonne National Laboratory, Intense Pulsed Neutron Source, lunchtime seminars, Oct (2002).
72. "*In situ*, High Temperature, Synchrotron Studies of Oxide Ceramics using a Quadrupole Furnace," W. M. Kriven. Invited Plenary lecture at the National Workshop on Sample Environments for Neutron Scattering Experiments (SENSE). Held in Tallahassee, Florida, USA, Sept. 24<sup>th</sup> -26<sup>th</sup> (2002).
73. "Oxide Fibrous Monoliths," W. K. Kriven,\* presented as the Departmental Colloquium in the Dept of Materials Science and Engineering, University of Alabama, Birmingham, Oct 15<sup>th</sup> (2002).
74. "Microstructure and Microchemistry of Fully Reacted Geopolymer and Metal Geopolymer Composites," W. M. Kriven,\* M. Gordon and J. Bell. Presented at 105<sup>th</sup> Annual Meeting and Exposition of the American Ceramic Society, Nashville, Tennessee, April 27<sup>th</sup> -30<sup>th</sup> (2003).
75. "Fabrication of YAG and Mullite Fibers," W. M. Kriven,\* K. Jurkschat, W. Yoon and C. Chiritescu. Presented at 105<sup>th</sup> Annual Meeting and Exposition of the American Ceramic Society, Nashville, Tennessee, April 27<sup>th</sup> -30<sup>th</sup> (2003).
76. "Composite Cold Ceramic Geopolymer in a Refractory Application," D. C. Comrie\* and W. M. Kriven. Presented at 105<sup>th</sup> Annual Meeting and Exposition of the American Ceramic Society, Nashville, Tennessee, April 27<sup>th</sup>-30<sup>th</sup> (2003).
77. "Ceramic Powder Synthesis by the Organic-Inorganic, Steric Entrapment Method," W. M. Kriven\*, invited lecture given as part of the World Universities Network (WUN) satellite lecture series organized by Sheffield University, UK. Dec. (2003).
78. "Geopolymers: Refractory Inorganic Adhesives," W. M. Kriven.\* Presented at 28<sup>th</sup> Int. Cocoa Beach Conf. and Expo, Cocoa Beach, Florida, Jan 26<sup>th</sup> - 30<sup>th</sup> 2004.
79. "Pure Geopolymers Made from a "Synthetic Metakaolin" Analogue," W. M. Kriven\*, M. Gordon and P. Sarin. Presented at 106<sup>th</sup> Annual Meeting of the American Ceramic Society, held in Indianapolis, IN, USA, April 18-21<sup>st</sup> 2004.

80. "Composites of Duplex, Triplex and Quadruplex Microstructures," W. M. Kriven\* and D. K. Kim. Presented at 106<sup>th</sup> Annual Meeting of the American Ceramic Society, to be held in Indianapolis, IN, USA, April 18-21<sup>st</sup> 2004.
81. "The Optical Microscope – How it Works," W. M. Kriven,\* presented in the lecture series on Special Topics in Science and Engineering, hosted by the High School of St. Thomas More, Champaign, IL, April 28<sup>th</sup> (2004).
82. "Atomic Traffic Jams and Formation of Duplex, Triplex and Quadruplex Microstructures," Waltraud M. Kriven\* and Dong Kyu Kim. Presented at International Symposium on Understanding Complex Systems, Dept. of Physics, University of Illinois at Urbana-Champaign, May 17-20, (2004).
83. "Ceramic Powder Synthesis and a New Toughening Mechanism in Ceramic Composites," W. M. Kriven, NATO Advanced Research Workshop on Fuel Cell Technologies: State and Perspectives," Kiev, Ukraine, June 6-10<sup>th</sup> (2004).
84. "Current Topics in Ceramic Materials Science Needing TEM Studies," W. M. Kriven. Presented at the First Korean Basic Science Institute, High Voltage Electron Microscope User Workshop, held in Daejeon, Korea, June 30<sup>th</sup> (2004).
85. "Large Force Ceramic Actuators for Smart Systems," W. M. Kriven. invited lecture presented at the Annual Meeting of the American Crystallography Association, to be held on July 17<sup>th</sup> -22<sup>nd</sup> (2004) in Chicago, IL, USA.
86. "The Quadrupole Lamp Furnace- An Excellent Tool for Conducting In-situ High Temperature X-ray Diffraction", P. Sarin\*, K. Jurkschat, W. Yoon, A. J. Randolph, and W. M. Kriven, July 29 (2004), Condensed Matter Physics Seminar, Brookhaven National Laboratory, Upton New York.
87. "Extrusion of Oxide Fibrous Monoliths" W. M. Kriven\*, invited lecture presented in the Department of Civil Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, Oct 28<sup>th</sup> 2004.
88. "Geopolymers as Refractory Adhesives," W. M. Kriven and J. L. Bell.\* Invited lecture presented at 3<sup>rd</sup> Int. Conf. on Advanced Materials Processing (ICAMP-3) and Austceram 2004, held in Melbourne, Australia, Nov 29<sup>th</sup> – Dec 1<sup>st</sup> 2004.
89. "In situ High Temperature Study of Phase Transformations in Ceramics," W. M. Kriven, L. F. Siah, P. Sarin and K. Jurkschat. Invited lecture presented at 3<sup>rd</sup> Int. Conf. on Advanced Materials Processing (ICAMP-3) and Austceram 2004, held in Melbourne, Australia, Nov 29<sup>th</sup> – Dec 1<sup>st</sup> 2004.



90. “*In Situ*, High Temperature, Crystallographic Measurements of Ceramics,” W. M. Kriven. Invited lecture presented at 29<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 23-28<sup>th</sup> (2005).
91. “Geopolymers: Alkali Bonded Ceramics (ABC's) for High Tech Applications,” W. M. Kriven,\* M. Gordon and J. L. Bell. Invited lecture presented at the 107<sup>th</sup> Annual meeting of The American Ceramic Society, held in Baltimore, MD, April 10-13<sup>th</sup> (2005).
92. “Bioresorbable Nanoceramics for Gene and Drug Delivery,” W. M. Kriven. Invited lecture presented at Int. Conference on Understanding Complex Systems, held on May 16<sup>th</sup> – 20<sup>th</sup> 2005, at the University of Illinois at Urbana-Champaign.
93. “Sintering in Multiphase Ceramics,” W. M. Kriven. Invited lecture presented at Int. Conference on Understanding Complex Systems, held on May 16<sup>th</sup> – 20<sup>th</sup> (2005), at the University of Illinois at Urbana-Champaign.
94. “*In-situ*, in Air, High Temperature Study of Phase Transformations in Ceramics,” W. M. Kriven, P. Sarin, J. Jurkschat, L. F Siah, (invited lecture). Presented at the International Conference on Solid-Solid Phase Transformations in Inorganic Materials 2005 (PTM 2005), held May 29<sup>th</sup> – June 3<sup>rd</sup> (2005), Phoenix Arizona, USA.
95. “Geopolymers: More than Just a Cements,” W. M. Kriven (Plenary Lecture). Presented at *Geopolymer 2005*. Int. Conf. on Geopolymers, held in St. Quentin, June 29<sup>th</sup> – July 1<sup>st</sup> 2005.
96. “Microstructure and Nanoporosity of As-set and Heat-Treated Geopolymers,” W. M. Kriven, J. L. Bell, M. Gordon and J. Wen. Presented at 30<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 22-27<sup>th</sup> (2006), Florida, USA.
97. “High Temperature Investigations of Ceramics in Air using Synchrotron Radiation,” P. Sarin, W. Yoon, R. P Haggerty, P. Zschack and W. M. Kriven. Invited talk, Advanced Photon Source Use Science Seminar, Aronne National Laboratory, Argonne, Illinois, February 3<sup>rd</sup> (2006).
98. “In Situ, High Temperature Measurement of Phase Transformations and Thermal Expansion Coefficients in Ceramics,” W. M. Kriven\* and P. Sarin, (invited lecture) presented at 11<sup>th</sup> Int. Ceramics Congress, Sicily, Italy, June 4-9<sup>th</sup> (2006).
99. “Growth of Textured and Single Crystal Mullite Fibers Using a Quadrupole Lamp Furnace,” W. Yoon and W. M. Kriven, (invited lecture) to be presented at International Conference on Mullite in June 9-11<sup>th</sup>, 2006 in Vienna, Austria.

100. "Effect of Transition-metal-ion Doping on High Temperature Thermal Expansion of 3:2 Mullite – An in-situ High Temperature Synchrotron Diffraction Study," P. Sarin, W. Yoon, N.C. Bhorkar, C. Chiritescu, and W.M. Kriven, (invited lecture) presented at International Conference on Mullite in June 9-11<sup>th</sup> 2006 in Vienna, Austria.
101. Processing of Ceramics via the Geopolymer Route," International Conference on Novel and Emerging Ceramics and Composites, held in Kona, Hawaii, July 10-15<sup>th</sup> (2006).
102. "Microstructure and Effect of Heat Treatment on Geopolymers" W. M. Kriven,\* J. L. Bell and M. Gordon (invited lecture) presented at International Workshop on Geopolymer Binders – Interdependence of Composition, Structure and Properties, Sept 18-19<sup>th</sup> 2006 in Weimar, Germany.
103. "In-situ, High-temperature Synchrotron Powder Diffraction Studies of Oxide Systems In Air Using A Thermal-image Furnace" W. M. Kriven\* and P. Sarin. Presented at 64<sup>th</sup> Pittsburgh Diffraction Conference, Duquesne University, Pittsburgh, PA, Oct 26<sup>th</sup>-28<sup>th</sup> (2006).
104. "Multicomponent, Multiphase, Ceramic Composites for high hardness, Strength and toughness Applications," D.-K. Kim and W. M. Kriven\*. Presented at the 108<sup>th</sup> Annual Meeting of the American Ceramic Society, in conjunction with Materials Science and Technology 2006 Conference and Exhibition (MS &T '06), held in Cincinnati, Ohio, Oct 15<sup>th</sup> -19<sup>th</sup> (2006).
105. "In Situ, High Temperature Measurement of Phase Transformations and Thermal Expansion Coefficients in Ceramics," W. M. Kriven\* and P. Sarin, (invited lecture) presented at International Workshop on Advanced Ceramics, Nagoya, Japan, Oct 30<sup>th</sup> – Nov 3<sup>rd</sup> (2006)
106. "Mullite," W. M. Kriven\*, presented at Dow Chemical Research Center in Midlands, Michigan, Jan 8<sup>th</sup> (2007).
107. "En Route to Porous Alumina," W. M. Kriven,\* presented to Union Carbide and Dow Chemical at the Dow Chemical Research Center in Midlands, Michigan, Jan 9<sup>th</sup> (2007).
108. "Crystallization of Leucite and Pollucite from Geopolymer Gels," W. M. Kriven,\* J. L. Bell, M. Gordon, and P. Sarin Abstract [#ICACC-FS3-007-2007] presented at 31<sup>st</sup> International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites held at Daytona Beach on Jan 21<sup>st</sup> - 26<sup>th</sup> (2007).
109. "Geopolymers," W. M. Kriven, presented at Pittsburgh Plate and Glass Company (PPG) Coatings Division, Pittsburgh PA, on April 20<sup>th</sup> (2007).

110. "Rapid, *In Situ*, High Temperature Synchrotron Studies of Phase Transformations in Ceramics," W. M. Kriven,\* P. Sarin and R. P. Haggerty. Presented at the Advanced Photon Source (APS) Users Workshop at Argonne National Lab (ANL), May 8<sup>th</sup>-9<sup>th</sup> (2007).
111. "The Complex Structure of Geopolymers," W. M. Kriven, \* J. L. Bell and P. Sarin, (invited lecture) presented at 7<sup>th</sup> Understanding Complex Systems Conference held at The University of Illinois at Urbana-Champaign, Department of Physics, May 14-17<sup>th</sup> (2007).
112. "Crystallographic and Processing Studies of Calcium Phosphate Templates," W. M. Kriven, D. Jian, D. K. Kim, D. H. Lim, P. Sarin, N. Smith and M. Stewart. Presented at the Annual Meeting of the European Ceramic Society, held in Berlin, Germany, June 17<sup>th</sup> –21<sup>st</sup> (2007).
113. "From Geopolymers to Ceramics," W. M. Kriven, J. L. Bell and P. Sarin. Presented at the Annual Meeting of the European Ceramic Society, held in Berlin, Germany, June 17<sup>th</sup>-21<sup>st</sup> (2007).
114. "*In situ*, in Air, High Temperature Synchrotron Studies of Phase Transformations of Oxide Ceramics," W. M. Kriven. Presented at the AFOSR Workshop on Ultra High Temperature Ceramics, held at Menlo Park, CA, on July 23<sup>rd</sup> – 24<sup>th</sup> (2007).
115. "Geopolymers and Geopolymer Concretes," W. M. Kriven,\* J. L. Bell, P. Sarin, R. P. Haggerty and P. Driemeyer. Presented at Tyndall Air Force Base, Panama City, FL Aug. 7<sup>th</sup> (2007).
116. "Strong, Hard and Tough, High Temperature Stable, Multi-phase Ceramiuc Composites with Retarded Grain Growth," D. K. Kim and W. M. Kriven. Presented at the 109<sup>th</sup> Annual Meeting of the American Ceramic Society, in conjunction with Materials Science and Technology 2007 Conference and Exhibition (MS &T '07), held in Detroit, Sept 16-20 (2007).
117. "Geopolymer-derived Ceramics based on Less Contaminated, Synthetic Analogues of Fly-Ash," W. M. Kriven\*, P. E. Driemeyer, J. L. Bell. Presented at the 109<sup>th</sup> Annual Meeting of the American Ceramic Society, in conjunction with Materials Science and Technology 2007 Conference and Exhibition (MS &T '07), held in Detroit, Sept 16-20 (2007).
118. "From Geopolymers to Ceramics," W. M. Kriven, J. L. Bell and P. Sarin. Presented at Composites at Lake Louise, Canada, Oct 28<sup>th</sup> –Nov 2<sup>nd</sup> (2007).
119. "In Situ, High Temperature Studies of Phase Transformations in Ceramics,"W. M. Kriven, P. Sarin and R. P. Haggerty. Presented at Composites at Lake Louise, Canada, Oct 28<sup>th</sup>–Nov 2<sup>nd</sup> (2007).

120. “Recent Advances in Thermally-induced Evolution of Geopolymers into Ceramics,” W. M. Kriven,\* J. L. Bell, R. P. Haggerty, P. E. Driemeyer. Presented at the 32<sup>nd</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, Florida, Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2008).
121. “*In situ*, in Air, High Temperature (2000°C) Studies of Oxide Ceramics,” W. M. Kriven,\* P. Sarin, R. Haggerty, J. Bell, P. E. Driemeyer. Presented in the Department of Anorganische Chemie, the University of Bonn, Bonn, Germany, Feb 21<sup>st</sup> (2008). At the invitation of Prof. Werner Mader.
122. “*In situ*, in Air, High Temperature (2000°C) Studies of Oxide Ceramics,” W. M. Kriven. Presented in the Insitut für Kristallographie at the University of Cologne, Cologne, Germany Feb 22<sup>nd</sup> (2008). At the invitation of Prof. Hartmut Schneider.
123. “From Zirconia Toughening to the Design of Advanced Composites,” W. M. Kriven.\* Presented at the Ehren Kolloquium (Colloquium in honor of) of Nils Claussen and Symposium on Hochleistungskeramik 2008 (High Durability Ceramics) held at the University of Hamburg-Harburg, Germany Feb 25-28<sup>th</sup> (2008).
123. “Pair Distribution Function Analysis of Metakaolin-Based Geopolymers,” J. L. Bell, \*, P. Sarin, R. P. Haggerty, P. E. Driemeyer and W. M. Kriven Brookhaven National Laboratory, National Synchrotron Light Source (NSLS), Seminar Series, March 7<sup>th</sup>, (2008).
124. “In Situ Synchrotron Studies of Oxide Ceramics to 2000°C in Air, “ W. M. Kriven, P. Sarin, J. L. Bell, \*, R. P. Haggerty and P. E. Driemeyer . Presented in the Department of Mechanical Engineering, Texas A&M University, College Station, Texas, April 24<sup>th</sup> 2008.
125. “Geopolymer Porous Nanoceramics for Structural, Smart and Thermal Shock Resistant Applications,” W. M. Kriven, J. L. Bell and P. E. Driemeyer. Presented at AFOSR review at Dayton Air Force Base, Dayton, OH, May 5<sup>th</sup> 2008.
126. “In situ High Temperature Phase Transformations in Ceramics,” W. M. Kriven,\* presented at 2008 High Temperature Aerospace materials Contractor’s meeting, held in Vienna, VA, 12-16<sup>th</sup> May (2008).
127. “From Geopolymers to Ceramics,” presented at the University of Trento, (per Prof. G. D. Sororu), in Trento, Italy, July 3<sup>rd</sup> (2008).
128. “High Tech Ceramics and Refractories without Sintering,” W. M. Kriven\*. Presented at 2<sup>nd</sup> International Congress on Ceramics (2nd ICC2), held in Verona, Italy, June 29<sup>th</sup> – July 4<sup>th</sup> (2008).

129. "In situ Synchrotron Studies of Ceramics to 2000°C in Air," W. M. Kriven,\* International Workshop on Mechanics-Based Design of Materials: Present State, Future Directions, Challenges, and Opportunities – (in honor of the retirement of Brian Lawn). Held at the University of Western Australia in Perth, Western Australia, July 14<sup>th</sup> - 16<sup>th</sup> (2008).
130. "Ultra High Temperature Materials," W. M. Kriven, P. Sarin, J. L. Bell, \*, R. P. Haggerty and P. E. Driemeyer. Presented at an AFOSR Workshop on Materials Under Extreme Conditions, Lake Tahoe, CA.
131. "Geopolymers" W. M. Kriven (an intensive two day lecture course on geopolymers, at the invitation of Dr. Alek Pyzik, presented at the Corporate R & D section of Dow Chemical Company in Midland, MI, on Sept. 2<sup>nd</sup> - 5<sup>th</sup> (2008).
132. "Microstructure and Short Range Order in Aluminosilicate Geopolymers," J. L. Bell, P. Sarin and W. M. Kriven, presented at 33<sup>rd</sup> International Conference on Advanced Ceramics and Composites held at Daytona Beach, FL, Jan 18<sup>th</sup> - 23<sup>rd</sup> (2009).
133. "In Situ Synchrotron Studies of Ceramics to 2000°C in Air," W. M. Kriven\*, presented as the Physics Department Colloquium of Eastern Illinois University, Bloomington, IL, Feb 24<sup>th</sup> (2009).
134. "Microstructure and Mechanical Properties of Leucite Glass-Ceramics Converted from Potassium-based Geopolymer," N. Xie, J. L. Bell and W. M. Kriven, 8<sup>th</sup> Pacific Rim Conference on Ceramics and Glass Technology, (PACRIM8), held in Vancouver, British Columbia, Canada, (May 31<sup>st</sup> – June 5<sup>th</sup> 2009).
135. "In-situ Synchrotron Studies of Ceramics to 2000°C in Air," W. M. Kriven, Departmental Seminar presented in the Department of Materials Science and Engineering, Boise State University, Idaho, Oct 9<sup>th</sup> (2009).
136. "In situ, High Temperature, Synchrotron Studies of Monoclinic to Tetragonal Phase Transformation in HfO<sub>2</sub>", R. P. Haggerty, P. Sarin, Z. Apostolov and W. M. Kriven\*. To be presented at Composites at Lake Louise, Lake Louise, Alberta, Canada, Oct 25<sup>th</sup> – 30<sup>th</sup> (2009).
137. "In situ Synchrotron Studies of Ceramics to 2000°C in Air," W. M. Kriven,\* P. Sarin, R. P. Haggerty and Z. D. Apostolov. Presented at the Lunchtime seminar series at the National Synchrotron Light Source at Brookhaven National Laboratory, Brookhaven, Nov 10<sup>th</sup> (2009).
138. "Formation of Ceramics from Metakaolin-based Geopolymers," W. M. Kriven, N. Xie and J. L. Bell. Presented at Materials Science and Technology 2009 Conference and Exhibition (MS&T'09) including the ACERS 111<sup>th</sup> Annual Meeting, held in Pittsburgh PA, Oct 25<sup>th</sup> - 29<sup>th</sup> (2009).

139. "In situ High Temperature Synchrotron Studies of Phase Transformations in Oxide Ceramics," W. M. Kriven,\* P. Sarin, R. Haggerty, Z. Apostolov. Presented at Materials Science and Technology 2009 Conference and Exhibition (MS&T'09) including the ACERS 111<sup>th</sup> Annual Meeting, held in Pittsburgh PA, Oct 25<sup>th</sup> -29<sup>th</sup> (2009).
140. "X-ray Studies of Phase Transformations in Tantalum Pentoxide," P. Sarin,\* R. P. Haggerty, J. L. Bell, A. Apostolov. Presented at Materials Science and Technology 2009 Conference and Exhibition (MS&T'09) including the ACERS 111<sup>th</sup> Annual Meeting, held in Pittsburgh PA, Oct 25<sup>th</sup> -29<sup>th</sup> (2009).
141. "Mechanical Properties and Thermal Behavior of Geopolymer Composites," W. M. Kriven, B. Andress, B. Choragwicki, D. Lowry, E. Rill, B. C. Wagoner. Presented at the 34<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, held in Daytona Beach, FL, Jan 24<sup>th</sup> – 29<sup>th</sup> (2010).
142. "Microstructure and Properties of Metakaolin-based Geopolymers," W. M. Kriven,\* J. L. Bell, P. E. Driemeyer, P. Sarin, R. P. Haggerty, M. Gordon, S. Mallicoat, P. Duxson, N. Xie, D. R. Lowry and E. Rill. Presented at 32<sup>nd</sup> Int. Conf. on Cement Microscopy, held in New Orleans, USA, March 28<sup>th</sup>-April 1<sup>st</sup> (2010).
143. "Atomic Structure and Microstructure of Geopolymer and Crystallized Geopolymer Ceramics," W. M. Kriven,\* J. L. Bell, P. E. Driemeyer, P. Sarin, R. P. Haggerty, N. Xie. Presented at 12<sup>th</sup> International Ceramics Congress, Montecatini Terme, Tuscany, Italy, June 6<sup>th</sup> – 11<sup>th</sup> (2010).
144. "Atomic Structure and Microstructure of Geopolymer and Crystallized Geopolymer Ceramics," W. M. Kriven. Invited lecture presented at Conferences Internationales Matériaux et Technologies (CIMTEC) 2010. Held in Montecatini Terme, Tuscany, Italy, June 6<sup>th</sup> – 11<sup>th</sup> (2010).
145. "Microstructure and Properties of Metakaolin-based Geopolymers," W. M. Kriven.\* Presented at Annual Meeting of the Cements Division of the American Ceramic Society, Purdue, IN, July 11<sup>th</sup>- 13<sup>th</sup> (2010).
146. "Geopolymers for Extreme Environments," W. M. Kriven. Presented at AFOSR Workshop on Materials Far From Equilibrium, held in Washington, DC on Nov 2<sup>nd</sup>-4<sup>th</sup> (2010).
147. "Mechanical Properties of Chopped Fiber Reinforced Composites as a Function of Temperature," T. P. Dietz\* and W. M. Kriven, presented at 35<sup>th</sup> Int. Daytona Beach Conf. on Advanced Ceramics and Composites, Jan 23<sup>rd</sup> – 28<sup>th</sup> (2011).

148. "History, Microstructure and Properties of Geopolymers," presented in the Department of Materials Science and Metallurgy, Cambridge University, UK, June 15<sup>th</sup> (2011). Lecture was at the invitation of Prof. Anthony Cheetham.
149. "History, Microstructure and Properties of Geopolymers," presented at the Laboratoire des Composites Thermostructuraux (LCTS) in Bordeaux, France on June 24<sup>th</sup> (2011). Lecture was at the invitation of Prof. Roger Naslain.
150. "In Situ Synchrotron Studies of Ceramics and Geopolymers to 2000 °C in Air," W. M. Kriven. Presented at the Australian Ceramic Society Meeting of the Victoria Branch of AUSTCERAM, held on the campus of Monash University, July 28<sup>th</sup> (2011).
151. "High Temperature Stable Geopolymer Composites," T. P. Dietz and W. M. Kriven.\* Presented at the 9th International Meeting of Pacific Rim Ceramic Societies (PacRim 9), held in Cairns, Australia, on July 10<sup>th</sup> to 14<sup>th</sup> (2011).
152. "Microstructure and Properties of Geopolymers," W. M. Kriven. Presented in the Department of Physics and Chemistry, The University of Adelaide, South Australia, Australia on Aug 1<sup>st</sup> (2011). Invitation was per Prof. John Carver.
153. "The Thermal Evolution of Zirconia and Hafnia in Air," R. P. Haggerty,\* P. Sarin, Z. Apostalov, Z. Jones and W. M. Kriven. Presented at the "Composites at Lake Louise Conference, Oct 30<sup>th</sup> – Nov 4<sup>th</sup> (2011). Held at Lake Louise, Canada.
154. "Mechanical Properties of Geopolymer Composites and their Adhesion to Polystyrene Insulation," W. M. Kriven\*, B. Glad and T. Dietz. Presented at the "Composites at Lake Louise Conference, Oct 30<sup>th</sup> – Nov 4<sup>th</sup> (2011). Held at Lake Louise, Canada.
155. "High Temperature Stable Geopolymer Composites," W. M. Kriven\* and T. P. Dietz. Presented at the Materials Science and Technology 2011 (MS&T 11) held in Columbus, Ohio, Oct 16<sup>th</sup> – 21<sup>st</sup> (2011).
156. "Production of Spherical Ceramic Beads using Sodium Alginate Chemistry," C. Espinoza, T.- S. Wei, W. M. Kriven,\* and Bum-Rae Cho. Presented at the Materials Science and Technology 2011 (MS&T 11) held in Columbus, Ohio, Oct 16<sup>th</sup> – 21<sup>st</sup> (2011).
157. "High Temperature 4-Point Flexural Strength of Chopped Fiber Reinforced Geopolymer Composites," T. P. Dietz and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
158. "Microwave Processing of Chopped Silicon Carbide Reinforced Geopolymers," M. L. Fall, S. M. Allan W. M. Kriven\* and H. S. Shulman. Presented at the 36<sup>th</sup>

- Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
159. “Organic-Aluminosilicate Interface Interactions,” B. E. Glad\* and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
  160. “Progress in CNT-Reinforced SiC Composites,” P. B. Stynoski, T. A. Carlson, C. P. Marsh, W. M. Kriven\*, and C. R. Welch. Presented at the Joint U. K.–U. S. Meeting on Advanced Materials. Held at the US Army Research and Development Center (ERDC), Vicksburg, MS, May 23 and 24<sup>th</sup> (2012).
  161. “Thermal Expansion of Crystalline Materials from In situ High Temperature Powder X-ray Diffraction,” W. M. Kriven,\* P. Sarin, Z. A. Jones, Z. D. Apostolov. Presented at the Workshop on the Design of Ceramic-Fiber Based Composites for Service above 1400 °C. Held at the National Hypersonics Science Center for Materials and Structures, Boulder, CO, June 9<sup>th</sup> -16<sup>th</sup> (2012).
  162. “Thermal Expansion of Crystalline Materials from In situ High Temperature Powder X-ray Diffraction,” W. M. Kriven,\* P. Sarin, Z. A. Jones, Z. D. Apostolov R. P. Haggerty. Presented at the National Synchrotron Light Source, seminar series, Brookhaven National Lab, June 22<sup>nd</sup> (2012).
  163. “Geopolymer Mesoporosity Control using Alkoxysilane Additives,” B. E. Glad\* and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013).
  164. “Green Composite: Processing, Mechanical Properties and Microstructure of Sodium-based Geopolymer Reinforced with Chemically Extracted Corn Husk Fibers,” S. S. Musil,\* P. F. Keane and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013).
  165. “Low Density Geopolymers Containing Silver Nanoparticles with Biocide Activity,” B. Cabal. B. E. Glad, W. M. Kriven,\* F. Rojo, Ramon Torrecillas, J. S. Moya. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013).
  166. “Multicomponent Oxide Nanotechnology for Industrial Applications,” W. M. Kriven.\* Presented at Colombia-US Workshop on Nanotechnology in Energy and Medical Applications, held in Medellin, Colombia, March 11-13<sup>th</sup> (2013).



167. “Multicomponent Oxide Nanotechnology and Geopolymers for Industrial Applications,” W. M. Kriven.\* Presented at Sumicol Company in Medellin, Colombia, March 14-15<sup>th</sup> (2013).
168. “Geopolymer Porosity Control using Surface Modificaiton and Templating,” B. E. Glad and W. M. Kriven.” Presented at 10<sup>th</sup> Pacific Rim Conference on Ceramic and Glass Technology (Pacrim 10), Jun 2-7 (2013), San Diego, CA.
169. “The Characterization of Nanoporosity in Geopolymers by Positron Annihilation Technqiues,” Presented at 10<sup>th</sup> Pacific Rim Conference on Ceramic and Glass Technology (Pacrim 10), Jun 2-7 (2013), San Diego, CA.
170. “Mechanical Properties of Carbon Fiber Reinforced Potassium Geopolymers,” Shinhu Cho\* and W. M. Kriven. Presented at 10<sup>th</sup> Pacific Rim Conference on Ceramic and Glass Technology (Pacrim 10), Jun 2-7 (2013), San Diego, CA.
171. “Mechanical Property Measurements of Geopolymers,” X. Fan, E. D. Case, S. Cho and W. M. Kriven. Presented at 10<sup>th</sup> Pacific Rim Conference on Ceramic and Glass Technology (Pacrim 10), Jun 2-7 (2013), San Diego, CA.
172. “In situ Studies of Phase Transformations and 3D Thermal Expansions in Ceramics to 2,000°C in Air,” W. M. Kriven. Presented as part of the lunch time seminar series at the Advanced Photon Source (APS) at Argonne National Laboratory (ANL), June 28<sup>th</sup> (2013).
173. “Fiber Reinforced Geopolymer Composites,” W. M. Kriven, presented at 3M Corporate Research Center, St. Paul, Minnesota, Sept. 17<sup>th</sup> (2013), invited by Dr. Per Nelson.
174. “Practical Applications of Materials Science Research,” W. M. Kriven,\* presented at Illinois Technology Education Conference (ITEC 2013) held in Normal, Illinois, Oct 11<sup>th</sup> -12<sup>th</sup> (2013).
175. “Geopolimeros” W. M. Kriven, presented at 2<sup>nd</sup> Workshop on Sustainable Technologies, at Universidade Federal do Amazonas, Manaus, Brazil, Oct 14<sup>th</sup> - 15<sup>th</sup> (2013).
176. “Fiber reinforced Geopolymer Composites,” W. M. Kriven, presented at 2<sup>nd</sup> Workshop on Sustainable Technologies, at Universidade Federal do Amazonas, Manaus, Brazil, Oct 14<sup>th</sup> -15<sup>th</sup> (2013).
177. “Controlled Heat Treatment and Crystallization of Oxide Fibers,’ W. Yoon, P. Sarin and W. M. Kriven.\* Presented at the Int. Symp. On Fibers Interfacing the World, held in Clemson, South Carolina, USA Oct 23<sup>rd</sup> – 25<sup>th</sup> (2013).

178. "Production of In situ Silicon Nitride Reinforced Geopolymer Composites, made by Carbothermal Reduction and Nitridation," C. Bagci, G. P. Kutyla and W. M. Kriven.\* Presented at 38<sup>th</sup> Int. Conf. and Exposition of Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 26<sup>th</sup> -31<sup>st</sup> (2014).
179. "Flexural Creep Evaluation of Polycrystalline Nextel and Single-Crystal Mullite Fiber Reinforced Polylucite Composites using the Geopolymerization Technique," S. Musil, W. M. Kriven,\* S.T. Mileiko and A. A. Kolchin. Presented at 38<sup>th</sup> Int. Conf. and Exposition of Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 26<sup>th</sup> -31<sup>st</sup> (2014).
180. "Sodium Geopolymer Reinforced with Jute Weaves or Figue Fibers," K. Sankar\* and W. M. Kriven. Presented at 38<sup>th</sup> Int. Conf. and Exposition of Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 26<sup>th</sup> -31<sup>st</sup> (2014).
181. "In Situ High Temperature Synchrotron Studies of Ceramics," W. M. Kriven\*. Presented at the IV Workshop on Applied Crystallography in Materials Science and Engineering, held in Vitoria, in the state of Espiritu Sanctu, Brazil, May 23<sup>rd</sup> – 25<sup>th</sup> (2014).
182. "Geopolymers and their Composites," W. M. Kriven\*. Presented at the V Scientific Meeting of Applied Physics, held in Vitoria, in the State of Espiritu Sanctu, Brail, May 25<sup>th</sup> – 28<sup>th</sup> (2014).
183. "Mechanical Properties of Geopolymers and their Composites," W. M. Kriven\*. Presented at the Instituto do Federal do Spirito Santo, held in Santa Teresa, in the State of Espiritu Sanctu, Brazil, May 29<sup>th</sup> (2014).
184. "Geopolymers and their Composites," W. M. Kriven\*. Presented at the Instituto de Macromoleculas Professor Eloisa Mano da Universidade Federal do Rio de Janeiro, June 2<sup>nd</sup> (2014).
185. "Geopolymers and their Composites," W. M. Kriven\*. Presented at Department of Civil Engineering, Pontificia Universidade Católica do Rio de Janeiro (PUC-Rio), Rio de Janeiro, Brazil, June 3<sup>rd</sup> (2014).
186. "Geopolymers and their Composites," W. M. Kriven\*. Presented in the Department of Civil Engineering, Universidade Federal do Rio De Janeiro, Brazil, June 6<sup>th</sup> (2014).
187. "Fiber Reinforced Geopolymer Composites," W. M. Kriven\*, S. S. Musil, K. Sankar, T. P. Dietz, G. P. Kutyla, A. A. Kolchin and S. T. Mileiko. Presented at 13<sup>th</sup> International Ceramics Congress, held in Montecatini Terme, Italy, June 8<sup>th</sup> - 13<sup>th</sup> (2014).

188. "Geopolymers and Geopolymer Composites," W. M. Kriven. Invited Departmental Seminar presented in the Department of Chemistry, Arizona State University, Tempe, Arizona, Sept 19<sup>th</sup> (2014).
189. "Phase Transformations in Fergussonite-Type Rare Earth Tantalates," R. W. Hughes, Z. D. Apostolov, P. Sarin and W. M. Kriven. Presented at MS&T 14, Oct 12-16<sup>th</sup> (2014) in Pittsburgh, PA.
190. "In situ Measurements of Electric Field Assisted Phase Transformations in Ytria Stabilized Zirconia," Jean-Marie Lebrun, Timothy Morrissey, John Francis, Kevin Seymour, Waltraud M. Kriven and Rishi Raj. Presented at MS&T 14, Oct 12-16<sup>th</sup> (2014) in Pittsburgh, PA.
191. "In situ Synchrotron Diffraction of the HfO<sub>2</sub> Phase Transformation in Air to 1850 °C," Ryan P. Haggerty, Pankaj Sarin, Zlatomir D. Apostolov, Patrick E. Driemeyer and Waltraud M. Kriven. Presented at MS&T 14, Oct 12-16<sup>th</sup> (2014) in Pittsburgh, PA.
192. "High Temperature Ferroelastic Phase Transition in Rare Earth Niobates (LnNbO<sub>4</sub>, where Ln = La, Dy, Y)," P. Sarin, R. W. Hughes, D. R. Lowry, Z. D. Apostolov and W. M. Kriven. Presented at MS&T 14, Oct 12-16<sup>th</sup> (2014) in Pittsburgh, PA.
193. "On the Utility of Metastable Phases – An example from Ln<sub>6</sub>WO<sub>12</sub> (Ln = Y, Ho, Er, Yb)," Zlatomir D. Apostolov, Pankaj Sarin, Robert W. Hughes and Waltraud M. Kriven. Presented at MS&T 14, Oct 12-16<sup>th</sup> in Pittsburgh, PA (2014).
194. "Kriven Group Research Topics and Fiber Reinforced Geopolymer Composites," W. M. Kriven. (Per Duane DeBastiani, Director of Enabling Technologies), presented at Vesuvius USA, Corporate Research Laboratories, Pittsburgh, PA Oct. 28<sup>th</sup> (2014).
195. "Effect of Fiber Length and Static Mechanical Properties of Milled, Carbon Fiber-reinforced Potassium Geopolymer Composite," Shinhu Cho, R.D. Schmidt, E. D. Case and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
196. "Microstructural Investigation of Carbothermally Reacted Geopolymer Composites, Made under Specific Alkaline Conditions," C. Bagci, G. Kutyla and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
197. "High Temperature Mechanical Properties of Alumina or Mullite Fiber Reinforced Geopolymer Composites," S. S. Musil, A. A. Kolchin, S. T. Mileiko and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced

- Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
198. "Effect of Curing Conditions on Crystalline Phase Development of Heat-treated K/Cs Geopolymer," A. Steveson and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
  199. "Geopolymers: Versatile Ceramic Composites made at Ambient Temperatures," W. M. Kriven\* per Dr. Steven Taulbee, Army Research Lab, Aberdeen Proving Ground, MD, May 8<sup>th</sup> (2015).
  200. "Effect of Carbon Content and Alkaline Conditions on Transformation Yield of SiC by Carbothermal Reaction of Geopolymers," Cengiz Bagci, G. P. Kutyla and W. M. Kriven\*. Presented at 11<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications, held in Vancouver, Canada, June 14<sup>th</sup> – 19<sup>th</sup> (2015).
  201. "Phase Transformations in Fergusonite-Type Rare Earth Tantalates," Robert W. Hughes, Zlatomir Apostolov, Pankaj Sarin and Waltraud Kriven\*. International Conference on Solid-Solid Phase Transformations in Inorganic Materials (PTM2015) held in Whistler, BC, Canada, June 28<sup>th</sup> – July 3<sup>rd</sup> (2015).
  202. "Phase Transformations and Thermal Expansion Properties of Rare Earth Monosilicates," Pankaj Sarin, Daniel Lowry Zlatomir Apostolov and Waltraud M. Kriven. Presented at the Materials Science and Technology (MS&T 15) Annual Meeting, held in Columbus OH, USA, Oct 4-8<sup>th</sup> (2015).
  203. "Tantalum Pentoxide Phase Transition and Thermal Expansion," Scott McCormack, Ryan P. Haggerty, Pankaj Sarin and Waltraud M. Kriven. Presented at the Materials Science and Technology (MS&T 15) Annual Meeting, held in Columbus OH, USA, Oct 4-8<sup>th</sup> (2015).
  204. "Low Cost Synthesis of Silicon-based Ceramic Powders from Na, K and Cs Geopolymer," Cengiz Bagci, Gregory P. Kutyla and Waltraud M. Kriven. Presented at Composites at Lake Louise 2015, held in Lake Louise, Canada on Nov 8<sup>th</sup> -12<sup>th</sup> (2015).
  205. "Potassium Geopolymer Reinforced with E Glass Leno Weave," Kaushik Sankar and Waltraud M. Kriven. Presented at the 40<sup>th</sup> Int. Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Jan 24<sup>th</sup> - 29<sup>th</sup> (2016).
  206. "Status Quo of Metakaolin-based Geopolymers containing Inorganic or Biological Reinforcements," W. M Kriven. Presented at 2<sup>nd</sup> European Geopolymer Network, held in Limoges, France, June 15<sup>th</sup> (2016).

207. "Microstructural Investigation of Carbothermally Reacted Geopolymer Composites, made under Specific Alkaline Conditions," Gengiz Bagci, Gregory P. Kutyla and Waltraud M. Kriven. Presented at the World Academy Forum (WAC) 2016 in Marina di Ravenna, Italy June 14-17<sup>th</sup> (2016).
208. "Potassium Geopolymer-Bamboo Composite: A Sustainable Construction Material," Ruy A. Sá Ribeiro, Marilene G. Sá Ribeiro, Kaushik Sankar, Waltraud M. Kriven. Presented at Global Forum on Advanced Materials and Technologies for Sustainable Development (GFMAT 2016), held in Toronto, Canada, June 26<sup>th</sup> – July 1<sup>st</sup> (2016).
209. "Geopolymers: Versatile Ceramic Composites made at Ambient Temperatures," W. M. Kriven. Presented at the University of Nis, Faculty of Electronic Engineering, Serbia, Sept 24<sup>th</sup> (2016).
210. "Materials Development for Multicomponent Systems with Variable Oxidation States," W. M. Kriven. Presented at the University of Nis, Faculty of Electronic Engineering, Serbia, Sept 24<sup>th</sup> (2016).
211. "Metakaolin-based Geopolymers containing Inorganic or Biological Reinforcements," First Int. Symposium of Ceramics and Composites (ISCCO) held in Antioquia, Colombia, South America, Oct 3-5<sup>th</sup> (2016).
212. "In Situ High Temperature Synchrotron Diffraction Studies of Oxide Ceramics," W. M. Kriven. Presented at Int. Research Conf. on Structure and Thermodynamics of Oxides at High Temperature, held at the University of California at Davis, Oct 20<sup>th</sup>-22<sup>nd</sup> (2016).
213. "Low Temperature Synthesis of SiC, Si<sub>3</sub>N<sub>4</sub> and SiAlON by Carbothermal Reduction or Nitridation of Geopolymers," Cengiz Bagci and Waltraud M. Kriven. Presented at MS&T 16 Annual Meeting, held in Salt Lake City, Utah Oct 23<sup>rd</sup> - 27<sup>th</sup> (2016).
214. "Preparation of Coatings and Characterization of Adhesion between Metakaolin-based Geopolymers and Mild Steel," G. P. Kutyla, P. Stynoski, T.A. Carlson, C. Marsh and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
215. "Geopolymer Synthesis as a Low Energy, Zero Waste Route to Ceramics," Andrew J. Steveson and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.

216. "Reactivity of Amazonian Metakaolin for Geopolymer Synthesis," R. S. Sa Ribeiro, G. P. Kutyla, M. G. Sa Ribeiro and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
217. "High Temperature Microstructural Integrity and Enhanced Mechanical Properties in Bone Ash/Glaze Frit Reinforced Geopolymer Composites," A. W. Bhuiya, K. Sankar, D. R. Rodriguez and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
218. "Processing, Microstructure and Properties of Slag-Fly Ash Geopolymers," K. Sankar, P. Stynoski, G. Al-Chaar, I. Al-Qadi and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> 2017 in Daytona Beach, FL, USA.
219. "Preparation and Properties of a Potentially Useful New Pseudo-geopolymer Material," G. P. Kutyla, C. Marsh and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
220. "Geopolymers: Structural Inorganic Polymers," W. M. Kriven. Presented at the Barbara Hardy Institute, University of South Australia, Mawson Lakes Campus, Adelaide, South Australia, at the invitation of Dr. Frank Bruno, June 20<sup>th</sup> (2017).
221. "In Situ Determination of Phase Equilibria, Thermal Expansion and Phase Transformations in the Ternary Hafnia-Tantala-Titania System," Scott J. McCormack, Waltraud M Kriven, Sergey Ushakov, Alexandra Navrotsky and Richard Webber. Presented at MS&T17 Annual Meeting, held in Pittsburgh, PA Oct 8-12<sup>th</sup> (2017).
222. "In Situ Phase Diagram Determination of the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> Binary up to 3000°C," Waltraud M. Kriven. Invited lecture presented at Composites at Lake Louise 2017, held in Lake Louise, Alberta, Canada, Nov 12-16<sup>th</sup> (2017).
223. "3-D Printing of Alumina-Platelet-Reinforced Geopolymer Composites," B. Munoz, P. F. Keane and W. M. Kriven\*. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
224. "Basalt Chopped Fiber Reinforced, Amorphous Self Sealed Geopolymers (ASS-G) and Amorphous Self Sealed Ceramics, (ASS-C)," Patrick F. Keane,\* Charles P. Marsh and W. M. Kriven\*. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.

225. “Understanding the Relationship between Micro- and Macroscale Properties in Sodium Silicate Activated, Slag-Fly Ash Binders,” Kaushik Sankar\*, Xu Chen, Ghassan Al-Chaar and Waltraud M. Kriven. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
226. “Use of Geopolymeric Leucite as a Feldspathic Replacement in Dental Ceramics,” Cengiz Bagci\*, S. Yildirim, K. Sevinc and Waltraud M. Kriven. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
227. “Bone Ash Reinforced Geopolymer using Metamax, Mymenshingh Clay and Synthetic Mymenshingh Clay derived Metakaolin,” Abdul W. Bhuiya, M. Hu, and Waltraud M. Kriven.\* Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
228. “Preliminary Results on the Performance-Based Specification for Amazonian Geopolymer Composites,” Ruy Sa-Ribeiro, Marilene G. SaRibeiro, Marilia G. Sa Ribeiro, Mauro R. Sardela and Waltraud M. Kriven. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
229. “Strength Properties of Geopolymer Composites using a Theoretical and Numerical Approach,” A. Kataruka, E. Guleryuz, S. Koric, W. M. Kriven and A. Okono.\* Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
230. “Influence of Nanoporosity on Strength of Inorganic Polysialates: A Molecular Dynamics Study,” Y. Cui, E. Guleryuz, S. Koric, W. M. Kriven and A. Okono\*. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
231. “Adhesion of Unreinforced Metakaolin Geopolymer to Common Metal Substrates,” T. A. Carlson\*, G. P. Kutyla, C. P. Marsh, W. M. Kriven. Invited talk presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
232. “Geopolymers: Structural Inorganic Polymers – a Potential Partial Solution to Global Warming,” Waltraud M. Kriven\*. Presented to high school teachers enrolled in Project Lead the Way short course held at the University of Illinois at Urbana-Champaign, June 22<sup>nd</sup> (2018).
233. “Geopolymer Content in Sodium Silicate, Alkali-Activated, Slag-Fly-ash Binders”, Kaushik Sankar and Waltraud M. Kriven\*. Presented at 12<sup>th</sup> Int. Conf.

- on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE 2018) held in Singapore, July 22<sup>nd</sup> – 28<sup>th</sup> (2018).
234. “Effect of Acid Exposure on Metakaolin-based and Bamboo Fiber Reinforced Geopolymers,” Ruy A. Sa Ribeiro, Marilene G. Sa Ribeiro, Marilia G. Sa Ribeiro, Mauro R. Sardela and Waltraud M. Kriven\*. Presented at 12<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE 2018) held in Singapore, July 22<sup>nd</sup> – 28<sup>th</sup> (2018).
  235. “Alkali Silicate Activated, Slag-Fly Ash Binders,” Kaushik Sankar, Andre Sutrisno, Peter Stynoski and Waltraud M. Kriven. Presented at Int. Conf. on Structural and Civil Engineering Research, held on Oct 01-02 (2018), Hyatt Place Amsterdam Airport, Holland.
  236. “In situ Phase Diagram Determination of the HfO<sub>2</sub> – Ta<sub>2</sub>O<sub>5</sub> Binary up to 3000°C,” Scott J. Mc Cormack, Richard Weber, Denys Kapush, Alexandra Navrotsky and Waltraud M. Kriven\*. Presented at MS&T 2018 Int. Conf., Symposium on Phase Transformations in Ceramics: Science and Applications, held on Oct 14<sup>th</sup> -18<sup>th</sup> (2018), in Columbus, OH, USA.
  237. “Topotactic Motif and Orientation Relation Extraction for Phase Transformations from In-situ, X-ray Powder Diffraction,” Scott McCormack\* and Waltraud M. Kriven. Presented at MS&T 2018 Int. Conf., Symposium on Phase Transformations in Ceramics: Science and Applications, held on Oct 14<sup>th</sup> -18<sup>th</sup> (2018), in Columbus, OH, USA.
  238. “Geopolymers: Structural Inorganic Polymers and a Potential Partial Solution to Global Warming,” invited lecture presented at the Lemann Institute for Brazilian Studies, College of Liberal Arts and Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, Oct 9<sup>th</sup> (2018).
  239. Geopolymers and Alkali Silicate Activated, Slag-FlyAsh Binders,” Invited lecture presented as Departmental Seminar, in the Department of Civil and Materials Engineering, University of Illinois at Chicago, Chicago, IL Oct 19<sup>th</sup> (2018).
  240. “Geopolymers: Structural Inorganic Polymers and a Potential Partial Solution to Global Warming,” Waltraud M. Kriven. Invited lecture presented as the Departmental Seminar in the Department of Materials Science and Engineering, Lehigh University, Bethlehem, PA, USA, Oct 30<sup>th</sup> (2018).
  241. “On the Mechanical Behavior of Potassium-based Geopolymer Reinforced with Chopped Basalt Fibers Manufactured for Cement versus Epoxy-based Applications,” A. C. Trindade, F. de Silva and Waltraud M. Kriven. Invited lecture presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 to Feb 1 (2019) in Daytona Beach, FL, USA.



242. “Amazonian Lateritic Soil-based Geopolymer Reinforced with Granite-Marble Particulates,” M. G. SaRibeiro, M. G. Sa Ribeiro, W. M. Kriven and R. A. Sa Ribeiro. Invited lecture presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 to Feb 1 (2019) in Daytona Beach, FL, USA.
243. “Quality of Precursors and Nanostructural Evolution of Binding Phases in Slag-Fly Ash-Metakaolin-based Binders,” K. Sankar and W. M. Kriven. Invited lecture presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 to Feb 1 (2019) in Daytona Beach, FL, USA.
244. “Rehabilitation of Deteriorated Wood Railroad Ties using Alkali Activated Slag Fly Ash Binders,” G. Al-Chaar, K. Sankar and W. M. Kriven. Invited lecture presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 to Feb 1 (2019) in Daytona Beach, FL, USA.
245. “Amorphous, Self-glazed (ASH-G) Geopolymer and (ASG-C) Ceramic Composites,” V. Chadha and W. M. Kriven. Invited lecture presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 to Feb 1 (2019) in Daytona Beach, FL, USA.
246. “Quality of Precursors and Nanostructural Evolution of Silicate Binding Phases in Slag-Fly Ash- Metakaolin-based Binders,” Kaushik Sankar, Andre Sutrisno and Waltraud M. Kriven. Invited lecture presented at the XVIth European Ceramic Society Annual Meeting, held in Torino, Italy, 16<sup>th</sup> -20<sup>th</sup> June (2019).
247. “Geopolymers: Structure and Formulation,” W. M. Kriven, presented at the one-day seminar on Geopolymers and Alkali Activated Materials held on June 20<sup>th</sup> - 21<sup>st</sup> (2019). Following the XVIth European Ceramic Society Annual Meeting, held in Torino, Italy, 16<sup>th</sup> -20<sup>th</sup> June (2019).
248. “Geopolymer Composites and Slag-Fly Ash Binder Composites,” Waltraud M. Kriven, Kaushik Sankar, Andre Sutrisno. Presented at the International Conference on Chemical Physics and Materials Science, held in Istanbul, Turkey, July 8<sup>th</sup> – 10<sup>th</sup> (2019).
249. “Alkali Activated Cements and Geopolymer Composites,” Waltraud M. Kriven. Presented in the Department of Materials Science and Engineering, Sabanci University, Istanbul, Turkey, July 10<sup>th</sup> (2019).
250. “In-situ Phase Diagram Determination of the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub>-TiO<sub>2</sub> Ternary Up to 3000 °C,” Scott J. McCormack, Ben Hulbert, Richard Weber, Sergey Ushakov, Alexandra Navrotsky and Waltraud Kriven. Presented at the Symposium on Phase Transformations in Ceramics: Science and Applications, organized by MS&T19 in Portland, Oregon Sept 29<sup>th</sup> – Oct 3<sup>rd</sup> (2019).

251. “Topotactic Motif and Orientation Relation Extraction for Phase Transformations from In-Situ X-ray Powder Diffraction,” Scott J. Mc Cormack, Waltraud M. Kriven. Presented at the Symposium on Phase Transformations in Ceramics: Science and Applications, organized by MS&T19 in Portland, Oregon Sept 29<sup>th</sup> – Oct 3<sup>rd</sup> (2019).
252. “Directions of Zero Thermal Expansions in Anisotropic Oxides,” Scott J. McCormack, William Wheeler, Benjamin S. Hulbert, Waltraud M. Kriven. Presented at Composites at Lake Louise 2019, Nov 10<sup>th</sup> – 14<sup>th</sup> 2019, Lake Louise, Alberta, Canada (2019).
253. “In Situ Synchrotron Studies of Oxide Ceramics to 3,000°C,” Waltraud M. Kriven.\* Presented at Int. Conf. on Composites at Lake Louise (CALL2019), held in Alberta, Canada, Nov 10<sup>th</sup> -14<sup>th</sup> (2019).
254. “In Situ Synchrotron Studies of Oxide Ceramics to 3,000°C,” Waltraud M. Kriven\* Materials Seminar, University of Tennessee, Knoxville, Tennessee, Nov 19<sup>th</sup> (2019).
255. “Phase Equilibria and Symmetry Relations in the HfO<sub>2</sub>-TiO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> System up to 3000°C,” S. J. McCormack,\* K. Tseng, R. Weber, S. Ushakov, A. Navrotsky and W. M. Kriven. Presented at 44<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 26<sup>th</sup> – 31<sup>st</sup> (2020).
256. “Effect of Porosity on the Mechanical Response of Geopolymer Composites,” A. Akono,\* W. M. Kriven and Seid Koric. Presented at 44<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 26<sup>th</sup> – 31<sup>st</sup> (2020).
257. “Tailorable Thermal Expansion in Ceramics Synthesized by Geopolymer Crystallization,” Andrew J. Steveson\* and Waltraud M. Kriven. Presented at 44<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 26<sup>th</sup> – 31<sup>st</sup> (2020).
258. “Geopolymers: Inorganic polymers, made like a cement, but high temperature stable, like a ceramic,” W. M. Kriven. Presented as the Departmental Colloquium to the Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL Oct 12<sup>th</sup> (2020).
259. “Characterization of Lateritic Soil Geopolymer Composites for Engineering Construction Applications,” Ruy A. Sá Ribeiro Marilene G. Sá Ribeiro Mauro R. Sardela Patrick F. Keane Waltraud M. Kriven. Presented at 45<sup>th</sup> Virtual Int. Conf. and Expo on Advanced Ceramics and Composites, Daytona Beach, FL, Feb 8<sup>th</sup> – 12<sup>th</sup> (2021).
260. “Geopolymer-derived Leucite-Pollucite Materials for Environmental Barrier Coatings,” Andrew J. Steveson and Waltraud M. Kriven. Presented at 45<sup>th</sup> Virtual

- Int. Conf. and Expo on Advanced Ceramics and Composites, Daytona Beach, FL, Feb 8<sup>th</sup> – 12<sup>th</sup> (2021).
261. “Geopolymers: Inorganic polymers, made like a cement, but high temperature stable, like a ceramic,” W. M. Kriven. Presented as Departmental Seminar to the Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL Feb 24<sup>th</sup> 2021.
  262. “Critical Parameters Controlling the Formation of High-entropy Oxides,” Kuo-Pin Tseng, Benjamin Scott Hulbert, Qun Yang, Waltraud M. Kriven. To be presented at Int. Symposium on Phase Transformations in Ceramics: Science and Applications as part of Annual MS&T 21 Conference held in Pittsburgh, PA, Oct 4<sup>th</sup> -8<sup>th</sup> (2021).
  263. “Crystallized Geopolymers having Tailorable Thermal Expansions,” Andrew Steveson and Waltraud M. Kriven. To be presented at Int. Symposium on Phase Transformations in Ceramics: Science and Applications as part of Annual MS&T 21 Conference held in Pittsburgh, Columbus, OH (2021).
  264. “Investigating the Effect of Zr<sup>4+</sup> Co-substitution on the Phase Properties of YTaO<sub>4</sub>,” Pankaj Sarin, Daniel R. Lowry and Waltraud M. Kriven. To be presented at Int. Symposium on Phase Transformations in Ceramics: Science and Applications as part of Annual MS&T 20 Conference held in Pittsburgh, PA, Oct 4<sup>th</sup> -8<sup>th</sup> (2021).

#### **CONFERENCE PRESENTATIONS (\* given by)**

1. “Different Mechanisms and Relations in the Aragonite-type to Calcite-like Transformation in Potassium Nitrate,” S. W. Kennedy and M. Odlyha and W. M. Kriven, Royal Australian Chemical Institute, Solid State Conference, Sydney, Australia 1976.
2. “Characterization of Mullites by Transmission Electron Microscopy,” W. M. Kriven\*, R. J. Mishra and J. A. Pask, Conference Abstracts, American Ceramic Society, Annual Meeting, May 1978, Detroit, USA.
3. “Microstructures of Melt-crystallized Mullites,” W. M. Kriven and J. A. Pask, Conference Abstracts, American Ceramic Society, Regional Meeting, October 1978, San Diego, USA.
4. “Structural Transformations in KNO<sub>3</sub>, RbNO<sub>3</sub> and NH<sub>4</sub>Br,” S. W. Kennedy, W. M. Kriven\* and W. L. Fraser, ICOMAT, International Conference on Martensitic Transformations, MIT, Cambridge, USA, June 1979.

5. "Dislocations and Low-angle Grain Boundaries in Mullite," W. M. Kriven\*, R. Gronsky and J. A. Pask, Conference Abstracts, American Ceramic Society, Annual Meeting, October 1979, New Orleans, USA.
6. "Possible Crystallographic Mechanisms of the Tetragonal to Monoclinic Transformation in Zirconia," W. M. Kriven\*, W. L. Fraser and S. W. Kennedy, Conference Abstracts, American Ceramic Society, Annual Meeting, April 1980, Chicago, USA.
7. "Experimental Analysis of the Martensitic Transformations in Partially Stabilized Zirconia," W. M. Kriven\*, A. G. Evans and A. H. Heuer, Conference Abstracts, American Ceramic Society, Annual Meeting, April 1980, Chicago USA (Poster).
8. "The Martensite Crystallography of Tetragonal Zirconia," W. M. Kriven\*, W. L. Fraser and S. W. Kennedy, First International Conference on Zirconia, Case Western Reserve University, June 1980, Cleveland, USA (Poster).
9. "Martensite Theory and Twinning in Composite ZrO<sub>2</sub> Ceramics," W. M. Kriven\*, First International Conference on Zirconia, CWRU, June 1980, Cleveland, USA (Poster).
10. "The Influence of Grain Boundary Silica Impurity on Alumina Toughness," J. S. Moya\*, W. M. Kriven and J. A. Pask, International Symposium on Surfaces and Interfaces in Ceramic and Ceramic-Metal Systems, Berkeley, USA, 1980.
11. "HVEM Analysis of Internal Strains in Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> Ceramics," W. M. Kriven\* and M. Ruhle, Conference Abstracts, American Ceramic Society, Annual Meeting, May 1981, Washington, USA.
12. "Dislocations and Planar Defects in Transformed Monoclinic ZrO<sub>2</sub>," E. Bischoff, M. Kirn, W. M. Kriven and M. Ruhle\*, Conference Abstracts, American Ceramic Society, Annual Meeting, May 1981, Washington, USA.
13. "Higher Alumina Twinned Mullite: 3Al<sub>2</sub>O<sub>3</sub>.SiO<sub>2</sub>," W. M. Kriven\*, Y. Nakajima, and Joseph A. Pask, Conference Abstracts, American Ceramic Society, Annual Meeting, May 1981, Washington, USA.
14. "Shear Transformations in Inorganic Materials," W. M. Kriven\*, an invited review paper, Int. Conf. on Solid-Solid Phase Transformations, Carnegie-Mellon University, August 1981, Pittsburgh, USA.
15. "Martensitic Transformation and Relaxation Mechanisms in RbNO<sub>3</sub>," S. W. Kennedy and W. M. Kriven\*, contributed paper, Int. Conf. on Solid-Solid Phase Transformations, Carnegie-Mellon University, August 1981, Pittsburgh, USA.

16. "The Aragonite to Calcite-like Transformation in Potassium Nitrate," W. M. Kriven\* and S. W. Kennedy, contributed paper, Int. Conf. on Solid-Solid Phase Transformations, Carnegie-Mellon University, August 1981, Pittsburgh, USA.
17. "HVEM analysis of shape strains around transformed zirconia inclusions," M. Ruhle\* and W. M. Kriven, contributed paper, Int. Conf. on Solid-Solid Phase Transformations, Carnegie-Mellon University, August 1981, Pittsburgh, USA.
18. "Strain analysis around tetragonal zirconia inclusions," W. M. Kriven\* and M. Ruhle, 10th International Congress on Electron Microscopy, Hamburg, August 1982 (poster).
19. "Lattice-deformational transformations in non-metals," W. M. Kriven\*, invited lecture presented at Int. Conf. on martensitic transformations (ICOMAT), summer course, Leuven, Belgium, August 1982.
20. "Stress-induced transformations in composite zirconia ceramics," M. Ruhle\* and W. M. Kriven, presented at Deutsche Bunsengesellschaft für Physikalische Chemie, Discussion Meeting on Stability and Phase Transformations of Solids, held in Königstein, West-Germany, September (1982).
21. "Quantitative analysis of elastic strains surrounding confined spherical zirconia particles," W. M. Kriven\*, W. Mader and M. Ruhle, (poster) presented at the Second International Conference on the Science and Technology of Zirconia," held in Stuttgart, Federal Republic of Germany, June 21-23, 1983.
22. "Transformation strains of confined spherical zirconia particles," W. M. Kriven\*, (poster) presented at the Second International Conference on the Science and Technology of Zirconia, held in Stuttgart, Federal Republic of Germany, June 21-23, 1983.
23. "Anomalous expansion in Al<sub>2</sub>O<sub>3</sub>-15 vol.% (Zr, Hf)O<sub>2</sub>," W. M. Kriven\* and E. Bischoff, (poster) presented at the Second International Conference on the Science and Technology of Zirconia, held in Stuttgart, Federal Republic of Germany, June 21-23, 1983.
24. "The transformation mechanism of spherical zirconia particles in alumina," W. M. Kriven\* presented at the Annual Meeting of the American Ceramic Society, May 1984, Pittsburgh, USA.
25. "Characterization of copper-ceramic interfaces," W. M. Kriven\* and S. H. Risbud, presented at the Fall Meeting of the Materials Research Society, Nov. (1984) Boston, Abstract number J 6.4.
26. Participated in and presented two papers at the Second International Workshop on Transformation Toughening, April (1985), Lorne (near Melbourne), Australia.

27. "Microstructures of non-stoichiometric dicalcium silicates," C.-J. Chan,\* W. M. Kriven, J. F. Young and A. Ghose, presented at the Annual Meeting of the American Ceramic Society, May (1985), Cincinnati, USA.
28. "The microstructure of copper-cordierite interfaces," W. M. Kriven,\* presented at the Annual Meeting of the American Ceramic Society, May (1985), Cincinnati, USA.
29. "Microstructure of non-stoichiometric dicalcium silicate doped with potassium oxide," A. Ghose, C.-J. Chan, W. M. Kriven, and J. F. Young\*, presented at the Beijing Int. Symp. on Cement and Concrete, May (1985), Beijing, China.
30. "Displacive transformation mechanisms in zirconia ceramics and other non-metals," W. M. Kriven\*, presented at 21st University Conference on Ceramic Science, July (1985), Pennsylvania State University, Pennsylvania, USA.
31. "Analytical electron microscopy of rapidly solidified  $\text{SiO}_2\text{-Al}_2\text{O}_3$  glasses," A. P. Tagliavere\*, W. M. Kriven, and S. H. Risbud. Presented at the Annual Meeting of the American Ceramic Society, April (1986), Chicago.
32. "Microstructure of dicalcium silicates doped with potassium or aluminum," C. J. Chan, J. F. Young\*, and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, April (1986), Chicago.
33. "Possible transformation tougheners alternative to zirconia-crystallographic aspects," W. M. Kriven\*. Presented at the Annual Meeting of the American Ceramic Society, April (1986), Chicago.
34. "Effect of high temperature oxidation on the microstructure and mechanical properties of whisker-reinforced ceramics," W. M. Kriven\*, G. Van Tendeloo, T. N. Tieggs and P. F. Becher. Presented at the International Materials Symposium, "Ceramic Microstructures '86: Role of Interfaces," University of California at Berkeley, July 28-32 (1986).
35. "Strain analysis in ceramic composites," W. M. Kriven\*, an invited paper presented at the American Society for Electron Microscopy (EMSA), 44th Annual Fall Meeting, Albuquerque, Aug. 10-15 (1986).
36. "Microstructural development of rapidly solidified, phase separated,  $\text{SiO}_2\text{-Al}_2\text{O}_3$  glass," A. P. Tagliavere, W. M. Kriven\* and S. H. Risbud. Presented at the American Society for Electron Microscopy (EMSA) 44th Annual Meeting, Albuquerque USA, Aug. 10-15 (1986).
37. "Microstructure characterization of non-stoichiometric dicalcium silicates doped with aluminum oxide," C. J. Chan\*, W. M. Kriven and J. F. Young. Presented at the American Society for Electron Microscopy (EMSA) 44th Annual Meeting, Albuquerque USA, Aug. 10-15 (1986).

38. "Precursors to crystallization in amorphous CdGeAs<sub>2</sub>" R. F. Speyer, W. M. Kriven\* and S. H. Risbud. Presented at the American Society for Electron Microscopy (EMSA) 44th Annual Meeting, Albuquerque, USA, Aug. 10-15 (1986).
39. "Possible transformation tougheners alternative to zirconia-crystallographic aspects," W. M. Kriven\* presented at the Advanced Ceramics II Lecture Meeting, held at Tokyo Institute of Technology, Japan, September 4-5 (1986).
40. "Dicalcium silicate in the CaO-ZrO-SiO<sub>2</sub> system," W.M. Kriven and C.J. Chan, presented at the Third Int. Conf. on Science and Technology of Zirconia, held at Tokyo, Japan, Sept. 9-11th (1986).
41. "Transformation mechanisms in confined zirconia particles and in other potential new tougheners of ceramics," W. M. Kriven\* (invited paper) presented at Fall Meeting of the Metallurgical Society (TMS) of the AIME, on Physical Metallurgy and Materials, Orlando, Florida, October (1986).
42. "Possible transformation tougheners alternative to ZrO<sub>2</sub>-crystallographic aspects" W. M. Kriven\*. Abstract #[54-BP-87], presented at the Annual Meeting of the American Ceramic Society, April (1987), Pittsburgh, USA.
43. "Effect of kinetics on Ca<sub>2</sub>SiO<sub>4</sub> microstructure development," C.J. Chan\* and W. M. Kriven. Abstract #[112-B-87], presented at the Annual Meeting of the American Ceramic Society, April (1987), Pittsburgh, USA.
44. "Development of dicalcium silicate as a transformation toughener," E. A. Barinek\* and W. M. Kriven. Abstract #[272-B-87], presented at the Annual Meeting of the American Ceramic Society, April (1987) Pittsburgh, USA.
45. "Analytical electron optical studies of doped dicalcium silicates," C. J. Chan,\* W. M. Kriven and J. F. Young. Abstract #[27-T-87], presented at the Annual Meeting of the American Ceramic Society, April (1987), Pittsburgh, USA.
46. "Investigation of a ceramic-metal interface prepared by anodic spark deposition," K. A. Koshkarian\* and W. M. Kriven. Presented at the Int. Conf. on Interface Science and Engineering '87." Lake Placid, New York, July (1987).
47. "Possible transformation tougheners alternative to ZrO<sub>2</sub>: crystallographic aspects," W. M. Kriven.\* Presented at 12th Conf. on Composites Materials and Structures, Jan. 20-22nd (1988) Cocoa Beach, Florida, USA.
48. "Investigation of CaO-Dy<sub>2</sub>O<sub>3</sub> as a transformation toughening system," M. M. Fleming, Y. J. Kim\* and W. M. Kriven. Abstract #[191-B-88], Presented at the 90th Annual Meeting of the American Ceramic Society, Cincinnati, May 1-5th, 1988.

49. "Evaluation of  $Gd_2O_3$  and  $Tb_2O_3$  as transformation toughening agents," P. D. Jero\* and W. M. Kriven. Abstract #[192-B-88], Presented at the 90th Annual Meeting of the American Ceramic Society, Cincinnati, May 1-5th, 1988.
50. "The stabilizing role of glassy phases on the  $\beta$  to  $\gamma$  transformation in dicalcium silicate," C. J. Chan\*, W. M. Kriven and J. F. Young. Abstract #[46-BP-88]. Presented at the 90th Annual Meeting of the American Ceramic Society, Cincinnati, May 1-5th, 1988.
51. "Monoclinic to Cubic Transformation in Dysprosia," O. Sudre, K.R. Venkatachari and W. M. Kriven, #[47-BP-88]. Presented at the American Ceramic Society, Cincinnati, May 1-5th, 1988.
52. "Examination of  $CaO-Dy_2O_3$  for potential use as a high temperature transformation toughening system," M. M. Fleming and W. M. Kriven." Presented at the 46th Annual Meeting of the Electron Microscopy Society of America (EMSA), Milwaukee, Aug. 7-12th, 1988.
53. "TEM studies of modulated structures in the monoclinic (B) phase of  $CaO$ -stabilized  $Dy_2O_3$ ," Y. J. Kim and W. M. Kriven. Presented at the 46th Annual Meeting of the Electron Microscopy Society of America (EMSA), Milwaukee, Aug. 7-12th, 1988.
54. "Microstructural characterization of laser-melted, roller-quenched dicalcium silicate," C. J. Chan,\* K. R. Venkatachari, W. M. Kriven and J. F. Young. Presented at the 46th Annual Meeting of the Electron Microscopy Society of America (EMSA), Milwaukee, Aug. 7-12th, 1988.
55. "Transformation tougheners alternative to zirconia--crystallographic aspects" W. M. Kriven\* (invited keynote address). Austceram 88, Int. Ceram. Conf. and Exhibition, held in Sydney, Australia, Aug. 21-26th 1988.
56. "High temperature transformation toughening of magnesia by terbia," W. M. Kriven\* and P. D. Jero. Austceram 88, Int. Ceram. Conf. and Exhibition, held in Sydney, Australia, Aug. 21-26th, 1988.
57. "Evaluation of the calcia-dysprosia system for transformation toughening," W. M. Kriven\* and M. M. Fleming. Austceram 88, Int. Ceram. Conf. and Exhibition, held in Sydney, Australia, Aug. 21-26th, 1988.
58. "The monoclinic to cubic transformation of dysprosia," W. M. Kriven\* and O. Sudre, Austceram 88, Int. Ceram. Conf. and Exhibition, held in Sydney, Australia, Aug. 21-26th, 1988.



59. "Martensitic toughening in ceramics: possible alternative tougheners to  $ZrO_2$ ," W. M. Kriven.\* Invited paper at DOE-sponsored Int'l Workshop on First-Order Displacive Phase Transformations, held in Berkeley, California, Oct. 23-28th, 1988.
60. "Investigation of a self-lubricating  $Al_2O_3$  coating formed by anodic spark deposition," K. A. Koshkarian and W. M. Kriven\*, Mat. Res. Soc., Int. Symp. on New Materials Approaches to Tribology: Theory and Applications. Held in Boston, MA Nov. 28-Dec. 3rd (1988).
61. "High temperature toughening mechanisms exhibited by the lanthanide sesquioxides," P. D. Jero and W. M. Kriven.\* Abstract #[8-SI-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
62. "The monoclinic (B) to cubic (C) transformation mechanism in dysprosia," O. Sudre, K. R. Venkatachari and W. M. Kriven.\* Abstract #[100-B-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
63. "TEM characterization of modulated structures in  $CaO-Dy_2O_3$  solid solutions," Y.J. Kim\* and W. M. Kriven. (Abstract #[47-BP-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
64. "Processing and phase transformation of dysprosia in silicon carbide matrix," S. Kim\* and W. M. Kriven. Abstract #[18-SI-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
65. "Effect of microstructural engineering on stabilization of dicalcium silicate," C. J. Chan\*, W. M. Kriven and J. F. Young. Abstract #[98-B-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
66. "High temperature stability of mullite-cordierite composites in air," Tien-I Hou\* and W. M. Kriven. Abstract #[8-SIP-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
67. "Sintering and microstructural development of dicalcium silicate in magnesia," E. S. Mast\* and W. M. Kriven. Abstract #[7-SI-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
68. "Eutectic sintering for formation of dicalcium silicate in magnesia," E. S. Mast\*, R. Pilapil and W. M. Kriven. Abstract #[43-BP-89]. Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.

69. "Processing and Microstructure of Mullite-Alumina Platelet composites," S. D. Crudele and W. M. Kriven. Abstract #[2-SI-89] Presented at the 91st Annual Meeting of the American Ceramic Society, Indianapolis, April 23-27, 1989.
70. "Martensitic Transformations in Ceramics," W. M. Kriven.\* Presented at the International Conference on Martensitic Transformations (ICOMAT-89), Sydney, Australia, July 3-7, (1989).
71. "Investigations of the monoclinic (B) to cubic (C) transformation in the lanthanide sesquioxides," W. M. Kriven\*, P. D. Jero, O. Sudre, and K. R. Venkatachari. Presented at the International Conference on Martensitic Transformations (ICOMAT89), Sydney, Australia, July 3-7, (1989).
72. "Martensitic nucleation and transformation in  $\beta \rightarrow \gamma$  dicalcium silicate," W. M. Kriven\*, C. J. Chan and E. A. Barinek. Presented at the International Conference on Martensitic Transformations (ICOMAT-89), Sydney, Australia, July 3-7, (1989).
73. "Crystallography of Modulated Structures in CaO-Dy<sub>2</sub>O<sub>3</sub> Solid Solutions", Y.J. Kim\* and W.M. Kriven, Abstract # [4-SVI-90]. Presented at the Annual Meeting of the American Ceramic Society, Dallas, Texas, April 22nd -26th 1990.
74. "Preparation and Microstructure of Dispersed Dysprosia in Silicon Carbide Matrix," S. Kim\* and W.M. Kriven, Abstract # [72-SIV-90]. Presented at the Annual Meeting of the American Ceramic Society, Dallas, Texas, April 22nd - 26th 1990.
75. "The Development of Dicalcium Silicate as a Transformation Toughener," W.M. Kriven\* and E.A. Barinek, Abstract # [7-SVI-90]. Presented at the Annual Meeting of the American Ceramic Society, Dallas, Texas, April 22nd -26th 1990.
76. "Processing and Mechanical Evaluation of Ca<sub>2</sub>SiO<sub>4</sub>-Transformation Toughened CaZrO<sub>3</sub> Composites," T.I. Hou \* and W.M. Kriven, Abstract # [8-SVI-90]. Presented at the Annual Meeting of the American Ceramic Society, Dallas, Texas, April 22nd -26th 1990.
77. "Retention of  $\beta$  Dicalcium-Silicate in a Magnesite Matrix," E.S. Mast\*, I. Nettleship and W.M. Kriven, Abstract # [9-SVI-90]. Presented at the Annual Meeting of the American Ceramic Society, Dallas, Texas, April 22nd -26th 1990.
78. "Microstructural and Microchemical Characterization of a Calcium Aluminate-Polymer (MDF Cement) Composite," O.O. Popoola\*, W.M. Kriven and J.F. Young, Abstract # [1-T-90]. Presented at the Annual Meeting of the American Ceramic, Dallas, Texas, April 22nd -26th 1990.

79. "TEM Characterization of Modulated Microstructures in CaO-Dy<sub>2</sub>O<sub>3</sub> Solid Solutions," Y.J. Kim\* and W.M. Kriven. Presented at the Int. Conf. on Frontiers in Electron Microscopy, Argonne National Laboratory, Illinois, USA, May 20-24th 1990.
80. "High Resolution Electron Microscopy and Microchemical Characterization of a Polyvinyl Alcohol Acetate/Calcium Aluminate Composite (Macro Defect Free Cement)," O.O. Popoola\* W.M. Kriven and J. F. Young. Presented at the Int. Conf. on Frontiers in Electron Microscopy, Argonne National Laboratory, Illinois, USA, May 20-24th 1990.
81. "Ceramic Coatings by Anodic Spark Deposition," G.P. Wirtz, W.M. Kriven and S.D. Brown.\* Presented at the World Congress on Ceramics, 7th Int Conference on Ceramics (CIMTEC), Italy, June 1990.
82. "Electron Microscopy of a Macro Defect Free Cement," O.O. Popoola\* W.M. Kriven and J.F. Young. Presented at the 12th Int. Congr. for Electron Microscopy, Washington, Seattle, Aug, (1990).
83. "HREM Studies of Modulated Structures of the Monoclinic (B) Phase in CaO-Dy<sub>2</sub>O<sub>3</sub> Solid Solutions," Y. J. Kim\* and W.M. Kriven. Presented at the Proc. 12th Int. Congr. for Electron Microscopy, Washington, Seattle, Aug, (1990).
84. "Microstructural Characterization of Ca<sub>2</sub>SiO<sub>4</sub> Particles in a CaZrO<sub>3</sub> and an MgO Matrix," Y.J. Kim\*, E.S. Mast, T.I. Hou, and W. M. Kriven. Presented at the Proc. 12th Int. Congr. for Electron Microscopy, Washington, Seattle, Aug, (1990).
85. "Mechanical Properties of  $\beta$  Dicalcium Silicate Polycrystals," K.G. Slavick\*, I. Nettleship and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
86. "Mechanical Properties and Microstructures of CaZrO<sub>3</sub>-Ca<sub>2</sub>SiO<sub>4</sub> Composites," T. I Hou\* and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, to be held in Cincinnati, OH, April 28th-May 2nd 1991.
87. "Preparation and Metastability of  $\beta$  Dicalium Silicate Polycrystals," I. Nettleship\*, Y.J. Kim and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
88. "Crystallography and Microstructure of Polycrystalline  $\alpha'_L$  in  $\beta$ -Ca<sub>2</sub>SiO<sub>4</sub>," Y.J. Kim,\* I. Nettleship and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
89. "Crystallography and Microstructural Studies of the  $\beta \rightarrow \gamma$  Transformation in Ca<sub>2</sub>SiO<sub>4</sub>," Y.J. Kim, I. Nettleship and W.M. Kriven\*. Presented at 93rd Annual

- Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
90. "Microstructural Studies of Ce<sub>2</sub>OS Precipitates in a CeS Matrix," Y.J. Kim, O.O. Popoola\* and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
  91. "Microstructure and Microchemistry of Nickel Sulfide Inclusions in Plate Glass," J.J. Cooper\*, O.O. Popoola and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
  92. "Microstructure and Properties of Silicon Carbide-Dysprosia Composites," S. Kim and W.M. Kriven\*. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
  93. "Preparation of Calcium Aluminate Powders Using a Sol-Gel Method," M.A. Gulgun\*, O.O. Popoola, I. Nettleship and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
  94. "HVEM Studies of Microstructure and Micromechanical Behavior of Macro-Defect Free (MDF) Cement Composites," O.O. Popoola\* and W.M. Kriven. Presented at 93rd Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, April 28th-May 2nd 1991.
  95. "TEM Characterization of a Modulated  $\beta$  Phase in Polycrystalline Dicalcium Silicate," Y.J. Kim\*, I. Nettleship and W.M. Kriven. Presented at 49th Annual Meeting of the Electron Microscopy Society of America (EMSA), San Jose, California (1991).
  96. "Microstructural and Microchemical Characterization of Nickel Sulfide Inclusions in Plate Glass," J.J. Cooper\*, O.O. Popoola and W.M. Kriven. Presented at 49th Annual Meeting of the Electron Microscopy Society of America (EMSA), San Jose, California (1991).
  97. "Microstructure and Microchemistry of Organo-Ceramics", W. M. Kriven\* and O.O. Popoola. Invited talk presented at the Microbeam Analysis Society (MAS) Symposium on Interfaces, held in San Jose, California, Aug 5-9th 1991.
  98. "SEM and TEM in Materials Science," W.M. Kriven\*. Invited lecture, American Chemical Society Annual Meeting, Tutorial Sessions in Materials Science, New York, NY, Aug 25th 1991.
  99. "On Possible Origins of the Displacive  $\beta$  to  $\gamma$  Transformations in Ca<sub>2</sub>SiO<sub>4</sub>: Role of Lattice Strains and Non-bonded Forces," Y. J. Kim\* and W. M. Kriven.

- Presented at Am. Ceram. Soc. Fall Meeting on *Atomic Structure, Bonding and Properties of Ceramics* as Abstract{#10-BF-91F). Held on Marco Island in Florida on October 13-18th 1991.
100. "Effect of Dysprosia Dispersions on the Properties of Silicon Carbide Composites," S. Kim\* and W. M. Kriven. Proc. First Inter. Symp. on Science of Engineering Ceramics '91, pp 63-68 (1991). Symposium held in Koda, Aichi-Prefecture, Japan, Oct. 21-23 (1991).
  101. "Preparation and Hydration Kinetics of Fine  $\text{CaAl}_2\text{O}_4$  Powders," M. A. Gulgun\*, O. O. Popoola, I. Nettleship, W. M. Kriven and J.F. Young. Presented at Materials Research Society Fall Meeting, Dec 1991, Boston, MA.
  102. "TEM Specimen Preparation Techniques for Ceramic and Ceramic-Polymer Composites," O. O. Popoola\* and W. M. Kriven. Presented at Materials Research Society Fall Meeting, Dec 1991, Boston, MA.
  103. "In Situ Transmission Electron Microscopy (TEM) Investigation of Fracture Mechanisms in a Calcium Aluminate MDF Cement," O. O. Popoola, W. M. Kriven and j. F. Young. Presented at Materials Research Society Fall Meeting, Dec 1991, Boston, MA.
  104. "On Phase Transformation Mechanisms in Dicalcium Silicate ( $\text{Ca}_2\text{SiO}_4$ )," Y.J. Kim and W. M. Kriven\*. Invited talk presented at the Fall meeting of the American Geophysical Union held in San Fransisco, California, Dec 9-13th 1991.
  105. "Toughening Mechanisms in Non-Zirconia Composites," W. M. Kriven\*. Invited Lecture, abstract # [42-C-92]. Presented at the Annual Meeting of the American Ceramic Society, April 12-16th, 1992 in Minneapolis, MN.
  106. "Stress-induced Phase Transformations in Polycrystalline Dicalcium Silicate," K. G. Slavick,\* I. Nettleship and W. M. Kriven. Abstract # [43-C-92] presented at the Annual Meeting of the American Ceramic Society, April 12-16th, 1992 in Minneapolis, MN.
  107. "Preparation and Phase Stability of Strontium Orthosilicate ( $\text{Sr}_2\text{SiO}_4$ )," J. L. Shull\* Jr., I. Nettleship and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, abstract # [197-B-92], April 12-16th, 1992 in Minneapolis, MN.
  108. "Crystallography and Phase Transformations of Modulated  $\alpha'$ - $\text{Sr}_2\text{SiO}_4$ ," Y. J. Kim\*, J. L. Shull Jr. and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, abstract # [198-B-92], April 12-16th, 1992 in Minneapolis, MN.

109. "Microstructural Development During Pressureless Sintering of Two Alumina Platelet Composites," I. K. Cherian\*, I. Nettleship and W. M. Kriven. Abstract # [5-SX-92] Presented at the Annual Meeting of the American Ceramic Society, April 12-16th, 1992 in Minneapolis, MN.
110. "Stress Induced Phase Transformations in Polycrystalline Dicalcium Silicate," K. G. Slavick, I. Nettleship and W. M. Kriven. Abstract # [23-BP-92]. Presented at the Annual Meeting of the American Ceramic Society, April 12-16th, 1992 in Minneapolis, MN.
111. "Microstructure and Phase Transformations of Nickel Sulfide Inclusions in Plate Glass," J. J. Cooper, O. O. Popoola and W. M. Kriven. Abstract # [27-BP-92]. Presented at the Annual Meeting of the American Ceramic Society, April 12-16th, 1992 in Minneapolis, MN.
112. "Transformation Mechanisms in Dicalcium Silicate and Distrontium Orthosilicates," Y. J. Kim, J.L. Shull, B. N. Sun and W. M. Kriven\*. Presented at the International Conference on Martensitic Transformations (ICOMAT '92). Held in Monterey, CA, July 20-24th 1992.
113. "TEM Characterization of the  $\alpha'$  and  $\beta$  Phases in Polycrystalline Distrontium Silicate ( $\text{Sr}_2\text{SiO}_4$ )," Y. J. Kim, J. S. Shull and W. M. Kriven. To be presented at the 50th Annual Meeting of the Electron Microscopy Society of America (EMSA), held in Boston, Aug 16-21, 1992.
114. "Characterisation of Nickel Sulphide Stones in Glass," J. J. Cooper, O. O. Popoola and W. M. Kriven. Presented at Austceram '92, International Ceramics Conference and Exhibition held in Australia, August 16-21st, 1992.
115. "Kinetics and Crystallography of the Monoclinic (B) to Cubic (C) Transformation in Dysprosia," O. Sudre, K. R. Venkatachari and W. M. Kriven. Presented at the Vth International Conference on the Science and Technology of Zirconia, held in Melbourne, August 16th-21st, 1992.
116. "High Temperature Transformation Toughening of Magnesia by Terbia," P. D. Jero and W. M. Kriven. Presented at the Vth International Conference on the Science and Technology of Zirconia, held in Melbourne, August 16th-21st, 1992.
117. "Phase Transformations and Fracture Associated with Nickel Sulfide Stones in Glass," W. M. Kriven\*, J. J. Cooper and O. O. Popoola. Presented at 53rd Annual Conference on glass Problems, Nov 17-18th 1992, Ohio State University.
118. "Transformation Mechanisms and Induced Fracture in Ceramics," W. M. Kriven\*. Presented at the Materials Research Society, Spring Meeting, held in San Fransisco, California in April 16-18th 1993.

119. "Transformation -Induced Fracture in Ceramic Composites," W. M. Kriven\*. Invited talk, presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22, 1993.
120. "Phase Transformations in Chemically Derived Enstatite Powders," D. H. Kuo\*, C. M. Huang, Y. J. Kim and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
121. "TEM Study of Synthetic Hillebrandite ( $\text{Ca}_2\text{SiO}_4 \cdot \text{H}_2\text{O}$ ), Y. J. Kim,\* W. M. Kriven and T. Mitsuda. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
122. "Transformation Mechanisms in Distrontium Silicate ( $\text{Sr}_2\text{SiO}_4$ )," Y. J. Kim\*, J. L. Shull Jr., and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
123. "The Orthorhombic (o) to Tetragonal (t) Transformation in  $\text{KNbO}_3$ ," O. O. Popoola\* and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
124. "Processing and Mechanical Properties of Alumina Platelet Reinforced Zirconia," I. K. Cherian,\* I. Nettleship and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22, 1993.
125. "Low Temperature Reactions Between a Titanate Cross-Coupling Agent and PolyVinyl Alcohol," M. A. Gulgun,\* O. O. Popoola and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
126. "Calcination Behavior of Chemically Prepared Calcium Aluminate," M. A. Gulgun\*, O. O. Popoola and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
127. "Crystal Growth and Characterization of Distrontium Silicate," B. N. Sun\*, J. L. Shull and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
128. "Synthesis of Silicate and Aluminate Powders by a Modified Pechini Process," M. A. Gulgun\*, C. M. Huang, D. H. Kuo, J. L. Shull\*, K. G. Slavick, T. K. Swanson, W. M. Kriven, I. Nettleship and R. Russel. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati in April 18-22nd, 1993.
129. " TEM Investigation of Crystallization Kinetics in Calcium Aluminate Powders," M. A. Gulgun\*, O. O. Popoola and W. M. Kriven. Presented at the Joint Meeting

- of the Central States Electron Microscopy Society, Sangamon State University, Springfield, Illinois, May 20th 1993.
130. "Phase Transformation Induced Intragranular Microcracks in Enstatite," D. H. Kuo\*, C. M. Huang, Y. J. Kim and W. M. Kriven. Presented at the Joint Meeting of the Central States Electron Microscopy Society, Sangamon State University, Springfield, Illinois, May 20th 1993.
  131. "Phase Transformations in Ceramics," W. M. Kriven\*. Invited talk, Presented at the Microscopy Society of America (MSA) Annual Meeting, held in Cincinnati in Aug 1-6, 1993.
  132. "Pretransitional Phenomena, Transformation Mechanisms and Crystallography of PbTiO<sub>3</sub> and KNbO<sub>3</sub>," H. Chen\*, C. M. Wayman, W. M. Kriven and J. D. Bass. Presented at 8th International Meeting on Ferroelectricity (IMF8) held at NIST in August, (1993)
  133. "Twinning in Structural Ceramics," W. M. Kriven.\* Invited lecture presented at TMS Fall Meeting in Symposium on Twinning in Advanced Materials. Held in Pittsburgh, PA, Oct 17-21, 1993.
  134. "Volume Changes During Transformation in Ceramics," W. M. Kriven\*. Invited lecture presented at the ASM Fall Meeting in the Symposium on Effect of Plastic Deformation on the Thermodynamics, Kinetics and Mechanisms of Phase Transformations," held in Pittsburgh, PA, Oct 17-21, 1993.
  135. "Processing and Microstructure Characterization of an In-Situ Fabricated  $\alpha'$ + $\beta$ -SiAlON Composite," C. M. Huang\*, Y. Xu, A. Zangvil, W. M. Kriven and D. N. Coon. Abstract #[CP-21-94F] presented at 18th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced ceramics, Jan 9-14, 1994.
  136. "A SiC/Combustion-Synthesized  $\beta'$ SiAlON Composite," C. M. Huang\* Y. Xu, D. Zhu and W. M. Kriven, Abstract #[CP-26-94F] presented at 18th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced ceramics, Jan 9-14, 1994. This poster won third prize in the Professional Section Poster competition.
  137. "Ceramics Via Organic and Inorganic Synthesis," W. M. Kriven\*, invited lecture presented to the Illinois Association of Chemistry Teachers, Annual Meeting at the University of Illinois at Urbana-Champaign, March 4th 1994.
  138. "Chemically Bonded Ceramics as an Alternative to High Temperature Composite Processing," B. R. Johnson, M. A. Gulgun\* and W. M. Kriven. Abstract #[N5.97] presented at the Spring Meeting of the Materials Research Society, San Francisco, April 4-8 1994.



139. "TEM Study of the Decomposition of Synthetic Hillebrandite," Y. J. Kim and W. M. Kriven\*. Presented at the Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 24-28 1994.
140. "Interfacial Bonding and Friction in a SiC Monofilament/ $\beta'$  SiAlON Composite," C. M. Huang\*, Y. Xu, D. Zhu and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 24-28 1994.
141. "Fabrication by Colloidal Filtration of Alumina Platelet Reinforced 3Y-TZP: Mechanical Properties," I. K. Cherian\* and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 24-28 1994.
142. "Phase Transformations in Rare Earth Aluminates ( $2\text{Ln}_2\text{O}_3 \cdot \text{Al}_2\text{O}_3$ )," J. L. Shull, C. Beckman and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 24-28 1994.
143. "Microstructural Evolution of MDF Cement Processed in a High Shear Internal Mixer," M. A. Gulgun and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 24-28 1994.
144. "Displacive and Martensitic Phase Transformations in Ceramics," W. M. Kriven.\* (Invited overview paper) Presented at the International Conference on Solid to Solid Phase Transformations, Pittsburgh, PA July, 1994.
145. "Phase Transformations in Potassium Niobate Perovskite Ceramic," O. O. Popoola and W. M. Kriven. Presented at the International Conference on Solid to Solid Phase Transformations, Pittsburgh, PA July, 1994.
146. "The Mechanism of the Tetragonal to Monoclinic Transformation in  $\text{YNbO}_4$ ," J. L. Shull, B. N. Sun and W. M. Kriven. Presented at the International Conference on Solid to Solid Phase Transformations, Pittsburgh, PA July, 1994.
147. "High Temperature Phase Transformations in  $\text{Y}_4\text{Al}_2\text{O}_9$ ,  $\text{Gd}_4\text{Al}_2\text{O}_9$  and  $\text{Dy}_4\text{Al}_2\text{O}_9$ ," J. L. Shull and W. M. Kriven. Presented at the International Conference on Solid to Solid Phase Transformations, Pittsburgh, PA July, 1994.
148. "Current Trends in Structural Ceramics," W. M. Kriven\* Invited keynote lecture presented at the Austceram '94, International Ceramic Conference, held in Sydney, Australia, July 25-27, 1994.
149. "SiC Monofilament Reinforced  $\beta'$ - and  $\text{O}'$ -SiAlON Composites," C. M. Huang\*, Y. Xu, D. Zhu and W. M. Kriven. Presented at First International conference on Composites Engineering, held in New Orleans, LA, Aug 28-31, 1994.

150. "In Situ Fabricated  $\alpha'$  +  $\beta'$  SiAlON Mixed Ceramic Composites," C. M. Huang and W. M. Kriven. Abstract # [B-64-94F] presented at the Fall Meeting of the American Ceramic Society, held in Louisville, Kentucky, Sept 25-28, 1994.
151. "Current Trends in Structural Ceramics," W. M. Kriven.\* (invited). Abstract #[I-26-94P] presented at the Pacific Coast Regional Meeting of the American Ceramic Society, Oct 9-22, 1994 at Los Angeles.
152. "Chemically Bonded Ceramic Matrix Composites: Densification and Conversion to Diffusion Bonding," B. R. Johnson\*, M. A. Gulgun and W. M. Kriven. MRS Fall Meeting, Boston Dec 1994.
- 153\*\* "TEM Studies of Calcium Silicate Hydrates," W. M. Kriven.\* Invited lecture presented at Festive Symposium in honor of Professor T. Mitsuda of the Nagoya Institute of Technology, Ceramics Research Laboratory. Held in Nagoya, Japan, Feb 24th 1995.
154. "Interfacial Properties of SiC Fiber Reinforced MDF Composite," D. Zhu, C. M. Huang and W. M. Kriven. Abstract [# T-11-95] presented at the Annual Meeting of the American Ceramic Society, Cincinnati, Ohio, April 30 - May 3rd (1995).
155. "Ferroelasticity in  $\text{Ca}_2\text{SiO}_4$ ,  $\text{Sr}_2\text{SiO}_4$  and  $\text{Ba}_2\text{SiO}_4$ ," J. L. Shull and W. M. Kriven. Abstract [#BP-09-95] presented at the Annual Meeting of the American Ceramic Society, Cincinnati, Ohio, April 30 - May 3rd (1995)
156. "A Simple Solution-Polymerization Route for Oxide Powders," M. A. Gülgün and W. M. Kriven. Abstract [# SXIXP-2-95] presented at the Annual Meeting of the American Ceramic Society, Cincinnati, Ohio, April 30 - May 3rd (1995).
157. "Chemically Bonded Ceramic Processing of Monocalcium Aluminate," B. R. Johnson, M. A. Gulgun and W. M. Kriven. Abstract [# SXIX-73-95] presented at the Annual Meeting of the American Ceramic Society, Cincinnati, Ohio, April 30 - May 3rd (1995).
158. "Anodic Spark Deposition of Barium Titanate," J. Schreckenbach\*, O. O. Popoola, W. M. Kriven, F. Schlottig and G. Marx. Presented at 8 Tagung Festkorperanalytic, in Vienna, Austria July 3-5 (1995).
159. "Anodic Spark Deposition in the AC Mode," J. Schreckenbach, O. O. Popoola, W. M. Kriven, G. P. Wirtz and S. D. Brown\* Presented at the High Temperature Materials Chemistry VII Symposium, Oct 8-13 (1995) Chicago, IL, USA.
160. "Transformation Weakening of Ceramic Composite Interfaces," W. M. Kriven\*, C. M. Huang, D. Zhu, Y. Xu, and S. C. Mirek. Abstract # [C-115-96F]. Presented at 20th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 7-11th (1996).

161. "Behavior of Shear Induced Constrictive Transformation in Enstatite, D. Zhu\* and W. M. Kriven. Abstract #[C-99-96F]. Presented at 20th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 7-11th (1996).
162. "Fabrication, Microstructure and Mechanical Response of Lanthanum Phosphate/Yttrium Aluminate and Yttrium Phosphate/Yttrium Aluminate Systems," D. H. Kuo\* and W. M. Kriven. Abstract #[C-118-96F]. Presented at 20th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 7-11th (1996).
163. "Interfacial Bonding of Carbon-Coated Glass Fiber Reinforced Cement," C. M. Huang\*, R. Loh, J. Huang, D. Zhu and W. M. Kriven. Abstract "[CP-12-96F]. Presented at 20th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 7-11th (1996).
164. " $\beta$ 'SiAlON/MoSi<sub>2</sub> Particulate Ceramic Composite," C. M. Hunag, C. Y. Yuh, M. Faroque, D. Zhu and W. M. Kriven. Abstract # [CP-14-96F]. Presented at 20th Annual Cocoa Beach Conf. and Exposition on Composites and Advanced Ceramics, Jan 7-11th (1996). Won second prize in the Poster Competition.
165. "Interfacial Properties of a YAG Fiber/Ceramic Matrix Composite with an YPO<sub>4</sub> Interphase," D. H. Kuo\*, W. M. Kriven and T. J. Mackin. Presented at 98th Annual Meeting of the American Ceramic Society, Indiannapolis, IN April 14-17th (1996).
166. "Transformation Weakening of Interphases in Oxide Composites," W. M. Kriven\*, C. M. Huang, D. Zhu, Y. Xu and S. C. Mirek. Presented at 98th Annual Meeting of the American Ceramic Society, Indiannapolis, IN April 14-17 (1996).
167. "The Effect of LaPO<sub>4</sub> Coating Thickness on Interfacial Mechanics of YAG and Al<sub>2</sub>O<sub>3</sub> Fiber Reinforced Alumina Matrix Composites, D. H. Kuo, W. M. Kriven and T. J. Mackin. Presented at 98th Annual Meeting of the American Ceramic Society, Indiannapolis, IN April 14-17th (1996).
168. "Phase Transformations and Their Applications in Ceramics," W. M. Kriven,\* invited lecture at Symposium to honor Professor Jack Christian on his 70th birthday. Held at Oxford University, UK, March 29th (1996).
169. "Microstructure Characterization of BaTiO<sub>3</sub> Films Obtained by Anodic Spark Deposition," F. Schlottig, M. H. Jilavi, J. Schreckenbach and W. M. Kriven,\* ASM/TMS 1996 Materials Week, Surface Engineering Symposium, held on 12-16th Oct, (1996) in Cincinnati, Ohio, USA.
170. "Electron Microscopy Characterization of Melt-Grow Mullites and Mullite Fibers," W. M. Kriven,\* R. A. Gronsky and J. A. Pask, M. H. Jilavi, D. Zhu, J. J.

- Felten, J. K. R. Weber and P. C. Nordine, (invited). Paper presented at Int. Conf. on Ceramic Microstructures'96: Control at the Atomic Level," held June 24-27 (1996), in Berkeley, CA, USA.
171. "Transformation Weakening of Oxide Interphases and Comparison with other Debonding Mechanisms," W. M. Kriven\*, C. M. Huang, D. Zhu, Y. Xu and S. C. Mirek. Presented at the 2nd Int. Meeting of Pacific Rim Ceramic Societies (PACRIM 2), held in Cairns, Australia, July 15-17, (1996).
  172. "Development of Yttrium Phosphate as an Interphase for Oxide/Oxide Composites," D. H. Kuo and W. M. Kriven,\* Presented at the 2nd Int. Meeting of Pacific Rim Ceramic Societies (PACRIM 2), held in Cairns, Australia, July 15-17, (1996).
  173. "Interfacial Modification of Fiber Reinforced Cement Composites, C. M. Huang,\* C. Y. Yuh, D. Zhu and W. M. Kriven. [Abstract #HH8.3] presented at the Materials Research Society Fall Annual Meeting, Boston MA, Dec 2-6 (1996).
  174. "Oxide Laminates with High Strength and Work of Fracture," D. H. Kuo\* and W. M. Kriven, Invited paper [abstract # W12.6] presented at the Materials Research Society Fall Annual Meeting, Boston MA, Dec 2-6 (1996).
  175. "Electron Microscopy Characterization and Evaluation of Oxide Fibers," D. Zhu, M. H. Jilavi and W. M. Kriven.\* Abstract [#C-0023-97F] presented at the 21st Annual Cocoa Beach Conference and Exposition Jan 12-16th (1997), Cocoa Beach, Florida.
  176. "Laser Ablated Oxide Coatings for Oxide Fibers," M. H. Jilavi, W. M. Kriven,\* H. Chung, and J. Mazumder. Abstract [#C-0006-97F] presented at the 21st Annual Cocoa Beach Conference and Exposition Jan 12-16th (1997), Cocoa Beach, Florida.
  177. "A Novel Technique for Producing Ceramic Fibers," J. J. Felten\*, J. K. R. Weber, P. C. Nordine, B. Cho, N. Lockwood, W. M. Kriven, M. H. Jilavi, and D. Zhu. Abstract [# C-0018-97F] presented at the 21st Annual Cocoa Beach Conference and Exposition Jan 12-16th (1997), Cocoa Beach, Florida.
  178. "Fabrication, Microstructure and Mechanical Response of Zirconia Containing Lanthanum Phosphate and Yttrium Phosphate Laminates," D. H. Kuo\* and W. M. Kriven. Abstract [#C-0165-97F] presented at the 21st Annual Cocoa Beach Conference and Exposition Jan 12-16th (1997), Cocoa Beach, Florida.
  179. "Platelet Orientation in Slip Cast Ceramic Matrix Composites," A. Patel, I. Nettleship\*, E.J. Palmiere, University of Pittsburgh, Pittsburgh PA 15261; I.K. Cherian, W.M. Kriven, University of Illinois at Urbana-Champaign, Illinois IL

61801. Presented at the Annual Meeting of the American Ceramic Society, held in Cincinnati, OH, May 4-7th 1997.
180. "Polymorphism in Hexacelsian Ceramics," J. Schneider,\* F. Frey, W. M. Kriven and J. L. Shull, 17th European Crystallographic Meeting, Lisboa, Portugal, 24-28 August (1997).
  181. "Characterization of Tubercles in Cast Iron Water Distribution Pipes Using Scanning Electron Microscopy (SEM) and Energy Dispersive Spectroscopy (EDS)," P. Sarin, W. M. Kriven and V. L. Snoeyink. presented at the 55th Annual Meeting of the Microscopy Society of America, Cleveland, Ohio, USA (1997).
  182. Nanocrystalline NbAl<sub>3</sub> Powders and NbAl<sub>3</sub>/Al Multilayers by Laser Ablation Deposition," J. Mazumder, H. Chung, T. Yamamoto, T. P. Duffey, H. Sehitoglu, M. H. Jilavi and W. M. Kriven, (Conference paper C), Nanostruct. Materials (USA) vol 9 [1-8] 75-78 (1997).
  183. "Mullite/Cordierite Laminates with  $\beta \rightarrow \alpha$  Cristobalite Transformation Weakened Interphases," Abstract # [C-034-98] W. M. Kriven and S. J. Lee, 22nd Am. Ceram. Soc. Annual Meeting on Composites, Advanced Ceramics, Materials and Structures, held at Cocoa Beach, Florida, Jan 20-24 (1998).
  184. "Preparation of Ceramic Powders by a Solution-Polymerization Route Employing PVA Solution," S. J. Lee and W. M. Kriven, (invited paper), 22nd American Ceram. Soc. Annual Meeting on Composites, Advanced Ceramics, Materials and Structures, held at Cocoa Beach, Florida, Jan 20-24 (1998).
  185. "Design of Oxide Composites with Transformation Weakened, Debonding Interphases, W. M. Kriven,\* Presented at the Int. Workshop on Oxide/Oxide Composites, held in Irsee, Germany, June 22-24th (1998).
  186. "High Temperature Single Crystal Properties of Mullite (3Al<sub>2</sub>O<sub>3</sub>•2SiO<sub>2</sub>)," W. M. Kriven,\* J. Palko, S. Sinogeikin, J. D. Bass, A. Saur, G. Brunauer, H. Boysen, F. Frey and J. Schneider. Presented at Int. Conf. on "New Developments in High Temperature Ceramics, Istanbul, Turkey, Aug. 12-15th (1998).
  187. "Amorphous Precursors to Oxide Fibers and Powders," W. M. Kriven.\* Invited lecture per Profs. Werner Mader and Hartmut Schneider, presented at the Institute for Inorganic Chemistry, University of Bonn, Germany, Aug. 19th (1998).
  188. "Design of Oxide Ceramic Composites with Transformation Weakened, Debonding Interphases," W. M. Kriven.\* Invited lecture presented at Workshop on Advanced Materials for Extreme Environments: New Experimental Opportunities in Neutron Scattering, held at the Argonne National Laboratory, Sept. 11-12th 1998.

189. "Oxide Laminated Composites with Graceful Failure," W. M. Kriven\* (invited lecture), presented at The Minerals, Metals and Materials (TMS) Society Fall Meeting, Symposium on Processing and Properties of Advanced Structural Ceramics, held in Rosemont IL Oct 11-15, (1998).
190. "Design of Oxide Ceramic Composites with Fibrous Monolithic Architecture," W. M. Kriven.\* Presented at 23rd Annual Conf. on Composites, Materials and Structure. US only, ITAR restricted sessions, held at Cocoa Beach, Jan 24-29th 1999.
191. "An Alumina - Leucite Composite for Fibrous Monoliths," D. -K. Kim, J. L. Shull and W. M. Kriven.\* Presented at 23rd Annual Conf. on Composites, Materials and Structure. US only, ITAR restricted sessions, held at Cocoa Beach, Jan 24-29th (1999).
192. "Barium Titanate and Barium Orthotitanate Powders Through an Ethylene Glycol Polymerization Route," S. J. Lee, M D. Biegalski and W. M. Kriven\*. Presented at 23rd Annual Conf. on Composites, Materials and Structure. An Int. Conf. on Engineering Ceramics and Structures, held at Cocoa Beach, Jan 24-29th (1999).
193. "A Submicron-Scale Duplex Zirconia and Alumina Composite by Polymer Complexation Processing," S. J. Lee and W. M. Kriven.\* Presented at 23rd Annual Conf. on Composites, Materials and Structure. An Int. Conf. on Engineering Ceramics and Structures, held at Cocoa Beach, Jan 24-29th 1999.
194. "Synthesis of Oxide Powders via Polymeric Steric Entrapment," (invited paper), W. M. Kriven\*, S. J. Lee, M. A. Gulgun, M. Nguyen and D. K. Kim. Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
195. "High Temperature Lattice Parameters and Thermal Expansions of Mullite ( $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$ )," W. M. Kriven\*, presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
196. "Design of Oxide Ceramic Composites with Transformation Weakened, Debonding Interphases," presented at 101 st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25th-28th (1999).
197. "Synthesis and Crystallization of High Specific Area, X-ray Amorphous Alumina Powder," W. Kriven, S. -J. Lee, W.M. Kriven and M. A. Gulgun\*, presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
198. "An Alumina - Leucite Composite for Fibrous Monoliths," D. -K. Kim, J. L. Shull and W. M. Kriven.\* Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.

199. "Crystallization Kinetics of Amorphous Yttrium Aluminum Garnet and Mullite," B. R. Johnson\* and W. M. Kriven, Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
200. "Alumina Platelet /Cordierite Ceramic Substrate with Low Dielectric Constant," S. J. Lee\* and W. M. Kriven, Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
201. "Synthesis and Hydration Study of Portland Cement Components by Polymer Complexation Processing", S. J. Lee\*, E. A. Benson and W. M. Kriven, Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
202. "Elasticity of Single Crystal Mullite and Yttria as a Function of Temperature by Brillouin Spectroscopy," J. W. Palko,\* W. M. Kriven, S. Sinogeikin, J. D. Bass, Presented at 101st Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, April 25-28th 1999.
203. "Toughening of Composites by Transformation Weakening of Interphases," W. M. Kriven,\* S. J. Lee, C. M. Huang, D. Zhu and Y. Xu. Poster presented at the Gordon Research Conference on Solid State Studies in Ceramics, held at the Kimball Union Academy, Meriden, New Hampshire, Aug 1-6 (1999).
204. "Ceramic Specializations within Materials Science and Engineering at the University of Illinois at Urbana-Champaign, W. M. Kriven\*. Invited poster presented at the Gordon Research Conference on Solid State Studies in Ceramics, held at the Kimball Union Academy, Meriden, New Hampshire, Aug 1-6 (1999).
205. "High Temperature Structure Analysis of 3:2-Mullite," G. Brunauer, F. Frey,\* H. Boysen, T. Hansen and W. M. Kriven. Presented as a poster at the XVIII International Crystallography Congress, held in Glasgow, Scotland, Aug 4-13 1999.
206. "Crystallization-Microstructure-Property Relations of Amorphous Mullite and YAG Fibers," B. R. Johnson\* and W. M. Kriven." Abstract [C-067-00], presented at the 24th Annual Cocoa Beach Conf. and Expo. and Int. Conf. on Engineering Ceramics and Structures, held at Cocoa Beach, Florida, Jan 23-28th, 2000. The paper was awarded the "Third Place Best Paper Presentation Award" (in student category).
207. "Oxide Laminates with Alumina Platelet, Porous Interphases and a Bi-Modal crack Deflection Mechanism, W. M. Kriven and S. J. Lee.\* Abstract [S2-066-00] presented at the 24th Annual Cocoa Beach Conf. and Expo. and Int. Conf. on Engineering Ceramics and Structures, held at Cocoa Beach, Florida, Jan 23-28th, 2000.

208. "Oxide Fibrous Monoliths Based on Porous Alumina-Platelet Interphase," W. M. Kriven\*, S. J. Lee and D. K. Kim. Abstract [C-049-00] presented at the 24th Annual Cocoa Beach Conf. and Expo. and Int. Conf. on Engineering Ceramics and Structures, held at Cocoa Beach, Florida, Jan 23-28th, 2000.
209. "Oxide Laminates with Weak and Porous Aluminum Phosphate-based Interphases, D. K. Kim\* and W. M. Kriven. Abstract [S2-046-00] presented at the 24th Annual Cocoa Beach Conf. and Expo. and Int. Conf. on Engineering Ceramics and Structures, held at Cocoa Beach, Florida, Jan 23-28th, 2000.
210. "Temperature Dependence of the Single--Crystal Elasticity of Mullite ( $2.5\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ ) and Yttria ( $\text{Y}_2\text{O}_3$ )," J. W. Palko, S. Sinogeikin, A. Sayir, W. M. Kriven and J. D. Bass. Presented at the Annual Meeting of the American Geophysical Union, 1999, February. San Francisco, USA.
211. "Toughened Oxide Composites Based on Porous Alumina Platelet Interphases" W. M. Kriven\* and S. J. Lee. Presented at the 102<sup>nd</sup> Annual Meeting and Exposition of the American Ceramic Society, April 30<sup>th</sup> – May 3<sup>rd</sup>, St. Louis, Missouri 2000.
212. "The Design of Tough Fibrous Monolithic Composites," W. K. Kim\* and W. M. Kriven. Presented at the 102<sup>nd</sup> Annual Meeting and Exposition of the American Ceramic Society, April 30<sup>th</sup> – May 3<sup>rd</sup>, St. Louis, Missouri 2000.
213. "Hot Hardness of Fused Mullite and Comparison with Single crystal Elastic Constants up to 1400°C, W. M. Kriven\*, L. F. Sigh, J. W. Palko, J. Bass, A. Sayir, H. Schnieder. Presented at the 102<sup>nd</sup> Annual Meeting and Exposition of the American Ceramic Society, April 30<sup>th</sup> – May 3<sup>rd</sup>, St. Louis, Missouri 2000.
214. "Crystallization-Microstructure-Property Relations of Amorphous Mullite and YAG Fibers," B. R. Johnson\* and W. M. Kriven." Presented at the 102<sup>nd</sup> Annual Meeting and Exposition of the American Ceramic Society, April 30<sup>th</sup> – May 3<sup>rd</sup>, St. Louis, Missouri 2000.
215. "Oxide Fibers and Interphase Debonding Mechanisms," W. M. Kriven,\* B. R. Johnson, S. J. Lee, C. M. Huang, D. Zhu and Y. Xu. Presented at Int. Conf. On Processing of Fibers and Composites, held in May 21-26, 2000 , Tuscany Italy.
216. "Progress in Microstructural Design for Tough, Oxide Ceramic Composites," W. M. Kriven,\* (invited keynote lecture) Australian International Conference on Ceramics (Austceram) 2000, held in Sydney Australia, June 25<sup>th</sup> – 28<sup>th</sup> 2000.
217. Synthesis and Hydration Study of Portland Cement Components by Polymer Complexation Processing," S. J. Lee, E. A. Benson and W. M. Kriven\* invited



- lecture presented at Australian International Conference on Ceramics (Austceram) 2000, held in Sydney Australia, June 25<sup>th</sup> – 28<sup>th</sup> 2000.
218. “High Temperature, Displacive Transformations in Oxide Ceramics,” W. M. Kriven,\* presented at the 2000 Denver X-ray Conference, in the special session on Phase Transformations and Reactions. Held in July 31<sup>st</sup>-Aug 4<sup>th</sup> at Denver, Colorado, USA.
  219. “Crystallization Mechanisms and Microstructures in Mullite,” W. M. Kriven,\* and B. R. Johnson, R. A. Gronsky and J. A. Pask (invited lecture) presented at Mullite 2000 Workshop, presented on the Isle of Mull, Aug 28<sup>th</sup> to 30<sup>th</sup> , 2000.
  220. “Mechanism of Release of Iron Corroded Iron/Steel Pipes in Water Distribution Systems,” P. Sarin, J. Bebee, M. A. Beckett, K. K. Jim, D. A. Lytle, J. A. Clement, W. M. Kriven and V. L. Snoeyink, Proc. American Water Work Annual Conference 2000, Denver, Colorado, June 11-15, 2000.pp 1-12.
  221. “High Temperature Oxide composites Based on Porous Alumina Platelet Interphases,” W. M. Kriven and S. J. Lee. Presented at Second Int. Conf. on Inorganic Materials, 13-16 Sept. (2000), The University of California at Santa Barbara, CA, USA.
  222. “Oxide Composites with Transformation Weakened, Debonding Interphases,” W. . Kriven, S. J. Lee, C. M. Huang, D. Zu and Y. Xu. Presented at Second In. Conf. on Inorganic Materials, 13-16 Sept. (2000), The University of California at Santa Barbara, CA, USA.
  223. “Preparation of Titanate Powders by an Ethylene Glycol Method,” S. J. Lee, B. R. Rosczyk and W. M. Kriven.\* Presented at Int. Symposium on Soft Solution Processing, Dec. 11-13, (2000), at Tokyo Institute of Technology, Tokyo, Japan.
  224. “Design of Oxide Composites with Debonding Interphases,” W. M. Kriven\*. Presented at 25<sup>th</sup> Annual International Conf. on Advanced Ceramics and Composites, Jan 21-26 (2001) Cocoa Beach, Florida.
  225. “Crystallization Mechanism of Melt-Quenched, Solid Amorphous Mullite,” B. R. Johnson, W. M. Kriven\* and J. Schneider. Presented at 25<sup>th</sup> Annual International Conf. on Advanced Ceramics and Composites, Jan 21-26 (2001) Cocoa Beach, Florida.
  226. “Preparation of Titanate Powders by an Ethylene Glycol Method,” S. J. Lee and W. M. Kriven\*. Presented at 25<sup>th</sup> Annual International Conf. on Advanced Ceramics and Composites, Jan 21-26 (2001) Cocoa Beach, Florida.
  227. “Oxide Fibrous Monolithic Composites with Aluminum Phosphate and Alumina Platelet Interphases,” D.-K. Kim\* and W. M. Kriven. Presented at 25<sup>th</sup> Annual

- International Conf. on Advanced Ceramics and Composites, Jan 21-26 (2001)  
Cocoa Beach, Florida.
228. \*\*“Design of Oxide Composites with Debonding Interphases, W. M. Kriven\*.  
Presented at Int. Conf. on Materials Science and Technology, April 2-4, (2001),  
Cairo, Egypt.
  229. \*\* “Design of Oxide Laminates and Fibrous Monolithic Composites,” W. M.  
Kriven\* and D.-K. Kim. Invited talk presented at 103rd Annual Meeting of the  
American Ceramic Society, Indianapolis, April 22-25 (2001).
  230. “Effects of Microstructural Architecture on the Properties of Oxide Fibrous  
Monolithic Composites,” D. K. Kim\* and W. M. Kriven. Presented at 103rd  
Annual Meeting of the American Ceramic Society, Indianapolis, April 22-25  
(2001).
  231. “CMR Praseodymium Calcium Manganate,” M. W. Jung\* and W. M Kriven,  
presented at 103rd Annual Meeting of the American Ceramic Society,  
Indianapolis, April 22-25 (2001).
  232. “Characterization and Preparation of Mixed Oxide Thin Films via a  
Polymerization-Complexation Route,” M. W. Jung\* and W. M. Kriven, presented  
at 103rd Annual Meeting of the American Ceramic Society, Indianapolis, April  
22-25 (2001).
  233. “From Zirconia to Shape Memory Ceramics,” W. M. Kriven\*. Invited lecture  
given as part of the Special Session in Honor of Professor Arthur H. Heuer on his  
65<sup>th</sup> Birthday, as part of the 103rd Annual Meeting of the American Ceramic  
Society, Indianapolis, April 22-25 (2001).
  234. “Anodic Spark Deposition and Microstructure Characterization of Hafnium Oxide  
Conversion Films,” J. P. Schreckenbach,\* N. Meyer, G. Marx, B.-T. Lee and  
W. M Kriven, Proc. 11th Conf. on Solid State Analytucs, Chemnitz, Germany,  
June 25-28th, **Vol A29** p.92 (2001).
  235. “TEM Characterization of Pseudotetragonal Mullite,” B. R. Johnson\* and W. M.  
Kriven, Presented at Annual Meeting of the Microscopy and Microanalysis Society,  
Aug 5-9, (2001) Long Beach, CA.
  236. “Thermal Expansion and Phase Transitions up to 850°C of a Celsian-Hexacelsian  
(BaAl<sub>2</sub>Si<sub>2</sub>O<sub>8</sub>) Mixture,” J. Schneider\* and W. M. Kriven. Presented at Int.  
Materials Forum, held in Munich, Germany, Oct (2001).
  237. “Alumina-Mullite *In-Situ* Composites Made by the Organic Steric Entrapment  
Method” D.-K. Kim\* and W. M. Kriven. Presented at 26th Ann. Int. Conf. on  
Advanced Ceramics and Composites, Cocoa Beach, Florida, Jan. 13-18th (2002).

238. "Axial Thermal Expansion Coefficients of  $\beta$ -Eucryptite and  $\beta$ -Spodumene," J. Schneider, S. J. Lee and W. M. Kriven.\* Presented at 26th Ann. Int. Conf. on Advanced Ceramics and Composites, Cocoa Beach, Florida, Jan. 13-18th (2002).
239. "*In-situ* High Temperature Phase Transformation in Oxide Ceramics," L. F. Siah\* and W. M. Kriven. Presented at 26th Ann. Int. Conf. on Advanced Ceramics and Composites, Cocoa Beach, Florida, Jan. 13-18th (2002).
240. "Microstructure and Indentation Fracture of  $\text{DyNbO}_4$  Studied by TEM," B.-T. Lee,\* L. F. Siah and W. M. Kriven. Presented at 26th Ann. Int. Conf. on Advanced Ceramics and Composites, Cocoa Beach, Florida, Jan. 13-18th (2002).
241. "Effect of Attrition Milling on Microstructures and Materials Properties of Electro-conductive  $\text{Si}_3\text{N}_4$ -46 wt % TiN Composite," B. -T. Lee,\* H.-D. Kim and W. M. Kriven. Presented at the 26th Ann. Int. Conf. on Advanced Ceramics and Composites, Cocoa Beach, Florida, Jan. 13-18th (2002).
242. "Interaction of Corrosion Scales in Old Iron/Steel Drinking Water Distribution Pipes," P. Sarin, V. L. Snoeyink and W. M. Kriven, presented at American Chemical Society Conference; Symp. On the Complexity at the water-solid Interface: Mineral Surfaces. Held in April (2002).
243. "Synthesis of Low-Firing Anorthite Powder by PVA Steric –Entrapment Route," S. J. Lee\*, C. Lee, W. M. Kriven. Presented at the 26th Ann. Int. Conf. on Advanced Ceramics and Composites, Cocoa Beach, Florida, Jan. 13-18th (2002).
244. "Nanostructural Analysis and Properties of Nanosized  $\text{BaTiO}_3$  Powder and Thin Film by Sol-Gel Process," M. W. Jung,\* W. M. Kriven and H. J. Son. Presented at 104<sup>th</sup> Annual Meeting of the American Ceramic Society, held in St. Louis, April 28<sup>th</sup>-May 1<sup>st</sup> (2002).
245. "Preparation, Structural Elucidation and Properties of  $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$  Powders and Thin Film," M. W. Jung,\* W. M. Kriven and Y. J. Lee. Presented at 104<sup>th</sup> Annual Meeting of the American Ceramic Society, held in St. Louis, April 28<sup>th</sup>-May 1<sup>st</sup> (2002).
246. "Functional Oxide Fibrous Monolithic Composites Made by a Co-extrusion Technique," D. K. Kim\* and W. M. Kriven. Presented at 104<sup>th</sup> Annual Meeting of the American Ceramic Society, held in St. Louis, April 28<sup>th</sup>-May 1<sup>st</sup> (2002).
247. "Fabrication of Bioresorbable Bone Implants with the Fibrous Monolithic Texture," S. J. Kim, D. K. Kim and W. M. Kriven\*. Presented at 104<sup>th</sup> Annual Meeting of the American Ceramic Society, held in St. Louis, April 28<sup>th</sup>-May 1<sup>st</sup> (2002).

248. “Directionally Solidified Alumina-YAG Eutectic Fiber by an Image Furnace,” S. D. Shin. Presented at 104<sup>th</sup> Annual Meeting of the American Ceramic Society, held in St. Louis, April 28<sup>th</sup>-May 1<sup>st</sup> (2002).
249. “*In Situ*, in Air, High Temperature Studies of Oxide Systems using the Thermal-Imaging Technique,” L.-F. Siah and W. M. Kriven\*. Presented at 51st Annual Denver X-ray Conference, held in Colorado Springs, Colorado, July 29<sup>th</sup>-Aug 2<sup>nd</sup> (2002).
250. “*In Situ* High Temperature Phase transformation In DyNbO<sub>4</sub> Using the Thermal Image Technique.” Presented at 51st Annual Denver X-ray Conference, held in Colorado Springs, Colorado, July 29<sup>th</sup>-Aug 2<sup>nd</sup> (2002).
251. “Oxide Ceramic Sponges,” W. M. Kriven, S. J. Lee and J. Chaney. Presented at 8<sup>th</sup> International Conference on Ceramic Processing Science, held in Hamburg-Harburg, Germany, Sept. 2-5<sup>th</sup> (2002).
252. “Fabrication of Bioresorbable Bone Implants with Fibrous Monolithic Texture,” D. K. Kim and W. M. Kriven. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, held at cocoa Beach, Florida, Jan 26-31 (2003).
253. “Bone Scaffolding with Concentric Layered Porosity, A. D. Tevar and W. M. Kriven. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, Jan 26-31 (2003).
254. “Fabrication of Biocompatible Calcium Phosphate Ceramics using Eggshell,” S. J. Lee, Oh Yeungnam and W. M. Kriven. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, Jan 26-31 (2003).
255. “Transformation Toughening of a Calcium Zirconate Matrix by Dicalcium Silicate under Ballistic Impact,” W. W. Chen, K. Kremeyer, W. M. Kriven and B. R. Rosczyk. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, Jan 26-31 (2003).
256. “Fibrous Monoliths of Alumina-Mullite *in Situ* Composite Matrix Aluminum Phosphate Interphase, D. K. Kim and W. M. Kriven. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, Jan 26-31 (2003).
257. “In Situ, High Temperature Phase Transformations in YNbO<sub>4</sub>”, L. F. Siah, D. K. Kim and W. M. Kriven. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and

- Exposition on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, Jan 26-31 (2003).
258. "Synthesis of Mixed Conducting  $\text{SrFeCo}_{0.5}\text{O}_x$ " Through a Polymeric Steric Entrapment Method, W. M. Kriven and B. R. Roczysk. Presented at 27<sup>th</sup> Annual Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, Jan 26-31 (2003).
  259. "Grain Growth and Texture Development in YAG and Mullite Fibers," K. Jurkschat,\* W. M. Kriven, W. Yoon and C. Chiritescu. Presented at 105<sup>th</sup> Annual Meeting and Exposition of the American Ceramic Society, Nashville, Tennessee, April 27<sup>th</sup>–30<sup>th</sup> (2003).
  260. Symposium on "Understanding Complex Systems - Complex Materials and Processes." Loomis Lab, Department of Physics, University of Illinois at Urbana-Champaign, May 20/21 (2003).
  261. "In situ High Temperature Phase Transformations in Rare Earth Niobates," K. Jurkschat, P. Sarin, L.F Siah and W.M. Kriven). Presented at 52<sup>nd</sup> Annual Denver X-ray Conference, held in Denver, Colorado, Aug (2003).
  262. "Effect of Alkali Choice on Geopolymers," J. Bell\* and W. M. Kriven. Presented at 28<sup>th</sup> Int. Cocoa Beach Conf. and Expo, Cocoa Beach, Florida, Jan 26<sup>th</sup> - 30<sup>th</sup> 2004.
  263. "Transformation Weakening in Titania-Enstatite Fibrous Monoliths," W. M. Kriven.\* Presented at 28<sup>th</sup> Int. Cocoa Beach Conf. and Expo, Cocoa Beach, Florida, Jan 26<sup>th</sup> - 30<sup>th</sup> 2004.
  264. "New Contrast Reagent for MRI Encapsulation with Two-Dimensional Layered Materials," W. M. Kriven, W. Kwak, R. B. Clarkson and J. Choy. Presented at 28<sup>th</sup> Int. Cocoa Beach Conf. and Expo, Cocoa Beach, Florida, Jan 26<sup>th</sup> - 30<sup>th</sup> 2004.
  265. "Bio-resorable Nanoceramics for Gene and Drug Delivery," W. M. Kriven,\* J. H. Choy, B. E. Kitchell, M. A. Wallig, R. B. Clarkson, T. Martin-Jimenez and S. Kwak. Presented at 28<sup>th</sup> Int. Cocoa Beach Conf. and Expo, Cocoa Beach, Florida, Jan 26<sup>th</sup> - 30<sup>th</sup> 2004.
  266. "Calcium Phosphate Ceramics as Substrate for Cartilage Cultivation," R. Janssen, S. Nagel-Heyer, C. Goepfert, R. Pörtner, D. Toykan, O. Krummhauer, M. Morlock, P. Adamietz, N. M. Meenen, W. M. Kriven, D. K. Kim, A. Tampieri and G. Celotti. Presented at 28<sup>th</sup> Int. Cocoa Beach Conf. and Expo, Cocoa Beach, Florida, Jan 26<sup>th</sup> - 30<sup>th</sup> 2004.
  267. "Microstructural Characterization of Metakaolin-based Geopolymers," P. Duxson, S. W. Mallicoate, G. C. Lukey, W. M. Kriven and J. S. van Deventer.

- Presented at the Annual Meeting of the American Ceramic Society, held in Indianapolis, April 18<sup>th</sup> 21<sup>st</sup> (2004).
268. "Synthesis and Characterization of Oxide 3- and 4-component Ceramic Composites," D. Kim\* and W. M. Kriven. Presented at the Annual Meeting of the American Ceramic Society, held in Indianapolis, April 18<sup>th</sup> 21<sup>st</sup> (2004).
  269. "Geopolymers: Nanoparticulate, Nanoporous Ceramics Made under Ambient Conditions," W. M. Kriven,\* M. Gordon and J. L. Bell. Presented at the Microscopy Society of America Annual Meeting, held in Savannah, Georgia, USA Aug 1-5 (2004)
  270. "Nanoporosity in Aluminosilicate, Geopolymeric Cements," J. L. Bell and W. M. Kriven.\* Presented at the Microscopy Society of America Annual Meeting, Savannah, Georgia, USA, Aug 1-5 (2004)
  271. "High Temperature Phase Transformations in Rare Earth Titanates," K. Jurkschat, P. Sarin\* and W. M. Kriven. Presented at 53<sup>rd</sup> Annual Denver X-ray Conference, held in Steamboat Springs, Colorado, USA, Aug 2<sup>nd</sup>-6<sup>th</sup> (2004)
  272. "In-situ, High Temperature (up to 1650°C), in Air, X-ray Diffraction (Reflection Geometry) using a Quadropole Lamp Furnace," P. Sarin\*, K. Jurkschat, W. M. Kriven and P. Zschack. Presented at 53<sup>rd</sup> Annual Denver X-ray Conference, held in Steamboat Springs, Colorado, USA, Aug 2<sup>nd</sup>-6<sup>th</sup> (2004)
  273. "X-ray Microdiffraction Studies of Corrosion Scales in Old Iron/ Steel Drinking Water distribution Pipes," P. Sarin\*, V. L. Snoeyink, W. M. Kriven and D. Hay. Presented at 53<sup>rd</sup> Annual Denver X-ray Conference, held in Steamboat Springs, Colorado, USA, Aug 2<sup>nd</sup>-6<sup>th</sup> (2004)
  274. "High Temperature Tensile Testing Method for Monofilament Ceramic Fibers," B. M. Yee,\* P. Sarin and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
  275. "Investigations of Growth of Textured and Single Crystal Oxide Fibers using a Quadropole Lamp Furnace," W. Yoon\* and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
  276. "Nanoceramics for Tracking a Drug and its Carrier *In Vivo* Systems," W. M. Kriven\*, S. W. Kwak, B. J. Tucker, R. Clarkson, L. Lee, R. Haggerty and R. L. Belford. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).

277. "In situ Fabrication of Multiphase Ceramic Composites by Organic-Inorganic Solution Technique and Their Characteristics," S. J. Lee and W. M. Kriven\*. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
278. "Reinforcements on Properties of Self-setting and Injectable Calcium Phosphate Cement," N. C. Bhorkar\* and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
279. "Use of Geopolymeric Cements as a Refractory Adhesive for Metal and Ceramic Joins," J. L. Bell\*, M. Gordon and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
280. "Recovery Behavior in Compressed DyNbO<sub>4</sub> Ceramics," S. Mongeau\* and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
281. "Multicomponent Strong Ceramic Composites made by Hot Pressing," D. K. Kim\* and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
282. "Novel Alkali Bonded Ceramic Filtration Membranes," S. W. Mallicoat\*, P. Sarin and W. M. Kriven. Presented at 29<sup>th</sup> International Cocoa Beach Conference on Advanced Ceramics and Composites, held at Cocoa Beach, Florida, on Jan 23-28<sup>th</sup> (2005).
283. "In-situ High Temperature Investigations of Phase Transformations in Ta<sub>2</sub>O<sub>5</sub>," P. Sarin\*, A. J. Randolph, W. M. Kriven, 29<sup>th</sup> International Conference on Advanced Ceramics and Composites, Cocoa Beach, Florida, January 23rd - 28th, 2005.
284. "In-situ High Temperature Phase Transformation Studies of HfO<sub>2</sub> and HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>3</sub> Systems," P. Sarin and W. M. Kriven\*. Presented at the International Conference on Solid-Solid Phase Transformations in Inorganic Materials 2005 (PTM 2005), held May 29<sup>th</sup> – June 3<sup>rd</sup> 2005, Phoenix Arizona, USA.
285. "Phase Transformations in Dysprosium Titanate" K. Jurkschat and W. M. Kriven\*. Presented at the International Conference on Solid-Solid Phase Transformations in Inorganic Materials 2005 (PTM 2005), held May 29<sup>th</sup> – June 3<sup>rd</sup> 2005, Phoenix Arizona, USA.
286. "Phase Transformations in Rare Earth Niobates," P. Sarin, L. F. Siah and W. M. Kriven\*. Presented at the International Conference on Solid-Solid Phase

- Transformations in Inorganic Materials 2005 (PTM 2005), held May 29<sup>th</sup> – June 3<sup>rd</sup> 2005, Phoenix Arizona, USA.
287. “High Temperature Phase Transformations in Tantalum Pentoxide,” P. Sarin and W. M. Kriven\*. Presented at the International Conference on Solid-Solid Phase Transformations in Inorganic Materials 2005 (PTM 2005), held May 29<sup>th</sup> – June 3<sup>rd</sup> (2005), Phoenix Arizona, USA.
  288. “Thermal Shock Resistant, Graphite Fiber-reinforced, Geopolymer Composites for Near-net Shape Solidification of Fe<sub>2</sub>Si,” D. Comrie, J. L. Bell,\* M. Gordon and W. M. Kriven. Presented at Int. Conf. and Workshop on Geopolymers and Geopolymer Concrete in Civil Engineering, Perth, Western Australia, Australia, Sept 28<sup>th</sup>-29<sup>th</sup> (2005).
  289. “Synthesis of Multi-component Ceramic Composites via Organic-Inorganic Solution Method,” A. Castillo, W. M. Kriven\* and D. K. Kim. Presented at 30<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 22-27<sup>th</sup> 2006, Florida, USA.
  290. “High Hardness, Strength and Toughness, Multi-component Ceramic Composite,” D. K. Kim\* and W. M. Kriven. Presented at 30<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 22-27<sup>th</sup> 2006, Florida, USA.
  291. “Rapid In-situ, Ultra-high Temperature Investigations of Ceramics using Synchrotron X-ray Diffraction,” P. Sarin, R. P. Haggerty, W. Yoon and W. M. Kriven\*. Presented at 30<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 22-27<sup>th</sup> (2006), Florida, USA.
  292. “Hot-pressed Al<sub>2</sub>O<sub>3</sub>-TiB<sub>2</sub> Ceramic Armor Composites made from Al<sub>2</sub>O<sub>3</sub>-coated TiB<sub>2</sub> Platelets,” M. Gordon, D. K. Kim, D. S. Parsons and W. M. Kriven\*. Presented at 30<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 22-27<sup>th</sup> 2006, Florida, USA.
  293. “In-situ High Temperature Synchrotron X-ray Diffraction Studies of Pollucite (CaAlSi<sub>2</sub>O<sub>6</sub>) and Pollucite-based Compounds,” M. Gordon, P. Sarin, D. K. Kim and W. M. Kriven\*. Presented at 30<sup>th</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Jan 22-27<sup>th</sup> 2006, Florida, USA.
  294. “Novel Bioresorbable Magnetic Contrast Agent Nanoceramics,” I. Kuriashkin, L. S. Lee, B. S. D. Lim and W. M. Kriven. Presented at Fourteenth Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMIRM). Held in Washington, Seattle, on May 6 – 12<sup>th</sup> 2006.
  295. “Architecture of Calcium Phosphate Templates for Bone, Ligament and Cartilage Growth,” W. M. Kriven, D-K. Kim, P. Sarin, N. L. Smith, S-L. Lee and D. Yoon.



- Presented at 6<sup>th</sup> Symposium on Understanding Complex Systems, held at the University of Illinois at Urbana-Champaign, Dept. of Physics, May 15<sup>th</sup> –18<sup>th</sup> (2006).
296. “Nanoporosity and Microporosity in Geopolymer Gels” J. L. Bell, M. Gordon and W. M. Kriven\*. Presented at Microscopy and Microanalysis 2006, Held in Chicago, IL USA, July 30<sup>th</sup> – Aug 3<sup>rd</sup> (2006).
  297. “Formation of Nanocrystalline Zeolites in Geopolymer Gels,” J. L. Bell\*, P. Sarin and W. M. Kriven. Presented at Microscopy and Microanalysis 2006. Held in Chicago, IL USA, July 30<sup>th</sup> – Aug 3<sup>rd</sup> (2006).
  298. “Curved Image Plate (CIP) Detector for Rapid High Resolution Powder X-ray Diffraction using Synchrotron Radiation,” P. Sarin, W. Yoon, R. P. Haggerty. P. Zschack, E. Karapetrova, N. Yang and W. M. Kriven. Fifth International Conference on Synchrotron Radiation in Materials Science (SRMS-5) Chicago, July 30-Aug 2<sup>nd</sup> (2006).
  299. “Multicomponent, Multiphase, Ceramic Composites for High Hardness, Strength and Toughness Applications,” D. K. Kim and W. M. Kriven\*. Presented at Materials Science and Technology 2006 Conference and Exhibition, Cincinnati, Ohio, Oct 15<sup>th</sup> -19<sup>th</sup> 2006.
  300. “Creep Characterization of a Three Phase Composites of Al<sub>2</sub>O<sub>3</sub>, NiAl<sub>2</sub>O<sub>4</sub>, and 3Y-TZP,” J. E. Trujillo, R. P. Dillon, M. L. Mecartney, D. K. Kim and W. M. Kriven. Presented at Materials Science and Technology 2006 Conference and Exhibition, Cincinnati, Ohio, Oct 15<sup>th</sup> -19<sup>th</sup> 2006.
  301. “Creep Characterization of an Alumina, Nickel Alumina Spinel and Zirconia Composite,” J. Trujillo, R. P. Dillon, M. L. Mecartney, D. K. Kim and W. M. Kriven. Poster presented at Materials Science and Technology 2006 Conference and Exhibition, Cincinnati, Ohio, Oct 15<sup>th</sup>-19<sup>th</sup> 2006. Poster won 2<sup>nd</sup> place in the Basic Science Division, 2006 Ceramographic Contest, in the Undergraduate Series.
  302. “Crystallization of Pollucite (CsAlSi<sub>2</sub>O<sub>6</sub>) from Cs-based Geopolymer Precursor,” J. L. Bell, P. Sarin, R. P. Haggerty, M. Gordon, J. L. Provis, and W. M. Kriven. Presented at 64<sup>th</sup> Pittsburgh Diffraction Conference, Duquesne University, Pittsburgh, PA, Oct 26<sup>th</sup>-28<sup>th</sup> 2006.
  303. “Microstructure Evolution of Polycrystalline Mullite System – A High Temperature Synchrotron X-ray Diffraction Study,” W. Yoon, P. Sarin, R. P. Haggerty and W. M. Kriven. Presented at 64<sup>th</sup> Pittsburgh Diffraction Conference, Duquesne University, Pittsburgh, PA, Oct 26<sup>th</sup>-28<sup>th</sup> 2006.

304. "Using In-situ High Temperature Synchrotron Diffraction to Study Dynamic Phenomena in Polycrystalline Material Systems," R. P. Haggerty, P. Sarin, W. Yoon, J. L. Bell, M. Gordon and W. M. Kriven. Presented at 64<sup>th</sup> Pittsburgh Diffraction Conference, Duquesne University, Pittsburgh, PA, Oct 26<sup>th</sup>-28<sup>th</sup> 2006.
305. "Concepts for Energy Absorption and Dissipation in Ceramic Armor," W. M. Kriven, D. K. Kim and V. Kelsey. Abstract [#ICACC-S4-021-2007], presented at 31<sup>st</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 21<sup>st</sup> -26<sup>th</sup> (2007).
306. "Organic Steric Entrapment (PVA) Technique for Preparation of a Pore Self-forming, Macro-Mesoporous Gehlenite Ceramic," D. Jia, D. K. Kim and W. M. Kriven. Abstract [#ICACC-S9-014-2007], presented at 31<sup>st</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 21<sup>st</sup> -26<sup>th</sup> (2007).
307. "Porous Architectures of Calcium Phosphate Templates for Bone, Ligament and Cartilage Growth," D. K. Kim, P. Sarin, N. L. Smith, L. Lee, M. C. Stewart and W. M. Kriven. Abstract [#ICACC-S5-024-2007], presented at 31<sup>st</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 21<sup>st</sup> -26<sup>th</sup> (2007).
308. "Preparation of Ceramic Foams from Geopolymer Gels," J. L. Bell, S. Mallicoat and W. M. Kriven. Abstract [#ICACC-FS3-011-2007], presented at 31<sup>st</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 21<sup>st</sup> -26<sup>th</sup> (2007).
309. "XPS Study of Metakaolin-based Geopolymers," S. Mallicoat, P. Sarin and W. M. Kriven. Abstract [#ICACC-FS3-012-2007], presented at 31<sup>st</sup> Int. Cocoa Beach Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 21<sup>st</sup> -26<sup>th</sup> (2007).
310. "Corrosion Protection of Concrete Reinforcing Rebars using Geopolymers," W. M. Kriven, M. Gordom and B. Erwin and H. Reis. Abstract [#ICACC-FS3-018-2007], presented at 31<sup>st</sup> Int. Cocoa Beach Conf. and Ezposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan 21<sup>st</sup> -26<sup>th</sup> (2007).
311. "In Situ, High Temperature, Synchrotron Studies on the Oxidation Behavior of Group VI Diboride Materials Dispersed in an Oxide Matrix," P. Sarin, D. K. Kim, R. Haggerty and W. M. Kriven. Presented at 16<sup>th</sup> International Symposium on the Reactivity of Solids (ISRM-16), held in June 3-6<sup>th</sup> Minneapolis, Minnesota, USA.
312. "Pair Distribution Function Analysis of Metakaolin Based Geopolymers," J. L. Bell, P. Sarin, R. P. Haggerty, P. E. Driemeyer and W. M. Kriven. Presented at the 32<sup>nd</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, Daytona Beach, Florida, Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2008).

313. "Short to Medium Range Structural Order in Amorphous, Pre-zeolitic Geopolymers of Composition  $M_2O \cdot Al_2O_3 \cdot 4SiO_2 \cdot 11H_2O$ ," W. M. Kriven, J. L. Bell, P. Sarin, R. P. Haggerty, P. E. Driemeyer. Presented at 2<sup>nd</sup> International Congress on Ceramic (CC2) held in Verona, Italy June 29<sup>th</sup> – July 4<sup>th</sup> (2008).
314. "In situ X-ray Diffraction of the  $HfO_2$  Phase Transformation in Air at 1700 °C," R. P. Haggerty, P. Sarin and W. M. Kriven. Presented at International Conference on Martensitic Transformations (ICOMAT) 2008 held in Santa Fe, Jun 29<sup>th</sup> – July 4<sup>th</sup> (2008).
315. "High Temperature Oxidation of  $ZrB_2$  and  $ZrB_2$  - SiC- Composites," P. Sarin, R. P. Haggerty, J. L. Bell, P. E. Driemeyer and W. M. Kriven. Presented at an Engineering Conference International (ECI) conference on Ultra-High Temperature Ceramics: Materials for Extreme Environment Applications, held at Glanlibakken Conf. Center, Lake Tahoe, California, Aug 3 -8<sup>th</sup> (2008).
316. "Formation of Iron-based Inorganic Polymer (Geopolymer)," J. L. Bell and W. M. Kriven, presented at 33<sup>rd</sup> International Conference on Advanced Ceramics and Composites held at Daytona Beach, FL, Jan 18<sup>th</sup> -23<sup>rd</sup> (2009).
317. "The Aging Process of Alkali Activated Metakaolin," C. H. Rüscher, E. Mielcarek, W. Lutz; A. Ritzmann and W. M. Kriven. Presented at 8<sup>th</sup> Pacific Rim Conference on Ceramics and Glass Technology, (PACRIM8), held in Vancouver, British Columbia, Canada, (May 31<sup>st</sup> – June 5<sup>th</sup> (2009).
318. "In-situ Studies of Oxidation of  $ZrB_2$  and  $ZrB_2$ -SiC Composites at High Temperatures," P. Sarin, P. Driemeyer, R. P. Haggerty, D.-K. Kim, J. L. Bell and W. M. Kriven.\* Presented at the AFOSR Workshop on Aerospace Materials for Extreme Environments, held at Clayton, St. Louis, Aug 3<sup>rd</sup> – 5<sup>th</sup> (2009).
319. "In situ, Synchrotron Studies of Ceramics to 2000 °C in Air," W. M. Kriven.\* Presented at 8<sup>th</sup> European Symposium on Martensitic Transformations (ESOMAT), held in Prague, Czech Republic, Sept 7<sup>th</sup> – 11<sup>th</sup> (2009).
320. "High Temperature X-ray Diffraction Studies of Monoclinic to Tetragonal Phase Transformation in  $HfO_2$ ," R. P. Haggerty, p. Sarin, P. D. Driemeyer, J. L. Bell, Z. Apostolov and W. M. Kriven. Presented at Materials Science and Technology 2009 Conference and Exhibition (MS&T'09) including the ACERS 111<sup>th</sup> Annual Meeting, held in Pittsburgh PA, Oct 25<sup>th</sup> -29<sup>th</sup> (2009).
321. "Determining Stable Phases in the  $HfO_2$  –  $Ta_2O_5$  Binary System," R. P. Haggerty, Z. D. Apostolov, S. Agnesty and W. M. Kriven. Presented at Materials Science and Technology 2009 Conference and Exhibition (MS&T'09) including the ACERS 111<sup>th</sup> Annual Meeting, held in Pittsburgh PA, Oct 25<sup>th</sup> -29<sup>th</sup> (2009).

322. “HfO<sub>2</sub> – Ta<sub>2</sub>O<sub>5</sub> Binary System: Investigation of Stable Phases,” R. P. Haggerty, Z. Apostolov, P. Sarin and W. M. Kriven. Presented at the 34<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, held in Daytona Beach, FL, Jan 24<sup>th</sup> – 29<sup>th</sup> (2010).
323. “Effect of PVA Chopped Fiber Reinforcements on the Mechanical Properties of Potassium-based Geopolymer Systems,” E. Lowry and W. M. Kriven. Presented at the 34<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, held in Daytona Beach, FL, Jan 24<sup>th</sup> – 29<sup>th</sup> (2010).
324. “Properties of Basalt Fiber Reinforced Geopolymer Composites,” E. Rill and W. M. Kriven. Presented at the 34<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Composites, held in Daytona Beach, FL, Jan 24<sup>th</sup> – 29<sup>th</sup> (2010).
325. “In situ, in air, HT (to 2000°C) Synchrotron Studies of Phase Transformations in Ceramics,” W. M. Kriven. Presented at Solid-Solid Phase Transformations in Inorganic Materials (PTM 2010), held at Palais des Papes, Avignon, France, June 6<sup>th</sup> – 11<sup>th</sup> (2010).
326. “Studies of L-Ta<sub>2</sub>O<sub>5</sub> to H-Ta<sub>2</sub>O<sub>5</sub> Phase Transformation using HTXRD” P. Sarin\*, R. P. Haggerty, Z. Apostolov, J. L. Bell and W. M. Kriven. Presented at Solid-Solid Phase Transformations in Inorganic Materials (PTM2010), held at Palais des Papes, Avignon, France, June 6<sup>th</sup> – 11<sup>th</sup> (2010).
327. “Properties of Chopped Fiber Reinforced Geopolymer Composites,” W. M. Kriven, E. Rill and D. R. Lowry. Poster presented at 7<sup>th</sup> International Conference on High Temperature Ceramic Matrix Composites (HT-CMC 7) held in Bayreuth, Germany, Sept 20 -22<sup>nd</sup> (2010).
328. “CMC’s Produced by the Geopolymer Route,” W. M. Kriven and T. Dietz. Poster presented at 7<sup>th</sup> International Conference on High Temperature Ceramic Matrix Composites (HT-CMC 7) held in Bayreuth, Germany, Sept 20 -22<sup>nd</sup> (2010).
329. “Microwave Processing of Geopolymers and Evolved Glass-Ceramic Composites,” T. A. Gubb, H. S. Shulman, M. L. Fall and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
330. “Phase Transformations in the Cadmia-Telluria-Tungstate System,” Ersundu and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
331. “X-ray Studies of Phase Transformations in Tantalum Pentoxide,” P. Sain, R. P. Haggerty, J. L. Bell, Z. D. Apostolov and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).

332. "In Situ studies of Phase Transformations in Tantalum Pentoxide," D. R. Lowry, P. Sarin and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
333. "Oxidation Studies of ZrB<sub>2</sub> and ZrB<sub>2</sub> – SiC Composites using HTXRD," P. Sarin, P. E. Driemeyer, R. P. Haggerty, D. K. Kim, J. L. Bell, Z. D. Apolsolov and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
334. "A Forming Technique to Produce Spherical Ceramic Beads using Alginic Acid, Sodium Alginate and Ammonium Alginate," C. J. Espinoza, T. Wei, B. Cho and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
335. "In Situ High Temperature Synchrotron Studies of Monoclinic to Tetragonal Phase Transformation in HfO<sub>2</sub> and Ta<sub>2</sub>O<sub>5</sub> – doped HfO<sub>2</sub> System," R. P. Haggerty, P. Sarin, Z. A. Jones and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
336. "CTEAS – Program to Determine Thermal Expansion Properties of Materials from High Temperature X-ray Diffraction," R. P. Haggerty, P. Sarin, Z. A. Jones\* and W. M. Kriven. Presented at 35<sup>th</sup> Int. Conf. and Exposition on Advanced Ceramics and Ceramic Composites. Held in Daytona Beach, FL, USA, Jan 23<sup>rd</sup>-28<sup>th</sup> (2011).
337. "Germanium Mullites: Structural Aspects of Lattice Thermal Expansion," P. Sarin, Z. D. Apostolov, R. P. Haggerty, Z. A. Jones, D. R. Lowry, P. F. Keane and W. M. Kriven. Presented at Int. Conf. on Mullite, held in Aviles, Spain, May 8<sup>th</sup> – 11<sup>th</sup> (2011).
338. "Mechanical Properties of Chopped Alumina Fiber Reinforced Geopolymer Composites," T. P. Dietz and W. M. Kriven. Presented at 12<sup>th</sup> Conf. of the European Ceramic Society, Stockholm, June 19<sup>th</sup> – 23<sup>rd</sup> (2011).
339. "Organic-Aluminosilicate Interface Interactions," Brayden E. Glad and Waltraud M. Kriven. Presented at the 9th International Meeting of Pacific Rim Ceramic Societies (PacRim 9), held in Cairns, Australia, on July 10<sup>th</sup> to 14<sup>th</sup> (2011).
340. "High Temperature Oxidation Behavior of Carbide Based Cermet Cermet Composites: Effect of Sintering Temperature and Porosity," Ali Ozer, Yahya Tur and Waltraud M. Kriven. Presented at the Materials Science and Technology 2011 (MS&T 11) held in Columbus, Ohio, Oct 16<sup>th</sup> 21<sup>st</sup> (2011).

341. “Stress Wave Management of Alumina ( $\text{Al}_2\text{O}_3$ ) 3D Ceramic Laminated Composites Systems,” C. Espinoza Santos,\* W. M. Kriven, Kevin Brittain and D. Tororelli. Presented at the Materials Science and Technology 2011 (MS&T 11) held in Columbus, Ohio, Oct 16<sup>th</sup> 21<sup>st</sup> 2011.
342. “Sintering and Mechanical Behavior of Doped  $\text{Cr}_3\text{C}_2$ -NiCr Cermets: Commercial versus Steric Entrapment Method Produced 3Y-TZPs,” Ali Ozer, Yahya Tur and W. M. Kriven.\* Presented at the Materials Science and Technology 2011 (MS&T 11) held in Columbus, Ohio, Oct 16<sup>th</sup> 21<sup>st</sup> 2011.
343. “In situ Synchrotron Studies of the Tetragonal to Monoclinic Phase Transformation in Hafnia and Zirconia,” R. P. Haggerty, P. Sarin, Z. D. Apostolov and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
344. “Ferroelastic Phase Transformations in Rare-Earth Niobates,” P. Sarin, D. R. Lowry, J. Angelkort, Z. D. Apostolov, R. P. Haggerty and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
345. “In situ Synchrotron X-ray Diffraction and Thermal Analysis Study of the Cubic to Rhombohedral Phase Transformation in  $\text{Y}_6\text{WO}_{12}$  and its thermal expansion behavior up to 1500 °C,” Z. Apostolov, P. Sarin, R. P. Haggerty, and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
346. “Investigation of Thermal Properties of  $\text{ZrP}_2\text{O}_7$  and  $\text{Zr}_2\text{P}_2\text{O}_9$ ,” J. Angelkort, P. Sarin, P. F. Keane and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
347. “A GUI Based Program to Calculate Coefficients of Thermal Expansion of Crystalline Materials from High Temperature Powder X-ray Diffraction,” Z. A. Jones, P. Sartin, R. P. Haggerty and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
348. “Processing, Sintering and Dynamic Mechanical Behavior of 8Y-TZP Doped Carbide Based Cermets,” A. Ozer, Y. K. Tur, W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
349. “Thermal Stability and Expansion Properties of Rare Earth Monosilicates,” P. Sarin, D. R. Lowry, Z. D. Apostolov, J. Angelkort, Z. A. Jones and W. M. Kriven.

- Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
350. “Properties of Basalt Fiber Reinforced Geopolymer Composites,” G. P. Kutyla, S. S. Musil and W. M. Kriven. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
  351. “Stress Wave Management in Obliquely Laminated Composite Systems,” C. Espinoza Santos, P. Sellappan, W. M. Kriven, K. Brittain, M. Silva and D. Tortorelli. Presented at the 36<sup>th</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 22<sup>nd</sup> – 27<sup>th</sup> (2012).
  352. “Progress in the Synthesis of CNT-reinforced SiC Composites, P. B. Stynoski, T. A. Carlson, C. P. Marsh, W. M. Kriven, C. R. Welch. Presented at the Joint U.K. – U.S. Meeting on Advanced Materials, held at the US Army Research and Development Center (ERDC) Vicksburg, MS, 23-25<sup>th</sup> May 2012.
  353. “Spark Plasma Sintering of SiC –Carbon Nanotube Composite – Simulations and Experiments,” T. A. Carlson, J. Allen, B. Devine, C.P. Marsh, W. M. Kriven and C. R. W. Welch. Presented at the 4<sup>th</sup> Int. Congress on Ceramics, held in Chicago, IL, USA, July 15<sup>th</sup> -19<sup>th</sup> (2012).
  354. “Processing, Microstructure, and Properties of Carbon Nanotube Reinforced Silicon Carbide” T. A. Carlson, C. P. Marsh, M. Kriven, C. R. Welch, P. B. Stynoski. Presented at the SEM XII International Congress and Exposition on Experimental and Applied Mechanics, Hilton Orange County/Costa Mesa, Costa Mesa, CA USA, June 11-14, (2012).
  355. “In situ Synchrotron X-ray Diffraction Study of the Cubic to Rhombohedral Phase Transformation in Ln<sub>6</sub>WO<sub>12</sub> (Ln= Y, Ho, Er, Yb) Z. D. Apostolov, P. Sarin, W. M. Kriven. Presented at the MS&T ’12 Conference, Pittsburgh, PA held in Oct 7<sup>th</sup> -11<sup>th</sup> (2012).
  356. “Thermal Properties and Phase Transition of 2ZrO<sub>2</sub>·P<sub>2</sub>O<sub>5</sub> Studied by in-situ Synchrotron X-ray Diffraction Experiments,” Joachim Angelkort, Pankaj Sarin, Zachary Jones, Stephen Letourneau, Zlatomir Apostolov and Waltraud Kriven. Presented at the MS&T ’12 Conference, Pittsburgh, PA held in Oct 7<sup>th</sup> -11<sup>th</sup> (2012).
  357. “Mechanical Properties and Microstructure of Potassium-based Geopolymer Reinforced with Nextel 610 Woven Fabric Produced Using the VARTM Method,” Sean Musil and W. M. Kriven. Presented at the MS&T ’12 Conference, Pittsburgh, PA held in Oct 7<sup>th</sup> -11<sup>th</sup> (2012).
  358. “The Effect of A-site Vacancies on Cell Volume Tolerance Factor and TCF of Perovskites,” R. Uvic, S. Letourneau, W. Kriven. Presented at the MS&T ’12

- Conference, Pittsburgh, PA held in Oct 7<sup>th</sup> -11<sup>th</sup> (2012).
359. “Characteristics of Ni-Co-Yttria Powder Synthesized by an Organic-Inorganic Solution Route (PVA) at Low Temperature,” Choong-Hwan Jung, Young Min Han, Waltraud Kriven and Jinsung Jang. Presented at the MS&T ’12 Conference, Pittsburgh, PA held in Oct 7<sup>th</sup> -11<sup>th</sup> (2012).
  360. “Phase Transformations in YTaO<sub>4</sub> and the Effect of Zr-ion doping,” P. Sarin,\* Z. D. Apostolov, D. R. Lowry, W. M. Kriven, S. Shian and D. R. Clarke. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
  361. “Characterization of Structural Behavior under Re-entry Type Transformations in Ln<sub>6</sub>WO<sub>12</sub> (Ln = Y, Ho, Er, Yb), Z. Apostolov,\* P. Sarin, W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup>(2013)
  362. “Novel Approach to Produce Spherical, Porous, Multilayer and Hollow Ceramic Beads,” C. J. Espinoza Santos\*, B. Walusiak, S. Hayes, E. K. Mendoza and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
  363. “Use of Brazilian Disk Test to Determine the Mechanical Strength of Laminated-Ceramic Composites,” C. J. Espinoza Santos,\* J. Lambros and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>s</sup> (2013).
  364. “Influence of Porosity on the Mechanicial Behavior of Alumina/Porous Alumina Laminates,” P. Sellappan,\* J. Lambros and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
  365. “Optimization of Gas Adsorption Porosimetry for Geopolymer Analysis,” B. E. Glad\* and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
  366. “Mechanical Properties and Microstructure of Potassium-based Geopolymer with Chamotte Particulate Reinforcement,” S. S. Musil\* and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
  367. “Optimized Cesium Substituion in Potassium-based Geopolymers for Enhanced Mechanical Properties,” A. J. Stevenson\* and W. M. Kriven. Presented at 37<sup>th</sup>



- International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
368. “Geopolymer-bonded Alumina Microplatelets for Refractory Applications,” G. P. Kutyla\* and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013)
369. “Static and Dynamic Properties of Potassium-based Geopolymer as Measured by Different Techniques,” Shinhu Cho\* and W. M. Kriven. Presented at 37<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites, held at Daytona Beach, FL, USA Jan 27<sup>th</sup> – Feb 1<sup>st</sup> (2013).
370. “Development of a Gas-Fed Capillary Source for Pulsed High-Density Plasma Applications,” Francis Stefani, Michael V. Pachuiilo, Laxminarayan L. Raja, Roger D. Bengtson, Graeme A. Henkelman, A. Cuneyt Tas, Waltraud M. Kriven. Presented at IEEE Pulsed Power and Plasma Science Conference (PPPS 2013), held in San Francisco, CA, June 16<sup>th</sup> -21<sup>st</sup> (2013)
371. “Development of a Gas-Fed Capillary Source for Pulsed High-Density Plasma Applications,” Michael V. Pachuiilo, Laxminarayan L. Raja, Francis Sefani, Roger D. Bengtson, Graeme A. Henkelman, A. Cuneyt Tas, Waltraud M. Kriven. Presented at 44<sup>th</sup> American Institute of Aeronautics and Astronautics (AIAA), Plasma Dynamics and Lasers Conference, San Diego, CA, June 26<sup>th</sup> (2013).
372. “Mitigation of Dehydration Cracking and Thermal Shrinkage in Geopolymer Systems by the Addition of Alumina Platelet Reinforcement,” G.P. Kutyla and W. M. Kriven. Presented at the 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, held at the University of Illinois at Urbana- Champaign, July 8-10<sup>th</sup> 2013.
373. “Geopolymer Densification Using Functional Alkoxysilanes”, B. E. Glad\* and W. M. Kriven. Presented at the 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, held at the University of Illinois at Urbana- Champaign, July 8-10<sup>th</sup> 2013.
374. “Spark Plasma Sintering of Alumina and Silicon Carbide for Numerical Simulation Verification and Development of Super Ceramic Materials,” T. A. Carlson\*, C. Marsh, R. Welch and W. M. Kriven. Presented at 2013 NanoTechnology for Defense Conference, held in Tucson Arizona, Nov 4<sup>th</sup> - 7<sup>th</sup> 2013.
376. “The Potential of Geopolymer Composites as Castable Refractory Materials,” G. P. Kutyla\* and W. M. Kriven. Presented at 38<sup>th</sup> Int. Conf. and Exposition of Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 26<sup>th</sup> -31<sup>st</sup> 2014

377. "Rice Husk Ash as a Silica Source in Geopolymer Formulation," Un Heo, Kaushik\* Sankar and W. M. Kriven. Presented at 38<sup>th</sup> Int. Conf. and Exposition of Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 26<sup>th</sup> -31<sup>st</sup> 2014.
378. "Characterization of Tetragonal-Monoclinic, Ferroelastic Transformation and Domain Boundaries in Zirconia-Alloyed Yttrium Tantalate," Samuel Shian\*, Pankaj Sarin, Mary Gurak, Mor Baram, Waltraud M. Kriven and David R. Clarke, held at the Microscopy and Microanalysis Meeting, Aug 3<sup>rd</sup> – 7<sup>th</sup> (2014) Hartford, CT.
379. "Phase Transformations in Ceramics: the Present and the Future," Ivar Reimanis\*, Waltraud Kriven and Pankaj Sarin. Presented at MS&T 14, Oct 12-16<sup>th</sup> (2014) in Pittsburgh, PA.
380. "Characterization of Thermal Expansion and Phase Transformations in the Ln<sub>2</sub>TiO<sub>5</sub> System via in situ Synchrotron X-ray Diffraction (Ln= Dy, Y, Er) up to 1500 °C," K. C. Seymour\*, R. W. Hughes and W. M. Kriven. Presented at MS&T 14, Oct 12-16<sup>th</sup> in Pittsburgh, PA.
381. "Use of Diatomite as Fumed Silica Alternative in a Geopolymer Formulation," Cengiz Bagci\* and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
382. "Microstructures, Mechanical Properties and Electrical and Thermal Conductivities of Graphene Nanoplatelet-Reinforced, Potassium Geopolymer," Shinhu Cho\*, T. A. Carlson, C. Marsh and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
383. "Ceramic Felt Reinforced Geopolymer Composites," E. C. Koehler\* and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
384. "Green Composite: Potassium Geopolymer Reinforced with Curua Fibers," K. Sankar\* and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
385. "Green Composite: Sodium Geopolymer Reinforced with Malva Fibers," K. Sankar\*, W. M. Kriven and R. K. Vieira. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).

386. "Sodium Geopolymer reinforced with Cordgrass Fibers," D. S. Roper\*, K. Sankar, J. Crawford, D. K. Lee and W. M. Kriven. Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
387. "Flash Sintering of Geopolymer Composites," F. Trombin, T. Dietz, S. P. Letourneau, P. F. Keane\*, G.P. Kutyla, S. K. Jha, R. Raj and W. M. Kriven. Poster Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
388. "Developing Damage Resistant Ceramics by Mimicking Natural Materials," P. Sellappan and W. M. Kriven\*. Poster Presented at 39<sup>th</sup> Annual Conference and Exposition on Advanced Ceramics and Ceramic Composites, held in Daytona Beach, Florida, Jan 25<sup>th</sup> (2015).
389. "Effect of Curing Conditions Crystalline Phase Development of Heat-treated K/Cs Geopolymer," A. J. Steveson and Waltraud M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
390. "Basalt Chopped Fiber, Felt and Weave Reinforced Geopolymer Composites," Daniel R. Ribero\*, E. Koehler, G.P. Kutyla, S. S. Musil; and W. M. Kriven. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
391. "Short Carbon Fiber-reinforced Potassium Geopolymer Composites," Shihuh Cho, R. D. Schmidt, E. D. Case and W. M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
392. "Lignocellulosic Fibers as Reinforcements in Geopolymers," Kaushik Sankar and Waltraud M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
393. "Mica Platelet-reinforced Geopolymer Composites, P. F. Keane\*, G. P. Kutyla and W. M. Kriven. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing," held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
394. "Low Cost Synthesis of SiAlON Type Ceramic Powders from Na, K, or Cs

- Geopolymer,” Cengiz Bagci, G. P. Kutyla and W. M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing,” held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
395. “High Temperature Mechanical Properties of Mullite and Alumina Fiber Reinforced Geopolymer Composites,” S. S. Musil, A. A. Kolchin, S. T. Mileiko and W. M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing,” held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
396. “Potassium Geopolymer Reinforced with Granite Powder,” Daniel Roper and W. M. Kriven\*. Presented at ECI Engineering Conference International on Geopolymers: Route to Eliminate Waste and Emissions in Ceramic and Cement Manufacturing,” held in Hernstein, Austria, May 24<sup>th</sup> -29<sup>th</sup> (2015).
397. “Geopolymer Beads and their Applications in Granular Media,” Shinhu Cho\*, Alexander Vakakis, Donald McFarland and W. M. Kriven. Presented at 11<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications, held in Vancouver, Canada, June 14<sup>th</sup> – 19<sup>th</sup> (2015).
398. “Properties of Basalt Woven, Fabric-reinforced Geopolymer Composites,” Daniel R. Ribero\* and W. M. Kriven. Presented at 11<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications, held in Vancouver, Canada, June 14<sup>th</sup> – 19<sup>th</sup> (2015).
399. “Geopolymers Reinforced with Natural Fibers,” Kaushik Sankar and W. M. Kriven.\* Presented at 11<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications, held in Vancouver, Canada, June 14<sup>th</sup> – 19<sup>th</sup> (2015).
400. “Potassium Geopolymer Reinforced with Granite Powder,” Daniel Roper and W. M. Kriven\*. Presented at 11<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications, held in Vancouver, Canada, June 14<sup>th</sup> – 19<sup>th</sup> (2015).
401. “Novel Synthesis and Electrochemical Characterization of LiFePO<sub>4</sub> and NaFePO<sub>4</sub> Cathode Materials,” Daniel R. Ribero\* and W. M. Kriven. Presented at 11<sup>th</sup> Int. Conf. on Ceramic Materials and Components for Energy and Environmental Applications, held in Vancouver, Canada, June 14<sup>th</sup> – 19<sup>th</sup> (2015).
401. “The Conversion of Na, K or Cs Geopolymers to Nitride Nano-powders by Carbothermal Reduction and Nitridation,” Cengiz Bagci\*, Greg P. Kutyla and Waltraud M. Kriven. Presented at 11<sup>th</sup> Nanoscience and Nanotechnology Conference (NanoTR'11) held in METU Ankara, Turkey on June 22-25 (2015).

402. “The Characterization of the Orthorhombic to Hexagonal Phase Transformation in  $\text{Dy}_2\text{TiO}_5$ ” Kevin C. Seymour\*, Daniel Ribero Rodriguez and Waltraud M. Kriven. International Conference on Solid-Solid Phase Transformations in Inorganic Materials (PTM2015) held in Whistler, BC, Canada, June 28<sup>th</sup> – July 3<sup>rd</sup> (2015).
403. “An In-situ Method to Identify Lattice Correspondences for High Temperature Ceramic Phase Transformations,” W. M. Kriven\*, P. Sarin, R. P. Haggerty, Z. A. Jones, Z. D. Apostolov. International Conference on Solid-Solid Phase Transformations in Inorganic Materials (PTM2015) held in Whistler, BC, Canada, June 28<sup>th</sup> – July 3<sup>rd</sup> (2015).
404. “In situ High Temperature Synchrotron Studies of Ceramics,” Waltraud M. Kriven\*, Pankaj Sarin, Ryan P. Haggerty, Zlatomir D. Apostolov, Robert W. Hughes, Zachary A. Jones, Joachim Angelkort, Steven P. Letourneau, Patrick E. Driemeyer, Kevin C. Seymour. International Conference on Solid-Solid Phase Transformations in Inorganic Materials (PTM2015) held in Whistler, BC, Canada, June 28<sup>th</sup> – July 3<sup>rd</sup> (2015).
405. “Mechanical Properties of Short, Carbon Fiber-reinforced, Potassium Geopolymer Composite,” Shinhu Cho, Robert D. Schmidt, Eldon D. Case and Waltraud M. Kriven. Presented at the 11<sup>th</sup> International Pacific Rim Conference of Ceramic Societies (PACRIM 11) Aug. 30<sup>th</sup> – Sept 4<sup>th</sup> (2015) in Jeju, Korea.
406. “Mechanical Reinforcements and Electrical and Thermal Conductivities in Graphene Nanoplatelet-reinforced, Potassium Geopolymer,” Shinhu Cho, Thomas A. Carlson, Charles Marsh, Waltraud M. Kriven. Presented at the 11<sup>th</sup> International Pacific Rim Conference of Ceramic Societies (PACRIM 11) Aug. 30<sup>th</sup> – Sept 4<sup>th</sup> (2015) in Jeju, Korea.
407. “Novel Architecture of Geopolymer Composites for Mechanical Energy Absorption,” Shinhu Cho and Waltraud Kriven. Presented at the 11<sup>th</sup> International Pacific Rim Conference of Ceramic Societies (PACRIM 11) Aug. 30<sup>th</sup> – Sept 4<sup>th</sup> (2015) in Jeju, Korea.
408. “Understanding the Role of the Alkali Cation in Determining Phase Transformation Properties of  $\text{A}_2\text{O} - \text{Al}_2\text{O}_3 - 4\text{SiO}_2$  Compounds (A = Alkali Cation),” John Beach, Pankaj sarin, Andrew Stevenson, Dan Lowry and Waltraud M. Kriven. Presented at the Materials Science and Technology (MS&T 15) Annual Meeting, held in Columbus OH, USA, Oct 4-8<sup>th</sup> (2015).
411. “The Characterization of the Orthorhombic to Hexagonal Phase Transformation in the  $\text{Ln}_2\text{TiO}_5$  System,” Kevin C. Seymour, Daniel Ribero and Waltraud M. Kriven. Presented at the Materials Science and Technology (MS&T 15) Annual Meeting, held in Columbus OH, USA, Oct 4-8<sup>th</sup> (2015).

412. “Mica Platelet-reinforced Geopolymer Composites,” Patrick F. Keane and Waltraud M. Kriven\*. Presented at “Composites at Lake Louise Conference 2015 in Nov 8<sup>th</sup> -12<sup>th</sup> 2015 in Lake Louise, Canada.
413. “Thermal Expansion and Phase Transformation Behavior in the Rare-Earth Titanate System,” Kevin C. Seymour, Scott McCormack, Daniel Ribero and Waltraud M. Kriven. Presented at Composites at Lake Louise 2015 Conference, held in Lake Louise, Canada, Nov 8<sup>th</sup> – 12<sup>th</sup> (2015).
414. “In situ Study of Thermal Expansions and Phase Transformations in the Tantalum and Hafnium Binary System,” Scott J. McCormack, Kevin C. Seymour, Nicole Crosby and Waltraud M. Kriven. Poster presented at Composites at Lake Louise 2015 Conference, held in Lake Louise, Canada, Nov 8<sup>th</sup> – 12<sup>th</sup> (2015).
415. “Strength Improvements in Clay-based Ceramic Reinforced with Discontinuous Basalt Fiber,” G. P. Kutyla, P. F. Keane\*, C. P. Marsh and W. M. Kriven. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016), Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
416. “Dolomite (CaMg(CO<sub>3</sub>)<sub>2</sub>) Particulate-reinforced Geopolymer Composite,” P. F. Keane\* and W. M. Kriven. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016), Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
417. “Mica Platelet-reinforced Geopolymer Composites,” P. F. Keane, J. Wight, W. Rickard and W. M. Kriven\*. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016), Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
418. “Bone Ash Reinforced Geopolymer: A Route to Enhance Microstructural Integrity and Mechanical Properties in Geopolymer Composites,” Abdul W. Bhuiya and Waltraud M. Kriven. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016) Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
419. “Potassium-based Geopolymer Reinforced with Bamboo Fibers,” Ruy Sa Ribeiro, Marilene Sa Ribeiro, Kaushik Sankar and Waltraud M. Kriven. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016) Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
420. “Mixed Alkali Regional Metakaolin-based Geopolymer,” Ruy Sa Ribeiro, Marilene Sa Ribeiro, Kaushik Sankar and Waltraud M. Kriven. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016) Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).

421. "Sodium Geopolymer Reinforced with Cork and Abaca Banana Chopped Fibers," Daniel Roper and Waltraud M. Kriven. Presented at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016) Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
422. "Synthesis and Characterization of Phosphate Cathode Materials Prepared by a Polymeric Steric Entrapment Precursor Route," D. Ribero and W. M. Kriven. Presented by D. Ribero at the 40<sup>th</sup> International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2016) Daytona Beach, FL, in Jan 25<sup>th</sup> – 29<sup>th</sup> (2016).
423. "Electromechanical Mechanisms of Geopolymer-Metal Adhesion," Charles P. Marsch, Waltraud M. Kriven, Peter Stynoski and Gregory P. Kutyla, (poster) presented at the 2017 Environmental Quality and Installations Basic Research Continuing Projects Review", held in Vicksburg, MS on 19-21 April (2016).
424. "TEM Studies of Silicon-Based Ceramic Nano-Particles Synthesized from Sodium Geopolymers," Cengiz Bagci and Waltraud M. Kriven. Presented at 2<sup>nd</sup> European Geopolymer Network, held in Limoges, France, June 15<sup>th</sup> (2016).
425. "In Situ Crystallographic Thermal Expansion Measurements of Compounds in the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub>-TiO<sub>2</sub> Ternary system using CTEAS" S. J. McCormack, K. C Seymour and W. M. Kriven. Presented at 65th annual Denver X-ray Conference held in Rosemont, Illinois, Aug 1<sup>st</sup>-5<sup>th</sup> (2016).
426. "In situ High Temperature Determination of HfO<sub>2</sub> – Ta<sub>2</sub>O<sub>5</sub> Binary Phase Diagram from 25 - 3000°C," S. J. McCormack, Richard Weber, Sergey V. Ushakov, Alexandra Navrotsky and Waltraud M. Kriven. Poster presented at Int. Research Conf. on Structure and Thermodynamics of Oxides at High Temperature, held at the University of California at Davis, Oct 20<sup>th</sup>-22<sup>nd</sup> (2016).
427. "In-situ Phase Diagram Determination of the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> Binary up to 3000°C," S. J. McCormack, Richard Weber, Sergey V. Ushakov, Alexandra Navrotsky and Waltraud M. Kriven. Presented at MS&T 16 Annual Meeting, held in Salt Lake City, Utah Oct 23<sup>rd</sup> – 27<sup>th</sup> (2016).
428. "Preparation and Properties of a Potentially Useful New Pseudo-geopolymer Material," G. P. Kutyla, C. Marsh and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
429. "Geopolymers Reinforced with Auxetic Fabrics," Kaushik Sankar and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
430. "Ultra Refractory, Chopped Basalt Fiber-reinforced Geopolymer Composites," P.

- F. Keane, J. S. Foltz, Charles P. Marsh and W. M. Kriven. , Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
431. TEM Studies of Silicon-based Ceramic Nano-particles Synthesized from Potassium Geopolymers,” G. Bagci and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
  432. “Dolomite (CaMg(CO<sub>3</sub>)<sub>2</sub>) Particulate-reinforced Geopolymer Composites,” P. F. Keane and W. M. Kriven. Presented at 41<sup>st</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 22<sup>nd</sup> – 27<sup>th</sup> (2017) in Daytona Beach, FL, USA.
  433. “Geopolymer Composites for Construction: From Micro to Macro Scale,” Kaushik Sankar, Peter Stynoski, Ghassan Al-Chaar and Waltraud M. Kriven. Presented at the 8<sup>th</sup> Advances in Cement-Based Materials: Alternative Cementitious Materials and Material Modification (CEMENTS 2017), June 26<sup>th</sup> - 28<sup>th</sup> (2017) in Atlanta, Georgia Institute of Technology, GA, USA.
  434. “Flash Sintering of a Three-Phase Alumina Spinel and Yttria-Stabilized Zirconia Composite,” David Kok, Shikhar Krishna Jha, Emanuele Sortine, Devinder Yadav, Scott J. McCormack, Kuo-Pin Tseng, Rishi Raj, Waltraud M. Kriven and Martha L. Mecartney. Presented at the Annual Meeting of the European Ceramic Society, Budapest, Hungary in July 9<sup>th</sup> – 13<sup>th</sup> 2017.
  435. “Multi-Scale Simulation of Geopolymer Composites Via Finite Elements and Molecular Dynamics,” Amrita Kataruka, Yue Cui, Erman Guleryuz, Seid Koric, Waltraud M. Kriven and Ange-Therese Akono. Presented at a Workshop on Materials Computation at the National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign, IL, Aug. 14-15<sup>th</sup> (2017).
  436. “Bone Ash Reinforced Geopolymerizing Metakaolin from Metamax (MT) Mymensingh Clay (MW) and Synthetic Mymensingh Clay (MW-SYN),” A. W. Bhuiya, D. Ribero, M. Hu, P. F. Keane and W. M. Kriven. Presented at the 6<sup>th</sup> Serbian Ceramic Society Conference, Sept 18-20<sup>th</sup> (2017), held in Belgrade, Serbia.
  437. “High Temperature Behavior in Entropy Stabilized Oxide MgO<sub>0.2</sub> CoO<sub>0.2</sub> NiO<sub>0.2</sub> CuO<sub>0.2</sub> ZnO<sub>0.2</sub>,” Kuo-Pin Tseng, Scott Mc Cormack and Waltraud M. Kriven, Presented at MS&T17 Annual Meeting, held in Pittsburgh, PA Oct 8-12<sup>th</sup> (2017).
  438. “Directions of Zero Thermal Expansion in Anisotropic Oxides,” Scott J. Mc Cormack, William Wheeler and W. M. Kriven. Presented at Composites at Lake Louise (2017), held at Lake Louise, Alberta, Canada Nov 12-16<sup>th</sup> (2017).



439. “High Temperature Behavior in Entropy Stabilized Oxides,” Kuo-Pin Tseng and W. M. Kriven. Presented at Composites at Lake Louise (2017), held at Lake Louise, Alberta, Canada Nov 12-16<sup>th</sup> (2017).
440. “Multi-Scale Simulation of Geopolymer Composites Via Finite Elements and Molecular Dynamics,” Amrita Kataruka, Yue Cui, Erman Guleryuz, Seid Koric, Waltraud M. Kriven, Ange-Therese Akono. Poster presented at the Workshop on Materials Computation at the National Center for Supercomputing Applications, held at the University of Illinois at Urbana-Champaign, Aug 14<sup>th</sup> -15<sup>th</sup> (2017).
441. “Bone Ash, Glass Frit and Saffil Reinforced Geopolymer using Metamax, Mymenshingh Clay and Synthetic Mymenshingh Clay,” Abdul W. Bhuiya, Michael Hu, Daniel Ribero and Waltraud M. Kriven\*. Presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
442. “Effects of Applied Electrical Potential on the Adhesion of Geopolymer to Steel,” T. A. Carlson\*, H. Hernandez, M. Ziemann, P. Stynoski, C. P. Marsh, G. P. Kutyla and W. M. Kriven. Presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
443. “Synthesis of  $M_1Ti_2(PO_3)_4$  ( $M_1 = Li, Na, K$ ) Compounds by the Polymeric Steric Entrapment Method and their Thermal Expansion Behavior,” D. Ribero, T. Tseng, K.C. Seymour and W. M. Kriven. Presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
444. “Low Temperature Synthesis and Electrochemical Characterization of  $LiMn_2O_4$  prepared by a Polymeric Steric Entrapment Precursor Route,” D. Ribero, K. Tseng, W. Luo, S. J. Dillon and W. M. Kriven. Presented at 42<sup>nd</sup> Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 21<sup>st</sup> – 26<sup>th</sup> (2018) in Daytona Beach, FL, USA.
445. “Strength and Elastic Behavior of Metakaolin-Based and Bamboo Fiber Reinforced Geopolymers,” Ruy A. Sá Ribeiro, Marilene G. Sá Ribeiro, Marilia G. Sá Ribeiro, Mauro R. Sardela and Waltraud M. Kriven. Poster presented at Presented at ECI International Conference on Alkali Activated Materials and Geopolymers: Versatile Materials Offering High Performance and Low Emissions. Held in Tomar, Portugal, May 27<sup>th</sup> – June 1<sup>st</sup> (2018).
446. “Understanding the Relationship between Micro and Macro-scale Properties in Sodium Silicate Activated Slag-Fly Ash Binders,” Kaushik Sankar, Xu Chen and Waltraud M. Kriven\*. Presented at ECI International Conference on Alkali Activated Materials and Geopolymers: Versatile Materials Offering High

- Performance and Low Emissions. Held in Tomar, Portugal, May 27<sup>th</sup> – June 1<sup>st</sup> (2018).
447. “Amorphous, Self-healed Ceramics (ASH-C) made by the Geopolymr Processing Route,” Abdul W. Bhuiya, Daniel Ribero, Michael Hu, Patrick F. Keane and Waltraud M. Kriven. Presented at ECI International Conference on Alkali Activated Materials and Geopolymers: Versatile Materials Offering High Performance and Low Emissions. Held in Tomar, Portugal, May 27<sup>th</sup> – June 1<sup>st</sup> (2018).
448. “Amorphous, Self-healed, Geopolymers-basalt (ASH-G) and Ceramics (ASH-C) made by the Geopolymer Processing Route,” Patrick F. Keane, Vimanyu Chadha, Charles P. Marsh and Waltraud M. Kriven. Presented at ECI International Conference on Alkali Activated Materials and Geopolymers: Versatile Materials Offering High Performance and Low Emissions. Held in Tomar, Portugal, May 27<sup>th</sup> – June 1<sup>st</sup> (2018).
449. “Drying Shrinkage Behavior of Metakaolin-based and Bamboo Fiber Reinforced Geopolymers,” Ruy Sa Ribeiro, Marilene G. Sa Ribeiro, Marilia G. Sa Ribeiro, Mauro R. Sardela and Waltraud M. Kriven. Presented at ECI International Conference on Alkali Activated Materials and Geopolymers: Versatile Materials Offering High Performance and Low Emissions. Held in Tomar, Portugal, May 27<sup>th</sup> – June 1<sup>st</sup> (2018).
450. “Topotactic Motif and Orientation Relation Extraction for Phase Transformations from *In Situ* X-Ray Powder Diffraction,” S. J. Mc Cormack and W. M. Kriven. Presented at Goldschmidt Conference, of the Geochemical Society, Boston 2018, Aug 12-17<sup>th</sup> (2018).
451. “Phase Diagram Determination of the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> Binary up to 3000°C using In Situ X-ray Diffraction,” S. J. Mc Cormack, R. Weber, D. Kapush, A. Navrotsky and W. M. Kriven. Symposium for Alexandra Navrotsky as part of the Goldschmidt Conference of the Geochemical Society, Boston 2018, Aug 12-17<sup>th</sup> (2018).
453. “Thermal Expansion and Phase Transformation Kinetics in the Lanthanide Ditanate System,” Benjamin Hulbert\* and Waltraud M. Kriven. Presented at MS&T 2018 Int. Conf., Symposium on Phase Transformations in Ceramics: Science and Applications, held on Oct 14<sup>th</sup> -18<sup>th</sup> (2018), in Columbus, OH, USA.
454. “Structurally Stable, High Entropy, Lanthanide Sesquioxides,” Kuo-Pin Tseng\* and Waltraud M. Kriven. Presented at MS&T 2018 Int. Conf., Symposium on Phase Transformations in Ceramics: Science and Applications, held on Oct 14<sup>th</sup> - 18<sup>th</sup> 2018, in Columbus, OH, USA.

455. “High-entropy Ceramics of Five-component, Equimolar, Rare-earth (RE) Oxides,” Kuo-Pin Tseng and Waltraud M. Kriven. Presented at MRS 2018 Fall Meeting, Nov 25<sup>th</sup> -30<sup>th</sup> (2018) Boston, MA, USA.
456. “Basalt Fibers and Minibars as Geopolymer Reinforcements,” A. J. Steveson, D. W. Blake, J. R. Davis and W. M. Kriven. Presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 - Feb 1 (2019) in Daytona Beach, FL, USA.
457. “Alkali Resistant Glass Fibers as a Geopolymer Reinforcement,” D. W. Blake, J. R. Davis, A. J. Steveson and W. M. Kriven. Presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 - Feb 1 (2019) in Daytona Beach, FL, USA.
458. “Mechanical Properties of Flax and Hemp Felt Geopolymer Composites,” P. F. Keane and W. K. Kriven. Presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 - Feb 1 (2019) in Daytona Beach, FL, USA.
459. “Investigating Different Commercial Metakaolin Sources and Waste Alkaline Solutions for Producing Geopolymer,” D. Samuel and W. M. Kriven. Presented at 43rd Int. Conf. and Expo on Advanced Ceramics and Composites, held Jan 27 Feb 1 (2019) in Daytona Beach, FL, USA.
460. In-Situ Phase Diagram Determination of the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub>-Temperature System up to 3000,” Scott J. McCormack, Kuo-Ping Tseng, Richard Weber, Denys Kapush, Sergey Ushakov, Alexandra Navrotsky and Waltraud M. Kriven. Presented at CALPHAD XLV111 (2019) International Conference, held in Singapore, June 2<sup>nd</sup>-7<sup>th</sup> 2019.
461. “Setting and Nanostructure of Slag-fly Ash and Slag-metakaolin Binders,” Kaushik Sankar, Andre Sutrisno and Waltraud M. Kriven. Presented at 10<sup>th</sup> Conference on Advances in Cement-based Materials, held on June 16<sup>th</sup> -18<sup>th</sup> (2019) at the University of Illinois at Urbana-Champaign, Urbana, IL, USA.
462. “In situ Diagram Determination of the HfO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> Binary up to 3000°C,” S. J. Mc Cormack, K. P. Tseng, W. M. Kriven, R. Weber, S. V. Ushakov, D. Kapush, A. Navrotsky. Presented at 66<sup>th</sup> Annual Denver X-Ray Conference, held in Lombard, Chicago, IL, Aug 5-9 (2019).
463. “Thermal Expansion and Phase Transformation Mechanism in the Lanthanide Ditungstate System,” B. Hulbert, S. McCormack, K. Tseng, W. M. Kriven. Presented at 66<sup>th</sup> Annual Denver X-Ray Conference, held in Lombard, Chicago, IL, Aug 5-9 (2019).

464. "Influence of Pore Structure on Failure Behavior of Geopolymer Composites," Ange-Therese Akono, Seid Koric and Waltraud M. Kriven. 56th Annual Technical Meeting of the Society of Engineering Science (SES2019) October 13 - 15, (2019), Washington University, St. Louis, MO, U.S.A.
465. "Thermal Expansion and Phase Transformation Mechanism in the Lanthanide Ditanate System," Benjamin Hulbert, Kuo-Pin David Tseng, Scott McCormack and Waltraud Kriven. Presented at the Symposium on Phase Transformations in Ceramics: Science and Applications, organized by MS&T19 in Portland, Oregon Sept 29<sup>th</sup> – Oct 3<sup>rd</sup> (2019).
466. "Phase Transformations in High-entropy, Lanthanide Oxides," Kuo-Pin Tseng, Waltraud M. Kriven, Ming-Hung Tsai. Presented at the Symposium on Phase Transformations in Ceramics: Science and Applications, organized by MS&T19 in Portland, Oregon Sept 29<sup>th</sup> – Oct 3<sup>rd</sup> (2019).
467. "Potential Chemical Selection Guideline for High-Entropy Ceramics," Kuo-Pin Tseng, Ming-Hung Tsai, Waltraud M. Kriven. Presented at the 2019 World Congress on High Entropy Alloys (WCHEA), held by the Minerals, Metals and Materials Society (TMS). November 17-20, (2019), Seattle, Washington, USA.
468. "Atypical Phase Separations in High-entropy, Lanthanide Oxides," Kuo-Pin Tseng, Ming-Hung Tsai, Qun Yang, and Waltraud M. Kriven. Presented at MRS 2019 Fall Meeting, Boston, Dec 1<sup>st</sup> -6<sup>th</sup> (2019).
469. "Thermal Conductivity and Flexure Strength of Geopolymer Composites for Geothermal Housing Foundations," Devon Samual, Andrew Stumpf and Waltraud Kriven. Presented at Int. Conf. and Expo on Advanced Ceramics and Ceramic Composites (ICACC), Daytona Beach, FL, Jan 26<sup>th</sup> – 31<sup>st</sup> (2020).
470. "Basalt Mini-rod-Reinforced Geopolymer Composites," Vinmanyu Chadha and Waltraud M. Kriven. Presented at Int. Conf. and Expo on Advanced Ceramics and Ceramic Composites (ICACC), Daytona Beach, FL, Jan 26<sup>th</sup>-31<sup>st</sup> (2020).
471. "Mechanical Properties of Flax and Hemp Felt Geopolymer Composites," Patrick F. Keane and Waltraud M. Kriven. Presented at Int. Conf. and Expo on Advanced Ceramics and Ceramic Composites (ICACC), Daytona Beach, FL, Jan 26<sup>th</sup>-31<sup>st</sup> (2020).
472. "Tailorable Thermal Expansion in Ceramics Synthesized by Geopolymer Crystallization," Andrew J. Steveson and Waltraud M. Kriven. Presented at Int. Conf. and Expo on Advanced Ceramics and Ceramic Composites (ICACC), Daytona Beach, FL, Jan 26<sup>th</sup> 31<sup>st</sup> (2020).

473. “In-Situ Phase Equilibria in the  $\text{TiO}_2\text{-HfO}_2\text{-WO}_3$  System up to  $2000^\circ\text{C}$ ,” Benjamin S. Hulbert, Dylan W. Blake, Waltraud M. Kriven. Presented at Denver X-Ray Conference held virtually at Bethesda, USA, Aug 3<sup>rd</sup>-7<sup>th</sup> (2020).
474. “Structural origin of size/parity effect in 2D organic metal chalcogenides: NMR and Nano DSC study with atomic resolution crystallography by diffraction and ab initio calculation,” J. Zhao, Z. Ye, K. Kang, Y. T. Shao, S. J. McCormack, M. Y. Efremov, A. Schleife, J. -M. Zuo, W. M. Kriven and L. H. Allen. Presented at Materials Research Society (MRS) Annual Fall Meeting in Boston, MA on Nov 8<sup>th</sup> – Dec 4<sup>th</sup> (2020).
475. “Performance of Geopolymers in Geothermal Heat Pump (GHP) System,” Yi, Yun Kyu\*; Jang, Keunhyuk; Taylor, Mark; Kriven, Waltraud; Stark, Timothy D, Stumpf, Andrew; Lin, Yu-Feng. To be presented at Building Simulation Conference 2021 to be held in Bruges, Belgium Sept 1-3 (2021).
476. “Geothermal - Geopolymer: Finding Resources Under your Feet,” Mark Taylor, Luis Felipe Flores G, Devon Samuel, Waltraud Kriven, Andrew Stumpf, Timothy Stark, Yu-Feng Lin, Yun Kyu Yi. 2021 International Conference. 27<sup>th</sup> World Congress of Architects. Rio de Janeiro, Brazil, 18<sup>th</sup> – 22<sup>nd</sup> July (2021).
477. “Revealing the Nature of Size and odd/even Effect Observed by Nano DSC in 2D Organic Metal Chalcogenides: Atomic Resolution Crystallography via Diffraction and Ab initio Calculations,” J. Zhao, Z. Ye, K. Kang, Y. T. Shao, S. J. McCormack, M. Y. Efremov, A. Schleife, J. -M. Zuo, W. M. Kriven, and L. H. Allen. APS 2021 Spring meeting submitted to section 12.01.01: *2D Materials: Synthesis, Defects, Structure and Properties (DMP)*, Argonne National Laboratory, IL.
478. “An Amorphous Self-healing Geopolymer for Molten Salt Containment,” Patrick Keane, Rhys Jacob, Sam Gage, Waltraud M. Kriven, Craig Turchi, Frank Bruno. MST 2021 Molten Salts Technologies. Int. Molten Salts Conference organized by the International Virtual Academy, June 8<sup>th</sup> -10<sup>th</sup> (2021).
479.  $\text{TiO}_2\text{-HfO}_2\text{-WO}_3$  Phase Equilibria and Negative Thermal Expansion in  $\text{HfW}_2\text{O}_8$ ,” B. S. Hulbert\*<sup>a</sup>, D. W. Blake\*, K. P. Tseng\*, W. M. Kriven. Virtual 2021 Denver X-ray Conference, Aug 2<sup>nd</sup>-6<sup>th</sup> (2021).
480. “In-situ Phase Equilibria in the  $\text{TiO}_2\text{-HfO}_2\text{-WO}_3$  System up to  $2000^\circ\text{C}$ ,” Benjamin S. Hulbert, Dylan W. Blake, Kuo-Pin Tseng and Waltraud M. Kriven. To be presented at Int. Symposium on Phase Transformations in Ceramics: Science and Applications as part of Annual MS&T 20 Conference to be held in Columbus, OH Oct 17<sup>th</sup> -21<sup>st</sup> (2021).

## **TEACHING EXPERIENCE:**

1967 -1971 inclusive:

Concurrently with undergraduate studies, completed (part time) 3 years of a 4-year course for a Diploma of Teaching (Dip. T.) from Adelaide Teachers College. Also fulfilled all the practice teaching requirements to become a high school science teacher.

1971-1974 inclusive:

Resident Tutor in Chemistry at Aquinas College, affiliated to the University of Adelaide, South Australia.

1971-1976:

Graduate teaching assistant for one day per week in the Dept. of Physical and Inorganic Chemistry, University of Adelaide, South Australia.

Sept. 1976 - April 1977:

Post-doctoral Teaching (and Research Fellow) in the Department of Chemistry at the University of Western Ontario, London, Ontario, Canada. Tutored and demonstrated first year chemistry laboratories for two and a half days per week for the Canadian academic year.

Fall Quarter 1977-1979, inclusive:

Lecturer in the Dept. of Materials Science and Mineral Engineering, University of California, Berkeley.

Gave a 4-unit course on Phase Equilibria and Transformations (phase diagrams) to Juniors and Seniors. It was a main-stream course required for a ceramics major and by six engineering departments. Instruction was supported by two teaching assistants. Set up demonstration labs and a full laboratory course to complement the lecture course.

Student evaluations in the first year gave a rating of 5.3 out of 7 which was the next highest score in the whole department (compared to 5.7 obtained by a senior, experienced instructor).

1984 -1990, inclusive :

As a faculty member at the University of Illinois, developed a new, 1 unit graduate course on "Electron Microscopy in Physical Sciences", which included both scanning and transmission electron microscopy. In parallel to the lectures, a comprehensive laboratory course was established and teaching assistants were personally trained. Two 1" thick laboratory manuals were written and compiled to document techniques not yet in text books. Since there was a waiting list of students from several Engineering Departments, as well as from the Geology, Chemistry and Physics Departments, the course was taught every semester for six years.

Thereafter, discussions were in progress to have the course taught campus-wide by myself through the Graduate College of the University.

1989-1990:

Also as a faculty member at the University of Illinois, have taught a main stream ceramics course on Phase Equilibria to Juniors and Seniors in the Materials Science and Engineering Department. Student numbers have increased from 30 to 50 during this time.

Spring semester 1992:

Developed a new senior Ceramic Elective course (Cer Eng 331) on “Ceramic Microstructures and Their Characterization,” which includes a laboratory course. Techniques taught include optical microscopy, microindentation and scanning electron microscopy.

Fall semester 1994:

Developed a new course on “Mechanical Properties of Materials” (MatSE 306) for Juniors and Seniors, with an associated Laboratory course. It covered properties of metals, ceramics, polymers and composites.

Fall semester 1996:

Learnt a course on “Refractory Technology” MatSE 324 for Juniors and Seniors, covering refractory ceramic engineering.

Fall semester 1997

Taught a course on “Ceramic Processing and Microstructure Development” to Junior and Seniors in Materials Science and Engineering and in Ceramic Engineering

Spring semester 1998

Taught a course on “Electron Microscopy and Diffraction Theory” (transmission electron microscopy) to seniors and graduate students.

Have continued to teach courses in Ceramic Microstructure and Properties as well as on Ceramic Processing and Microstructure Development Theory since 1998 – present.

1996-1998 inclusive: GE Scholar, completed Teaching College - Faculty Development Program

**Continuing Education Instruction**

1993 - present:

State-wide review instructor of Materials Science and of Chemistry in preparation for the National Examination for the credential of Professional Engineer (P.E.), organized by the Illinois Society of Professional Engineers. Also instructor on campus within the Engineering College.

Aug. 1991:

Invited Lecturer for a Tutorial Session in Materials Science sponsored by the Inorganic Chemistry Division of the American Chemical Society. The sessions accompanied the Annual Meeting of the Society held in New York, NY, on Aug 25th-30th (1991). Lectured on “SEM and TEM in Materials Science.”

1985 and 1986:

Participating lecturer in two day, short courses on Transmission Electron Microscopy, offered through the Center for Electron Microscopy of the University of Illinois. The course was designed for training of research and technical personnel in industrial laboratories.

Aug. 1982:

Invited speaker at Summer Course accompanying the International Conf. on Martensitic Transformations (ICOMAT), held in Leuven, Belgium, August 1982. Lectured on “Lattice-Deformational Transformations in Non-Metals.”

1996-1998 inclusive: GE Scholar, completed Teaching College - Faculty Development Program

Feb 4<sup>th</sup> 1984 – 1986:

Visiting Research Professor, Associate Professor and full Professor, University of Illinois at Urbana-Champaign, Department of Materials Science and Engineering.

Feb 1984 – present:

Full time faculty member in the Department of Ceramic Engineering, which subsequently changed to become the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign.