**BIOGRAPHICAL SKETCH WALTRAUD M. KRIVEN**

**(a) Name, Organization and Contact Information:**

Prof. Waltraud M. Kriven

Department of Materials Science and Engineering,

University of Illinois at Urbana-Champaign

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Director, Center for Geopolymer Research and Applications

[https://cegra.engineering.illinois.edu](https://cegra.engineering.illinois.edu/)

**(b) Professional Preparation**

B.Sc. Physical and Inorganic Chemistry, University of Adelaide, South Australia,1970

B.Sc. (Hons) Physical and Inorganic Chemistry, Univ. of Adelaide, South Australia, 1971

Ph.D. Physical and Inorganic Chemistry, University of Adelaide, South Australia, 1976

Sept. 1976 – April 1977 *Post-doctoral teaching and research fellow*, University of Western Ontario, London, Ontario, Canada

April 1977 – May 1980 *Post-doctoral researcher and Lecturer,* Lawrence Berkeley Laboratory, and the Department of Materials Science and Mineral Engineering, University of California, Berkeley, respectively.

May 1980 – Nov 1983 *Visiting research scientist*, *high voltage electron microscopy*, Max Planck Institute, Stuttgart, Germany

Nov 1983 – Feb 1984 *Post-doctoral researcher,* Department of Materials Science and Mineral Engineering, University of California, Berkeley

**(c) Appointments**

1995 – present *Full Professor,* Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign

2007 -2012 *Affiliate Professor*, Department of Bioengineering

2009 – present *Affiliate Professor*, Department of Mechanical Science and Engineering

1987 – 1995 *Associate Professor,* Department of Materials Science and Engineering*,* University of Illinois at Urbana-Champaign

Feb 1984 – 1987 *Visiting Research Associate Professor,* Department of Ceramic Engineering, University of Illinois at Urbana-Champaign

**(d) 340 research publications, 59 conference proceedings, 27 books edited or co-edited, 41 plenary and keynote talks, 281 invited talks, 518 conference presentations, 9 patents**

In the area of geopolymers, Kriven has written over 88 research papers and co-edited 20 conference proceedings which were published by the American Ceramic Society, as Ceramic Transactions (Vols. 153, 165, 175, 244) and Ceramic Engineering and Science Proceedings (Vols 26 - 40). During the past 5 years Kriven has been a symposium co-organizer for 3-4 international conferences on geopolymers per year.

**(e) Research areas:**

• Geopolymers and hybrid inorganic polymers for ambient temperature synthesis

• Synthesis of oxide ceramic powders by the organic steric entrapment method

• Microstructure characterization by scanning and transmission by electron microscopy (SEM, TEM, EDS, HVEM, HREM, XPS)

• *In situ*, in air high temperature (2000°C) synchrotron XRD and Rietveld studies

• Structural ceramic composites and oxide fibers

(design, fabrication, characterization and mechanical evaluation)

**(f) Professional Affiliations:**

Academician, World Academy of Ceramics (2004)

Member, European Union Academy of Sciences (2020)

Fellow of the American Ceramic Society (1995)

Fellow of the Australian Ceramic Society (2009)

**(g) Editorial Boards:** Journal of Ceramic Science and Technology, Germany

**(h) Awards:**

• Academician, World Academy of Ceramics (2004)

• Member, European Union Academy of Sciences (2020)

• James I. Mueller Award of the Engineering Division of the American Ceramic Society, (2017) for research in Advanced Ceramics

• 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.

**(i) Director: Center for Geopolymer Research and Applications (CeGRA) at UIUC campus:** <https://cegra.engineering.illinois.edu>

**(j)** **Spin-off Company:** Founder, owner and CEO of Keanetech, LLC (Started in Dec 2004)

Keanetech, LLC , 2716 F, Clark Rd, Champaign, IL 61822, USA Tel: (217) 721 7722

Email: [kriven@keanetech.com](mailto:kriven@keanetech.com) ; <https://www.keanetech.com/>

**(k) Selected publications: (**Our research *currently* focuses on three main research areas):

**• *Geopolymers and low energy syntheses of ceramic composites (88 publications to date)***

1. 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>
2. Kriven, Waltraud M. (2021) Geopolymers and Geopolymer-Derived Composites. In: Pomeroy, M. (ed). Encyclopedia of Materials: Technical Ceramics and Glasses, vol. 1, pp. 424–438. Oxford: Elsevier. <http://dx.doi.org/10.1016/B978-0-12-818542-1.00100-4>

**• *In situ ultra-high temperature synchrotron studies of phase diagrams, thermal expansions, phase transformations and HT chemical reactions (36 publications to date)***

1. “In-situ Investigation of Hf6Ta2O17 Anisotropic Thermal Expansion and Topotactic, Peritectic Transformation,” Scott J. McCormack, Richard Weber and Waltraud M. Kriven, Act Materialia **161** 127 – 137 (2018). <https://doi.org/10.1016/j.actamat.2018.08.029>
2. “In situ Determination of the HfO2-Ta2O5 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](https://10.1111/jace.16271)

**• *Low energy synthesis of oxide, carbide and nitride ceramic powders (39 publications)***

1. “High Entropy 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>

***Current research group:*** 5 Post-doctoral researchers, 5 Ph.D. students, 1 MS, 2 undergrads, 2 Ph.D. exchange students.