Curriculum vitae

John Kieffer
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Education and Training

1980	M.S. (summa cum laude)	Clausthal University of Technology
1985	Ph.D	Clausthal University of Technology

Employment History

2005-present	Professor, Materials Sci.&Eng, Applied Physics, Univ of Michigan, Ann Arbor, MI
2001-2005	Associate Professor, Materials Sci.&Eng, Univ of Michigan, Ann Arbor, MI
1995-2001	Associate Professor, Materials Sci.&Eng, University of Illinois
1989-1995	Assistant Professor, Materials Sci.&Eng, University of Illinois
1989	Research Engineer, Saint-Gobain Recherche, Paris, France
1986-1989	Postdoctoral Fellow, Purdue University, Indiana
1985-1986	Research Specialist, Arizona State University, Arizona

Select Awards and Honors

- George W. Morey Award, Glass and Optical Materials Division of the American Ceramic Society, 1999
- Fellow of the American Ceramic Society, 2002
- JEMT Best Paper Award, American Society of Mechanical Engineers, 2007
- Outstanding Achievement Award, Department of Materials Science and Engineering, University of Michigan, 2007
- Monroe-Brown Foundation Service Excellence Award, College of Engineering, University of Michigan, 2016

Current Research Expertise

(i) computational design of materials for energy applications, such as photovoltaics, lighting, and batteries, (ii) amorphous materials for solid electrolyte, optical, and photonics applications, and (iii) thermal and mechanical properties of interfaces between dissimilar materials, including devices, composites, hybrid materials, and rheological optimization of materials precursors. Specific skills and investigatory specialties comprise molecular simulations, development of reactive force fields, inelastic light scattering (Brillouin & Raman), dielectric impedance spectroscopy, sol-gel and hybrid organic-inorganic chemical synthesis.

Select Peer-Reviewed Publications relevant to the Proposal

1. W. Wang, R. Christensen, B. Curtis, S.W. Martin, and J. Kieffer, 'A New Kinetic Model Linking Elastic Properies and Ion Conductivity in Mixed Newtork Former Glasses,' *Phys. Chem. Chem. Phys.* **20**, 1629 (2018)
2. W. Wang, E. Yi, A.J. Fici, R.M. Laine, and J. Kieffer, 'Lithium Ion Conducting Polyethylene Oxide-Based Solid Electrolytes Containing Active or Passive Ceramic Nanoparticles,' *J. Phys. Chem. C* **121**, 2563 (2017)
3. E.Y. Yi, W. Wang, J. Kieffer, and R.M. Laine, 'Flame made nanoparticles permit processing of dense, flexible, Li+ conducting ceramic electrolyte thin films of cubic-$Li_7La_3Zr_2O_{12}$ (c-LLZO),' *J. Materials Chemistry A* **4**, 12947 (2016)

4. C. Sebeck, C. Shao, and J. Kieffer, 'Alkane-Metal Interfacial Structure and Elastic Properties by Molecular Dynamics Simulation,' *ACS Applied Materials and Interfaces* **8**, 16885 (2016)
5. E.Y. Yi, W.M. Wang, S. Mohanty, J. Kieffer, R. Tamaki, and R.M. Laine, 'Materials that can replace liquid electrolytes in Li batteries: Superionic conductivities in $Li_{1.7}Al_{0.3}Ti_{1.7}Si_{0.4}P_{2.6}O_{12}$. Processing combustion synthesized nano-powders to free standing thin films,' *J. Power Sources* **269**, 577 (2014)

Select Peer-Reviewed Publications in the Broad Field

1. J. Kieffer, 'Brillouin Light Scattering,' in *Modern Glass Characterization*, edited by M. Affatigato (Wiley & Sons, Hoboken, NJ, 2015), p. 107.
2. L. Huang and J. Kieffer, 'Challenges in Modeling Mixed Ionic-Covalent Glass Formers,' in *Molecular Dynamics Simulations of Disordered Materials: From Network Glasses to Phase-Change Alloys*, edited by C. Massobrio, J. Du, M. Bernasconi, and P.S. Salmon 2015), p. 87.
3. P. Philipp, K.Q. Ngo, J. Kieffer, and T. Wirtz, 'Silver Diffusion in Organic Optoelectronic Devices: Deposition-Related Processes versus Secondary Ion Mass Spectrometry Analysis Artifacts,' *J. Phys. Chem. C* **119**, 23334 (2015)
4. M. Bahrami, J.C. Furgal, H. Hashemi, M. Ehsani, Y. Jahani, T. Goodson, J. Kieffer, and R.M. Laine, 'Synthesis and Characterization of Nanobuilding Blocks [o-RStyrPhSiO1.5]10,12 (R = ME, MeO, NBoc, and CN). Unexpected Photophysical Properties from Apparent Asymmetric Cage Functinalization as Supported by Modeling Studies,' *J. Phys. Chem. C* **119**, 15846 (2015).
5. M. Aldridge, A.S. Wineman, A.M. Waas, and J. Kieffer, 'In Situ Analysis of the Relationship between Cure Kinetics and the Mechanical Modulus of an Epoxy Resin,' *Macromolecules* **47**, 8368 (2014)
6. C. Shao, Y. Jin, K. Pipe, M. Shtein, and J. Kieffer, 'Simulation of Crystalline and Amorphous Copper Phthalocyanine: Force Field Development and Analysis of Thermal Transport Mechanisms,' *J. Phys. Chem.* **118**, 9861 (2014)
7. M. Aldridge, A. Waas, and J. Kieffer, 'Spatially Resolved In-Situ Elastic Modulus of Thermoset Polymer Amidst Carbon Fibers in a Polymer Matrix Composite,' *Composites Science and Technology* **98**, 22 (2014)
8. Y. Jin, C. Shao, J. Kieffer, K. Pipe, and M. Shtein, 'Origins of thermal boundary conductance of interfaces involving organic semiconductors,' *J. Appl. Phys.* **112**, 093503 (2012)
9. C. Heinrich, M. Aldridge, A.S. Wineman, J. Kieffer, A.M. Waas, and K. Shahwan, 'The influence of the representative volume element (RVE) size on the homogenized response of cured fiber composites,' *Modelling and Simulation in Materials Science and Engineering* **20**, 075007 (2012)
10. C.G. Zhen, Y.F. Dai, W.J. Zeng, Z. Ma, Z.K. Chen, and J. Kieffer, 'Achieving Highly Efficient Fluorescent Blue Organic Light-Emitting Diodes Through Optimizing Molecular Structures and Device Configuration,' *Advanced Functional Materials* **21**, 699 (2011)

Sponsored Research

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