

## **Kathy Lu, Ph.D.**

Member ID 980080016

Professor

Materials Science and Engineering Department  
Virginia Polytechnic Institute and State University  
213 Holden Hall – M/C 0237

Blacksburg, VA 24061

tel 540-231-3225, fax 540-231-8919, e-mail klu@vt.edu

<http://www.lu.mse.vt.edu>

### **Research Interest**

- Nano- and micro-sized powder materials design, forming, sintering, and characterization, including digital free forming, templating, and sintering.
- Fuel cell material design and processing step integration for lower operation temperature and cost.
- Composites and functionally/structurally graded materials and porous materials.
- Material design using ceramics, metal powders, polymers, or the combinations for microstructure and performance driven applications.
- Powder synthesis, forming, and sintering related simulations.
- Diversity issues related to nanotechnology advancement.

### **Education**

Ph.D., Materials Science and Engineering, Ohio State University, Columbus, OH, 2000

M.S., Materials Science and Engineering, Ohio State University, Columbus, OH, 1999

B.S., Ceramics, Tianjin University, Tianjin, China, 1990

### **Professional Experience**

2015 – *Professor*, Department of Materials Science and Engineering  
Virginia Polytechnic Institute and State University, Blacksburg, VA

2010 – 2015 *Associate Professor*, Department of Materials Science and Engineering  
Virginia Polytechnic Institute and State University, Blacksburg, VA

2012 – 2013 *Visiting Professor*, School of Materials Science  
Technischen Universität Darmstadt, Darmstadt, Germany

2004 – 2010 *Assistant Professor*, Department of Materials Science and Engineering  
Virginia Polytechnic Institute and State University, Blacksburg, VA

2001 – 2004 *Materials Development and Processing Scientist*  
EnerGizer Battery Company, Westlake, OH

2000 – 2001 *Director of Materials Processing*, Center for Innovative Sintered Products  
Pennsylvania State University, University Park, PA

1996 – 2000 *Research Associate*, Department of Materials Science and Engineering  
Ohio State University, Columbus, OH

### **Awards and Honors**

2016 Virginia Tech Alumni Award for Research Excellence

2015 Associate Editors: Journal of the American Ceramic Society

2014- Editorial Review Board of Frontiers in Energy Research, section Fuel Cells

2014- Editorial Board Member of Annals of Material Science & Engineering

- 2012 College of Engineering Faculty Fellow Award, Virginia Tech  
 2011 Friedrich Wilhelm Bessel Research Award, Alexander von Humboldt Foundation  
 2008 Karl Schwartzwalder- Professional Achievement in Ceramic Engineering Award,  
 American Ceramic Society  
 2005 Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated  
 Universities  
 2001 P/M Metallography Competition Award, APMI International

**Patent:**

1. K. Lu, M. K. Mahapatra, "Barium Oxide, Calcium Oxide, Magnesia, and Alkali Oxide Free Glass," US8,541,327, September 2013.
2. K. Lu, F. Shen, Tri-Layer CO<sub>3</sub>O<sub>4</sub>-SDC Protective Coating for Solid Oxide Fuel Cell Interconnects, U.S. Patent Application No: 62/318,369, 4/5/2016.

**Publications:****Books:**

1. K. Lu, Nanoparticulate Materials-Synthesis, Characterization, and Processing, John Wiley & Sons, Inc., Hoboken, New Jersey, 464 pages, October 2012. ISBN: 978-1-1182-9142-9.
2. K. Lu, Materials in Energy Conversion, Harvesting, and Storage, John Wiley & Sons, Inc., Hoboken, New Jersey, ISBN: 978-1-118-88910-7, 448 pages, September 2014.

**Books Edited:**

1. N. P. Bansal, J. P. Singh, A. Bhalla, M. M. Mahmoud, N. Jose Manjooran, G. Singh, K. Lu, G. Brenneka, Processing and Properties of Advanced Ceramics and Composites VI, Ceramic Transactions, Volume 249, ISBN: 978-1-118-99549-5, 375 pages, September 2014, Wiley.
2. K. Lu, N. J. Manjooran, R. Murakam, and G. Pickrell, Advances in Synthesis, Processing and Applications of Nanostructures, Ceramic Transactions, Volume 238; ISBN: 978-1-1182-7327-2, August 2012, Wiley.
3. K. Lu, N. Manjooran, M. Radovic, G. Pickrell, E. Medvedovski, E. A. Olevsky, C. Li, G. Singh, and N. Chopra, Advances in Nanomaterials and Nanostructures, Ceramic Transactions, Volume 229, ISBN: 978-1-118-06002-5, August 2011, Wiley.
4. K. Lu, C. Li, E. Medvedovski, E. A. Olevsky, Processing of Nanoparticle Materials and Nanostructured Films, Ceramic Transactions, Volume 223, 2010, ISBN 978-0-470-92731-1, Wiley.
5. T. Hinklin, K. Lu, Processing of Nanoparticle Structures and Composites: Ceramic Transactions, Volume 208, ISBN: 978-0-470-40846-9, August 2009, Wiley.

**Book Chapters:**

6. K. Lu, W. Li, and B. Chen, "Sintering of Porous Materials," Sintering: Mechanisms of Conventional Nanodensification and Field Assisted Processes, Editors: Ricardo H. R. Castro, Klaus van Benthem, Springer, Engineering Materials 35, 2013, Volume 35, 115-136, DOI: 10.1007/978-3-642-31009-6\_6.
7. K. Lu, "Shaping of 3D Nanoceramics and Their Composites," *Handbook of Nanoceramics and Their Based Devices*, American Scientific Publishers, Edited by T.Y. Tseng and H. S. Nalwa, vol. 2, p 151-177, ISBN:1-58883-116-7, Stevenson Ranch, CA, 2009.

8. K. Lu and X. Zhu, "Liquid Nanoparticles: Synthesis and Characterization," *Encyclopedia of Nanoscience and Nanotechnology*, American Scientific Publishers, Stevenson Ranch, CA, 2010. Editor: H. S. Nalwa, ISBN: 1-58883-146-7, Volume 15, 537-574, 2010.

### **Journal papers:**

117. F. Shen, K. Lu, "Co<sub>x</sub>Fe<sub>1-x</sub> oxide coatings on AISI 441 for solid oxide fuel cells," *Journal of Power Sources*, submitted on 6/24/2016.
116. F. Shen, K. Lu, "Co<sub>3</sub>O<sub>4</sub>/Sm-doped CeO<sub>2</sub> (SDC)/Co<sub>3</sub>O<sub>4</sub> Tri-layer Coating on AISI 441 Interconnect for Solid Oxide Fuel Cells," *Advanced Energy Materials*, submitted on 6/24/2016.
115. Z. Hu, K. Ning, K. Lu, "Study of Spark Plasma Sintered Silicon Carbide with Nanostructured Ferritic Alloy Addition," *Journal of the European Ceramic Society*, submitted on 7/5/2016.
114. G. Li, M. R. von Spakovsky, F. Shen, K. Lu, "Multi-scale Transient and Steady State Study of the Influence of Microstructure Degradation and Chromium Oxide Poisoning on SOFC Cathode Performance," *Journal of Power Sources*, submitted on 3/11/2016.
113. K. Lu, D. Erb, M. Liu, "Ceramization and Electrical Conductivity of TiO<sub>2</sub>-Polysiloxane Derived Ceramics," *Journal of Materials Science*, accepted on 7/20//2016.
112. Z. Hu, K. Ning, K. Lu, "Study of Spark Plasma Sintered Nanostructured Ferritic Steel Alloy with Silicon Carbide Addition," *Materials Science and Engineering A, Materials Science and Engineering A*, 2016, 670, 75–80.
111. F. Shen, K. Lu, "Perovskite-type La<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub>, Ba<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub>, and Sm<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> Cathode Materials for Solid Oxide Fuel Cells", *Electrochemical Acta*, accepted 6/13/2016.
110. J. Zhao, Y. He, L. Zhang, K. Lu, "Preparation of Porous TiO<sub>2</sub> Powder with Mesoporous Structure by Freeze-drying Method," *Journals of Alloys and Compounds*, 678, 36-41, 2016.
109. K. Lu, D. Erb, M. Liu, "Thermal Stability and Electrical Conductivity of Carbon-Enriched Silicon Oxycarbide," *Journal of Materials Chemistry C*, 4, 1829-1837, 2016.
108. K. Lu, J. Li, "Fundamental Understanding of Water Vapor Effect on SiOC Evolution during Pyrolysis," *Journal of the European Ceramic Society*, 36, 411–422, 2016.
107. F. Shen, K. Lu, "Comparative Study of La<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub>, Ba<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> and Sm<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> Cathodes and the Effect of Sm<sub>0.2</sub>Ce<sub>0.8</sub>O<sub>2</sub> Block Layer in Solid Oxide Fuel Cells," *International Journal of Hydrogen Energy*, 40, 16457-16465, 2015.
106. K. Lu, "Porous and High Surface Area SiOC Materials-A Review," *Materials Science and Engineering-R*, 97, 23–49, 2015.
105. M. Gervasio, K. Lu, R. Davis, "Experimental and Modeling Study of Solvent Diffusion in PDMS Stamp for Nanoparticle-Polymer Co-suspensions," *Langmuir*, 31(36), 9809–9816, 2015.
104. F. Shen, K. Lu, "La<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> Cathodes Incorporated with Sm<sub>0.2</sub>Ce<sub>0.8</sub>O<sub>2</sub> by Three Different Methods for Solid Oxide Fuel Cells," *Journal of Power Sources*, 296(20), 318–326, 2015.
103. J. Li, K. Lu, "Highly Porous SiOC Bulk Ceramics with Water Vapor Assisted Pyrolysis," *Journal of the American Ceramic Society*, 98(8), 2357–2365, 2015.
102. J. Li, K. Lu, T. Lin, K. Shen, "Preparation of Micro-/Meso-porous SiOC Bulk Ceramics," *Journal of the American Ceramic Society*, 98(6), 1753–1761, 2015.

101. K. Lu, M. Liu, M. Gervasio, "Nanoparticle and Poly(methyl methacrylate) Co-dispersion in Anisole," *Journal of Materials Science*, 50(14), 4836-4844, 2015.
100. J. Zhao, L. Zhang, W. Xing, and K. Lu, "A Novel Method to Prepare B/N co-doped Anatase TiO<sub>2</sub>," *Journal of Physical Chemistry*, 119, 7732-7737, 2015.
99. J. Zhao, K. Zhang, Y. Lin, K. Lu, "Preparation of Separated and Open End TiO<sub>2</sub> Nanotubes," *Ceramics International*, 41, 7235-7240, 2015.
98. J. Zhao, W. Xing, Y. Li, K. Lu, "Solvothermal Synthesis and Visible Light Absorption of Anatase TiO<sub>2</sub> (001) Facets," *Materials Letters*, 145, 332-335, 2015.
97. G. Kaur, V. Kumar, G. Pickrell, K. Lu, "Interfacial Compatibility of Alumino-Borosilicate Glass Sealants with AISI 441 and YSZ for Different Atmospheres," *International Journal of Hydrogen Energy*, 40 (2) 1195-1202, 2015.
96. F. Shen, K. Lu, "Moisture Effect on La<sub>0.8</sub>Sr<sub>0.2</sub>MnO<sub>3</sub> and La<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> Cathode Behaviors in Solid Oxide Fuel Cells," *Fuel Cells*, 15, 105-114, 2015.
95. V. Kumar, G. Kaur, K. Lu, O. P. Pandey, K. Singh, "Effect of Thermal Treatment on Chemical Interaction Between Yttrium Borosilicate Glass Sealants and YSZ for Planar Solid Oxide Fuel Cells," *International Journal of Applied Glass Science*, 5(4) 410-420, 2014.
94. J. Z. Zhao, B. X. Wang, K. Lu, "Influence of Ta<sub>2</sub>O<sub>5</sub> Doping and Microwave Sintering on TiO<sub>2</sub>-based Varistor Properties," *Ceramics International*, 40, 14229-14234, 2014.
93. K. Lu, F. Shen, R. Roberts, G. Doucette, M. McGuire, W. Li, "(LaSr)<sub>x</sub>MnO<sub>3</sub> Cathode Stoichiometry Effects on Electrochemical Performance in Contact with AISI 441 Steel Interconnect," *Journal of Power Sources*, 268 (15) 379-387, 2014.
92. Z. Hu, K. Lu, "Evolution of Pores and Tortuosity During Sintering," *Journal of the American Ceramic Society*, 97(8), 2383-2386, 2014.
91. K. Lu, F. Shen, "Effect of Stoichiometry on (La<sub>0.6</sub>Sr<sub>0.4</sub>)<sub>x</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> Cathode Evolution in Solid Oxide Fuel Cells," *Journal of Power Sources*, 267, 421-429, 2014.
90. V. Kumar, O. P. Pandey, K. Singh, K. Lu, "Interaction Study of Yttria Based Glasses with High Temperature Electrolyte for SOFC," *Fuel Cells*, 14(4), 635-644, 2014.
89. K. Lu, "Effects of Nb<sub>2</sub>O<sub>5</sub> as Seeds and Trisodium Citrate as Suppressing Agent on LiNbO<sub>3</sub> Formation," *Materials Letters*, 126, 63-66, 2014.
88. K. Lu, F. Shen, "Long Term Behaviors of La<sub>0.8</sub>Sr<sub>0.2</sub>MnO<sub>3</sub> and La<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> as Cathodes for Solid Oxide Fuel Cells," *International Journal of Hydrogen Energy*, 39, 7963-7971, 2014.
87. K. Lu, W. Li, "Study of An Intermediate Temperature Solid Oxide Fuel Cell Sealing Glass System," *Journal of Power Sources*, 245, 752-757, 2014.
86. K. Lu, "Nanomaterials: Bringing New Excitements to the Energy World," *Annals of Material Science and Engineering*, 1(1), 1-2, 2014.
85. B. Chen, Z. Xia, K. Lu, "Understanding Sintering Characteristics of ZnO Nanoparticles by FIB-SEM Three-Dimensional Analysis," *Journal of the European Ceramic Society*, 33, 2499-2507, 2013.
84. B. Chen, J. Hou, K. Lu, "Formation Mechanism of TiO<sub>2</sub> Nanotubes and Their Applications in Photoelectrochemical Water Splitting and Supercapacitors," *Langmuir*, 29(19), 5911-5919, 2013.
83. Z. Xia, B. Chen, K. Lu, "3D Microstructure Construction of Sintered ZrO<sub>2</sub> under Different Sintering Conditions," *Journal of Materials Science*, 48(17), 5852-5861, 2013.
82. W. Li, K. Lu, J. Y. Walz, "Effects of Solids Loading on Sintering and Properties of Freeze-Cast Kaolinite-Silica Porous Composites," *Journal of the American Ceramic Society*, 96,

- 1763–1771, 2013.
81. W. Li, K. Lu, Z. Xia, “Interaction of  $(\text{La}_{1-x}\text{Sr}_x)_n\text{Co}_{1-y}\text{Fe}_y\text{O}_{3-\delta}$  Cathodes and AISI 441 Interconnect for Solid Oxide Fuel Cells,” *Journal of Power Sources*, 237, 119-127, 2013.
  80. W. Li, K. Lu, J. Y. Walz, M. Anderson, “Effects of Rod-like Particles on the Microstructure and Strength of Freeze-cast Silica Nanoparticle Composites,” *Journal of the American Ceramic Society*, 96, 398–406, 2013.
  79. B. Chen, K. Lu, “Selective Focused-ion-beam Sculpting of  $\text{TiO}_2$  Nanotubes and Mechanism Understanding,” *Physical Chemistry Chemical Physics*, 15(6), 1854 –1862, 2013.
  78. B. Chen, K. Lu, K. Ramsburg, “ZnO Sub-Micrometer Rod Array by Soft Lithographic Micromolding with High Solid Loading Nanoparticle Suspension,” *Journal of the American Ceramic Society*, 96(1), 73–79, 2013.
  77. W. Li, K. Lu, J. Y. Walz, “Fabrication of Porous Nanocomposites with Controllable Specific Surface Area and Strength via Suspension Infiltration,” *Langmuir*, 28(47), 16423–16429, 2012.
  76. K. Lu, Y. Liang, W. Li, “Hindered Sintering Behaviors of Titania Nanoparticle-based Materials,” *Materials Letters*, 89, 77–80, 2012.
  75. W. Li, K. Lu, J. Y. Walz, “Effects of Added Kaolinite on the Strength and Porosity of Freeze-Cast Kaolinite-Silica Nanocomposites,” *Journal of Materials Science*, 47(19), 6882-6890, 2012.
  74. K. Lu, “Newfound Capability of Focused Ion Beam Patterning Guided Anodization,” *Electrochimica Acta*, 63, 256–262, 2012.
  73. Y. Liang, K. Lu, “Titania Nanoparticle Suspension for Fabrication of Micron Feature Arrays via a Template-assisted Approach,” *International Journal of Applied Ceramic Technology*, 9 (5), 911–919, 2012.
  72. B. Chen, K. Lu, “Hierarchically Branched Titania Nanotubes with Tailored Diameters and Branch Numbers,” *Langmuir*, 28(5), 2937-2943, 2012.
  71. T. Jin, K. Lu, “Chromium Deposition and Interfacial Interactions of an Electrolyte-Air Electrode-Interconnect Tri-layer for Solid Oxide Fuel Cells,” *Journal of Power Sources*, 202, 143– 148, 2012.
  70. W. Li, K. Lu, J. Y. Walz, “Effects of Added Kaolinite on Sintering of Freeze-Cast Kaolinite-Silica Nanocomposite I. Microstructure and Phase Transformation,” *Journal of the American Ceramic Society*, 95, 883–891, 2012.
  69. T. Jin, K. Lu, “Surface and Interface Behaviors of Sr-doped Lanthanum Manganite Air Electrode in Different Moisture Atmospheres,” *Journal of Power Sources*, 197, 20-27, 2012.
  68. W. Li, K. Lu, J. Y. Walz, “Freeze Casting of Porous Materials-A Review of Critical Factors in Microstructure Evolution,” *International Materials Reviews*, 57(1), 37-60, 2012.
  67. K. Lu, T. Jin, “Surface Devitrification of a High Temperature Sealing Glass,” *Materials Research Innovations*, 15(6), 386-390, 2011.
  66. B. Chen, K. Lu, Z. Tian, “Understanding Focused Ion Beam Guided Anodic Alumina Nanopore Development,” *Electrochimica Acta*, 56, 9802– 9807, 2011.
  65. B. Chen, K. Lu, “Influence of Patterned Concave Depth and Surface Curvature on Anodization of Titania Nanotubes and Alumina Nanopores,” *Langmuir*, 27(19), 12179–12185, 2011.
  64. B. Chen, K. Lu, J. A. Geldmeier, “Highly Ordered Titania Nanotube Arrays with Square, Triangular, and Sunflower Structures,” *Chemical Communications*, 47 (36), 10085-10087, 2011.

63. B. Chen, K. Lu, "Moiré Pattern Nanopore and Nanorod Arrays by Focused Ion Beam Guided Anodization and Nanoimprint Molding," *Langmuir*, 27(7), 4117–4125, 2011.
62. M. K. Mahapatra, K. Lu, "Sealing Evaluation of an Alkaline Earth Silicate Glass for Solid Oxide Fuel/Electrolyzer Cells," *Fuel Cells*, 11(3), 436–444, 2011.
61. K. Lu, C. Hammond, "Nanoparticle-based Surface Templating," *International Journal of Applied Ceramic Technology*, 8(4), 965–976, 2011.
60. T. Jin, K. Lu, "Surface and Interface Behaviors of  $(\text{La}_{0.8}\text{Sr}_{0.2})_x\text{MnO}_3$  Air Electrode for Solid Oxide Cells," *Journal of Power Sources*, 196, 8331–8339, 2011.
59. K. Lu, Z. Tian, J. A. Geldmeier, "Polishing Effect on Anodic Titania Nanotube Formation," *Electrochimica Acta*, 56, 6014–6020, 2011.
58. B. Chen, K. Lu, Z. Tian, "Effects of Titania Nanotube Distance and Arrangement during Focused Ion Beam Guided Anodization," *Journal of Materials Chemistry*, 21(24), 8835 – 8840, 2011.
57. T. Jin, K. Lu, "Chemical Compatibility between Sr-doped Lanthanum Manganite Air Electrode and AISI 441 Interconnect," *International Journal of Hydrogen Energy*, 36, 4440–4448, 2011.
56. B. Chen, K. Lu, Z. Tian, "Novel Patterns by Focused Ion Beam Guided Anodization," *Langmuir*, 27(2), 800–808, 2011.
55. W. Li, K. Lu, J. Y. Walz, "Formation, Structure and Properties of Freeze-Casted Kaolinite-Silica Nanocomposites," *Journal of the American Ceramic Society*, 94(4), 1256–1264, 2011.
54. M. K. Mahapatra, K. Lu, "Seal Glass Compatibility with Bare and  $(\text{Mn},\text{Co})_3\text{O}_4$  Coated Crofer 22 APU Alloy in Different Atmospheres," *Journal of Power Sources*, 196, 700–708, 2011.
53. M. K. Mahapatra, K. Lu, "Effect of Atmosphere on Interconnect-Seal Glass Interaction for Solid Oxide Fuel/Electrolyzer Cells," *Journal of the American Ceramic Society*, 94(3), 875–885, 2011.
52. Z. Tian, K. Lu, B. Chen, "Fundamental Mechanisms of Focused Ion Beam Guided Anodization," *Journal of Applied Physics*, 108, 094306-1-7, 2010.
51. Z. Tian, K. Lu, B. Chen, "Unique Nanopore Pattern Formation by Focused Ion Beam Guided Anodization," *Nanotechnology*, 21, 405301-1-7, 2010.
50. M. K. Mahapatra, K. Lu, "Seal Glass Compatibility with Bare and  $(\text{Mn},\text{Co})_3\text{O}_4$  Coated AISI 441 Alloy in Solid Oxide Fuel/Electrolyzer Cell Atmospheres," *International Journal of Hydrogen Energy*, 35, 11908-11917, 2010.
49. B. Chen, K. Lu, Z. Tian, "Gradient and Alternating Diameter Nanopore Templates by Focused Ion Beam Guided Anodization," *Electrochimica Acta*, 56, 435–440, 2010.
48. M. K. Mahapatra, K. Lu, "Seal Glass for Solid Oxide Fuel Cells," *Journal of Power Sources*, 195(21), 7129–7139, 2010.
47. M. K. Mahapatra, K. Lu, X. Liu, J. Wu, "Compatibility of A Seal Glass with  $(\text{Mn},\text{Co})_3\text{O}_4$  Coated Interconnects: Effect of Atmosphere," *International Journal of Hydrogen Energy*, 35, 7945-7956, 2010.
46. K. Lu, J. Zhao, "Focused Ion Beam Lithography and Anodization Combined Nanopore Patterning," *Journal of Nanoscience and Nanotechnology*, 10(10), 6760-6768, 2010.
45. K. Lu, R. M. German, "Microstructure Analysis of Samples Sintered at Different Gravitational Conditions," *Journal of Materials Science*, 45, 4454–4461, 2010.
44. K. Lu, J. Zhao, "Equiaxed Zinc Oxide Nanoparticle Synthesis," *Chemical Engineering Journal*, 160, 788–793, 2010.

43. T. Jin, K. Lu, "Compatibility between AISI441 Alloy Interconnect and Representative Seal Glasses in Solid Oxide Fuel/Electrolyzer Cells," *Journal of Power Sources*, 195, 4853-4864, 2010.
42. M. K. Mahapatra, K. Lu, "Glass-based Seals for Solid Oxide Fuel and Electrolyzer Cells – A Review," *Materials Science and Engineering R*, 67, 65–85, 2010.
41. K. Lu, C. Hammond, J. Qian, "Surface Patterning Nanoparticle-Based Arrays," *Journal of Materials Science*, 45, 582–588, 2010.
40. T. Jin, K. Lu, "Thermal Stability of a New Solid Oxide Fuel/Electrolyzer Cell Seal Glass," *Journal of Power Sources*, 195, 195–203, 2010.
39. M. K. Mahapatra, K. Lu, "Thermochemical Compatibility of a Seal Glass with Different Solid Oxide Cell Components," *International Journal of Applied Ceramic Technology*, 7(1), 10-21, 2010.
38. M. K. Mahapatra, K. Lu, "Interfacial Study of Crofer 22 APU Interconnect-SABS-0 Seal Glass for Solid Oxide Fuel/Electrolyzer Cells," *Journal of Materials Science*, 44(20), 5569-5578, 2009.
37. K. Lu, X. Zhu, K. Nagarathnam, "Nickel-Boron Nanolayer Coated Boron Carbide Pressureless Sintering," *Journal of the American Ceramic Society*, 92(7), 1500–1505, 2009.
36. K. Lu, "Hierarchical and Nanosized Pattern Formation Using Dual Beam Focused Ion Beam Microscope," *Journal of Nanoscience and Nanotechnology*, 9(4), 2598-2602, 2009.
35. J. Qian, K. Lu, "Multiwall Carbon Nanotube and TiO<sub>2</sub> Sol Assembly," *Journal of Nanoscience and Nanotechnology*, 9, 1-7, 2009.
34. M. K. Mahapatra, K. Lu, and R. J. Bodnar, "Network Structure and Thermal Property Relation of a Novel High Temperature Seal Glass," *Applied Physics A*, 95, 493–500, 2009.
33. X. Zhu, K. Lu, K. Nagarathnam, "Compaction of Different Boron Carbide Powders Using Uniaxial Die Compaction and Combustion Driven Compaction," *Journal of Materials Science*, 44, 414–421, 2009.
32. K. Lu, M. Hiser, W. Wu, "Effect of Particle Size on Three Dimensional Printed Mesh Structures," *Powder Technology*, 192, 178–183, 2009.
31. K. Lu, X. Zhu, "Nickel-Boron Nanolayer Evolution on Boron Carbide Particle Surfaces during Thermal Treatment," *Thin Solid Films*, 517, 4479-4483, 2009.
30. H. Dong, K. Lu, "Attaching Titania Nanoparticles onto Shortened Carbon Nanotubes by Electrostatic Attraction," *International Journal of Applied Ceramic Technology*, 6(2), 216–222, 2009.
29. K. Lu, "A Study of Engineering Freshmen on Perception of Nanotechnology," *Journal of STEM Education*, 10(1-2), 7-16, 2009.
28. K. Lu, M. K. Mahapatra, "Network Structure and Thermal Stability Study of High Temperature Seal Glass," *Journal of Applied Physics*, 104, 074910-1-9, 2008.
27. M. Mahapatra, K. Lu "Effects of Nickel on Network Structure and Thermal Properties of a New Solid Oxide Cell Seal Glass," *Journal of Power Sources*, 185, 993–1000, 2008.
26. H. Dong, X. Zhu, K. Lu, "Morphology and Composition of Nickel-Boron Nanolayer Coating on Boron Carbide Particles," *Journal of Materials Science*, 43, 4247-4256, 2008.
25. H. Zhang, Z. An, F. Li, Q. Tang, K. Lu, W. Li, "Synthesis and Characterization of Mesoporous c-ZrO<sub>2</sub> Microspheres Consisting of Peanut-like Nano-grains," *Journal of Alloys and Compounds*, 464, 569-574, 2008.

24. M. K. Mahapatra, K. Lu, W. T. Reynolds, "Thermophysical Properties and Devitrification of SrO-La<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> Based Glass Sealant for Solid Oxide Fuel/Electrolyzer Cells," *Journal of Power Sources*, 179, 106-112, 2008.
23. K. Lu, W. T. Reynolds, "3DP Process for Fine Mesh Structure Printing," *Powder Technology*, 187, 11-18, 2008.
22. C. Story, K. Lu, W. T. Reynolds Jr., D. Brown, "Shape Memory Alloy/Glass Composite Seal for Solid Oxide Fuel Cells," *International Journal of Hydrogen Energy*, 33 (14), 3970-3975, 2008.
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20. K. Lu, "Sintering of Nanoceramics," *International Materials Review*, 53(1), 21-38, 2008.
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### **Conference Proceedings:**

#### **Technical papers:**

21. K. Lu, W. Li, G. Li, "Understanding Diamond Nanoparticle Evolution During Zirconia Spark Plasma Sintering," *Proceeding of the 38th Int'l Conf & Expo on Advanced Ceramics & Composites (ICACC 2014)*, Daytona Beach, Florida, January 26-31, 2014. Editors: A. Gyekenyesi, M. Halbig.
20. W. Li, M. Anderson, K. Lu, J. Y. Walz, "Fabrication of Porous Mullite by Freeze Casting and Sintering of Alumina-Silica Nanoparticles," *Advances in Synthesis, Processing, and Applications of Nanostructures*, *Proceeding of Materials Science & Technology 2011 Conference and Exhibit (MS&T '11)*, October 16-20, 2011, Columbus, OH, *Ceramic Transactions*, Vol 238, John Wiley & Sons, 2012, Editors: K. Lu, N. Manjooran, R. Murakami, G. Pickrell, page 57-64.
19. K. Lu, B. Chen, "Single Nanometer TiO<sub>2</sub> Particle Synthesis and Soft Lithographic Molding," *Proceedings of 2011 NSF Engineering Research and Innovation Conference*, Atlanta, Georgia, January 4-7, 2011.
18. K. Lu, B. Chen, Z. Tian, "Directed Patterning: Focused Ion Beam Guided Anodization," *Proceedings of 2011 NSF Engineering Research and Innovation Conference*, Atlanta, Georgia, January 4-7, 2011.
17. W. Li, K. Lu, J. Y. Walz, "Freezing Behavior and Properties Of Freeze Cast Kaolinite-Silica Porous Nanocomposite," *Ceramic Transactions*, *Proceeding of Materials Science & Technology 2010 Conference and Exhibit (MS&T '10)*, October 17-21, 2010, Houston, TX, John Wiley & Sons, 2011, p57-68.
16. B. Chen, K. Lu, Z. Tian, "Effect of Focused Ion Beam Patterning on Enlarging Anodization Window and Interpore Distance for Ordered Porous Anodic Alumina," *Ceramic Transactions*, *Proceeding of Materials Science & Technology 2010 Conference and Exhibit (MS&T '10)*, October 17-21, 2010, Houston, TX, John Wiley & Sons, 2011, p3-11.
15. J. Walz, K. Lu, "Properties of Freeze-Casted Composites of Silica and Kaolinite," Editors: K. Lu, C. Li, E. Medvedovski, E. A. Olevsky, *Processing of Nanoparticle Materials and Nanostructured Films*, *Ceramic Transactions*, Volume 223, 2010, ISBN 978-0-470-92731-1, Wiley-Blackwell, p79-86.
14. J. Zhao, K. Lu, B. Chen, Z. Tian, "Patterning by Focused Ion Beam Assisted Anodization," Editors: K. Lu, C. Li, E. Medvedovski, E. A. Olevsky, *Processing of Nanoparticle Materials and Nanostructured Films*, *Ceramic Transactions*, Volume 223, ISBN 978-0-470-92731-1, Wiley-Blackwell, p47-56, 2010.
13. K. Lu, Chase Hammond, "Nanoparticle-based Array Creation by Templating," *Proceedings of 2009 NSF Engineering Research and Innovation Conference*, Honolulu, Hawaii, June 22-25, 2009.

12. K. Lu, X. Zhu, "Ni-B Nanolayer Evolution on Boron Carbide Particle Surfaces at High Temperatures," Processing of Nanoparticle Structures and Composites: Ceramic Transactions, Vol. 208, 133-141, Editors: T. Hinklin, K. Lu, 2009, John Wiley & Sons.
11. K. Lu, C. Hammond, "Nanoparticle-based Bulk Material Templating," Processing of Nanoparticle Structures and Composites: Ceramic Transactions, Vol. 208, 1-10, Editors: T. Hinklin, K. Lu, 2009, John Wiley & Sons.
10. X. Zhu, K. Lu, H. Dong, C. Glomb, E. Logan, K. Nagarathnam, "Applying Nickel Nanolayer Coating onto B<sub>4</sub>C Particles for Processing Improvement," 32nd International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January, 2008, Daytona Beach, FL. Ceramic Engineering and Science Proceedings, 29(8), 117-129, 2008, Editors: Tatsuki Ohji, Andrew Wereszczak.
9. K. Lu, X. Zhu, K. Nagarathnam, "Coating Ni-B Nanolayer onto Boron Carbide Particles for High Density Forming," Proceedings of 2008 NSF Engineering Research and Innovation Conference, Knoxville, Tennessee, Jan. 7-10, 2008.
8. M. K. Mahapatra, C. Story, K. Lu, W. T. Reynolds, "Glass-Ceramic Seal Stability Study for Solid Oxide Electrolyte/Fuel Cells," Proceeding of Materials Science and Technology 2007 Conference, September 16-20, 2007, Detroit, Michigan, Energy: Fuel Cells: Materials, Processing, Manufacturing and Power Management Technologies, Organized by P. Singh, A-M. Azad, D. C. Collins, P. N. Kumta, C. Legzdins, A. Manthiram, A. Manivannan, S. K. Sundaram, and Z. G. Yang. p371-380.
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6. K. Lu, "Carbon Nanotube and Alumina Nanoparticle Suspension and Freeze Casting Study," Proceeding of 2006 Materials Science & Technology International Conference, Cincinnati, OH, October 15-19, 2006. vol. 2, 463-471, Nanomaterials: Science and Technology, Organized by S. Mathur, R.M. Laine, M.Z. Hu, J. Vartuli, O.B. Koper.
5. K. Lu, C. S. Kessler, "Nanoparticle Colloidal Suspension Optimization and Freeze-Cast Forming," Ceramic Engineering and Science Proceedings, Synthesis and Processing of Nanostructured Materials, Vol. 27, Is. 8, 2006, p1-10, Ed. W. M. Mullins, A. Wereszczak, and E. Lara-Curzio, Proceeding of 30<sup>th</sup> International Conference on Advanced Ceramics and Composite, American Ceramic Society, Cocoa Beach, FL.
4. Y. He, R. S. Engel, N. J. Salamon, S. Lindner, K. Lu, "Numerical Simulation for 316L Stainless Steel Powder Die Compaction Process," 2001 Fine Powder Processing International Conference Proceedings, p153-166, 2001, University Park, PA 16802.
3. W. Yi, K. Lu, and R. M. German, "Shape Distortion and Dimensional Precision in Tungsten Heavy Alloy Liquid Phase Sintering." Proceeding of 15<sup>th</sup> International Plansee Seminar, G. Kneringer et. al, ed., Plansee AG, Reutte 2001.

#### **Teaching papers:**

2. C. B. Burgoyne, M. Roman, C. Evia, C. Suchicital, K. Lu, J. Jinscheck, "Work-in-Progress: Development and Implementation of a Web-Based Teaching Resource Site to Prepare International Teaching and Research Faculty for the American Classroom," Proceeding of ASEE/IEEE Frontiers in Education Conference (San Diego, CA, October 28-31, 2006), pp. M4G1-M4G2.

1. K. Lu, C. S. Kessler, "Nanotechnology Readiness among a Diverse Student Population," Proceeding of Mid-Atlantic Conference on the Scholarship of Diversity, Roanoke, VA, March 17-18, 2005.

### Invited Talks

24. K. Lu, "Understanding Current State of Materials Education for a Successful Career Tomorrow," Materials Science & Technology 2016, Salt Lak City, UT, October 23-27, 2016.
23. K. Lu, K. Shen, "Study of Cathodes and Interconnect Coatings for Solid Oxide Fuel Cells," Materials Day Symposium-Ceramics for Energy, April 29, 2016, Darmstadt, Germany.
22. K. Lu, K. Shen, "Perovskite-type Cathode Materials and Coatings for Solid Oxide Fuel Cells," 2016 145<sup>th</sup> TMS Annual Meeting & Exhibition, February 14-18, 2016, Nashville, TN.
21. K. Lu, "Growing Materials Education Diversity for a Successful Career Tomorrow," Materials Science and Engineering 2015 Conference, October 4-8, 2015, Columbus, OH.
20. K. Lu, Z. Tang, Z. Hu, "Silicon Carbide and Oxide Dispersion Strengthened Steel Cladding Materials for Nuclear Applications," Materials Science and Engineering 2015 Conference, October 4-8, 2015, Columbus, OH.
19. F. Shen, K. Lu, "Properties of Electrodeposition Co and Electrophoresis  $\text{Sm}_{0.2}\text{Ce}_{0.8}\text{O}_{1.9}$  Protective Layer on AISI 441 for Solid Oxide Fuel Cells," Materials Science and Engineering 2015 Conference, October 4-8, 2015, Columbus, OH.
18. K. Lu, K. Shen, "Study of Different New Cathode Materials and Electrocatalyst Incorporation in Solid Oxide Fuel Cells," The 11th International Conference of Pacific Rim Ceramic Societies (PacRim-11), Aug. 30-Sept. 4, 2015, Jeju Island, South Korea.
17. K. Lu, F. Shen, " $(\text{La}_{0.6}\text{Sr}_{0.4})_x\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_3$  and Related Cathode Materials in Solid Oxide Fuel Cells," 2015 TMS 144<sup>th</sup> Annual Meeting & Exhibition, March 15- 19, 2015, Walt Disney World, Orlando, FL.
16. K. Lu, "3D Microstructure Characterization of Nanoparticle-based Material Sintering," the International Conference on Sintering 2014, August 24 - 28, Dresden, Germany.
15. K. Lu, "Patterning, Morphology Control, and Feature Array Transfer through Focused Ion Beam Guided Anodization," University of Virginia, April 14, 2014, Charlottesville, VA.
14. K. Lu, M. Gervasio, "Formation and Characterization of Nanoparticle based Sub-micron Structures," 38th International Conference and Expo on Advanced Ceramics and Composites, January 26-31, 2014, Daytona Beach, FL.
13. K. Lu, W. Li, "Different Cathode Interactions and Performance Behaviors in Solid Oxide Fuel Cells," 10th Pacific Rim Conference on Ceramic and Glass Technology, June 2-7, 2013 in San Diego, California.
12. K. Lu, "Development of a Nanoparticle-based Surface Templating Approach," 12<sup>th</sup> International Conference on Ceramic Processing Science, August 4-7, 2013, Portland, Oregon.
11. K. Lu, "Material Uses and Challenges in Solid Oxide Fuel Cells," Departmental seminar at Technische Universität Darmstadt, November 2012, Darmstadt, Germany.
10. K. Lu, B. Chen, K. Ramsburg, "ZnO Nanoparticle-based Surface Templating," 36th International Conference and Expo on Advanced Ceramics and Composites, January 22-27, 2012, Daytona Beach, Florida.
9. K. Lu, T. Jin, "Interactions of Electrolyte- $(\text{La}_{0.8}\text{Sr}_{0.2})_x\text{MnO}_3$  Air Electrode Interconnect Tri-layers for Solid Oxide Fuel Cells," 36th International Conference and Expo on Advanced Ceramics and Composites, January 22-27, 2012, Daytona Beach, Florida.

8. K. Lu, W. Li, J. Walz, "Understanding of Silica-Kaolinite Composite Sintering," Materials Science & Technology 2011 Conference and Exhibit (MS&T '11), October 16-20, 2011, Columbus, OH.
7. K. Lu, B. Chen, Z. Tian, "Understanding Effect of Surface Morphology during Focused Ion Beam Guided Anodization," 35th International Conference & Exposition on Advanced Ceramics & Composites, January 23-28, 2011, Daytona Beach, FL.
6. K. Lu, "Search and Study of a Solid Oxide Fuel Cell Seal Material," 2011 TMS Annual Meeting & Exhibition, San Diego, CA, February 27-March 3, 2011.
5. K. Lu, "Nanoparticle-Based Material Processing and Templating," Ohio State University, Columbus, OH, May 22, 2009.
4. K. Lu, "Energy and Nanoscale Materials," University of Maryland at Baltimore County, Baltimore, MD, May 9, 2008.
3. K. Lu, "Correlating Microscopic and Macroscopic Aspects in Solid-State Sintering," Extrude Hone Corporation, Irwin, PA, Nov. 30, 2004.
2. K. Lu, "Particle Packing, Strength Evolution, and Densification in Solid-State Sintering," Naval Research Laboratory, Arlington, VA, Oct. 22, 2004.
1. K. Lu, "Battery Research and Technology," Advanced Materials Laboratory at Sandia National Lab, March 15, 2004.

#### **Presentations and Posters:**

101. K. Lu, Z. Hu, K. Ning, "Oxide Dispersion Strengthened Steel and Silicon Carbide Composite Cladding Materials," Materials Science & Technology 2016, Salt Lak City, UT, October 23-27, 2016.
100. K. Lu, D. Erb, "Thermal Stability and Electrical Conductivity of Carbon-Enriched Silicon Oxycarbide," Materials Science & Technology 2016, Salt Lak City, UT, October 23-27, 2016.
99. K. Lu, M. Gervasio, "Imprint Lithography of ZnO-PMMA Hybrids," Materials Science & Technology 2016, Salt Lak City, UT, October 23-27, 2016.
98. K. Lu, Z. Hu, Z. Tang, "Oxide Dispersion Strengthened Steel and Silicon Carbide Composite Cladding Materials," 2016 145<sup>th</sup> TMS Annual Meeting & Exhibition, February 14-18, 2016, Nashville, Tennessee.
97. K. Lu, "Highly Porous SiOC Bulk Ceramics," The 11th International Conference of Pacific Rim Ceramic Societies (PacRim-11), Aug. 30-Sept. 4, 2015, Jeju Island, South Korea.
96. K. Lu, M. Gervasio, "Nanoparticle-Polymer Hybrid Sub-micron Structures," Materials Science & Technology 2014, Pittsburgh, PA, October 12-16, 2014.
95. J. Li, K. Lu, T. Lin, F. Shen, "Preparation of micro/nano porous SiOC bulk ceramics," Materials Science & Technology 2014, Pittsburgh, PA, October 12-16, 2014.
94. T. Lin, K. Lu, J. Li, F. Shen, "Preparation and characterization of silicon oxycarbide coatings on stainless steel," Materials Science & Technology 2014, Pittsburgh, PA, October 12-16, 2014.
93. M. Gervasio, K. Lu, "Novel Fabrication Technique for ZnO-PMMA Hybrid Submicron Structures," TechConnect World Conference and Expo 2014, June 16-18, 2014, in National Harbor, Maryland.
92. W. Li, J. Walz, K. Lu, M. Anderson, "Fabrication of Reinforced Porous Nanocomposites with Silica Nanorods and Nanospheres," 2013 AIChE Annual Meeting, San Francisco, CA, November 3-8, 2013.

91. K. Lu, Z. Xia, W. Li, "Sintering Nanostructured ZrO<sub>2</sub> and 3D Microstructure Characterization," Materials for Energy 2013 Conference, Karlsruhe, Germany May 12-16, 2013.
90. K. Lu, Z. Xia, W. Li, "ZrO<sub>2</sub> Nanoparticle-based Material Sintering and 3D Microstructure Characterization," 10th Pacific Rim Conference on Ceramic and Glass Technology, June 2-7, 2013 in San Diego, California.
89. Kathy Lu, Wenle Li, "La<sub>1-x</sub>Sr<sub>x</sub>Co<sub>1-y</sub>Fe<sub>y</sub>O<sub>3</sub> interactions and performance behaviors in solid oxide fuel cells," Materials for Energy 2013 Conference, Karlsruhe, Germany, May 12-16, 2013.
88. W. Li, K. Lu, J. Y. Walz, "Fabrication of Kaolinite-silica Membrane with Adjustable Specific Surface Area by Suspension Infiltration," 2012 MRS Fall Meeting & Exhibit, November 25-November 30, Boston, MA.
87. B. Chen, J. Hou, J. Shi, K. Lu, X. Wang, "Hierarchical TiO<sub>2</sub> Bamboo Nanotubes for Photoelectrochemical Water Splitting and Supercapacitors," 2012 MRS Fall Meeting & Exhibit, November 25-November 30, Boston, MA.
86. K. Lu, Z. Xia, B. Chen, "3D Sintering Microstructure Quantification," MSE Conference 2012, 25 -27 Sept 2012, Darmstadt, Germany.
85. K. Lu, W. Li, J. Y. Walz, "Rod-Like Particle Addition Effects on Freeze-Cast Porous Silica Composites," MSE Conference 2012, 25 -27 September 2012, Darmstadt, Germany.
84. B. Chen, K. Lu, "Voltage Decreasing Rate Effect during Two-Step Anodization on Multilayer TiO<sub>2</sub> Nanotubes," Materials Science and Technology 2012 Conference, Pittsburgh, PA, October 7-11, 2012.
83. B. Chen, K. Lu, K. Ramsburg, "Ceramic Micro-patterns by Soft Lithographic Molding of Nanoparticle Suspensions," Materials Science and Technology 2012 Conference, Pittsburgh, PA, October 7-11, 2012.
82. K. Lu, W. Li, "An Intermediate Glass Seal System for Solid Oxide Fuel Cells," Materials Science and Technology 2012 Conference, Pittsburgh, PA, October 7-11, 2012.
81. K. Lu, Z. Xia, "Cathode Degradation in Severe High Temperature Environments of Solid Oxide Fuel/Electrolyzer Cells," Materials Science and Technology 2012 Conference, Pittsburgh, PA, October 7-11, 2012.
80. W. Li, K. Lu, J. Walz, "Solids Loading Effects on Sintering of Kaolinite-Silica Porous Composite," Materials Science and Engineering 2012 Conference, Pittsburgh, PA, October 7-11, 2012.
79. K. Lu, "Patterning, Morphology Control, and Feature Array Transfer Through Focused Ion Beam Guided Anodization," 6th International Workshop on Spinel Nitrides and Related Materials in conjunction with the Marie Curie ITN 7th Framework Programme FUNEA September 9-14, 2012, Ruedesheim/Rhine, Germany.
78. Z. Xia, K. Lu, "3D Microstructure Construction of Sintered ZrO<sub>2</sub> under Different Sintering Conditions," First International Conference on 3D Materials Science, July 8-12, 2012, Seven Springs, PA.
77. Kathy Lu, Yongxuan Liang, Bo Chen, Zhenbo Xia, "Nanoparticle Soft Lithographic Molding and Sintering Study," NSF CMMI Grantee Conference, July 8-11, 2012, Boston, MA.
76. K. Lu, B. Chen, "Selective Closing and Opening of TiO<sub>2</sub> Nanotubes by Focused Ion Beam," MRS spring meeting and exhibit, April 4-13, 2012, San Francisco, CA.

75. K. Lu, W. Li, J. Y. Walz, "Strengthening Effect of Kaolinite on Porous Kaolinite-Silica Nanocomposites," 36th International Conference and Expo on Advanced Ceramics and Composites, January 22-27, 2012, Daytona Beach, Florida.
74. K. Lu, Y. Liang, "Titania Suspension for Fabrication of Micron Feature Arrays via Template-assisted Approach," 36th International Conference and Expo on Advanced Ceramics and Composites, January 22-27, 2012, Daytona Beach, Florida.
73. K. Lu, "Titania Nanoparticle Suspension and Template-assisted Fabrication of Micron Feature Arrays," 9th Annual Nanotechnology for Defense Conference, October 24-27, 2011, Bellevue, WA.
72. K. Lu, "Novel Nanostructures by Focused Ion Beam Guided Anodization," 9th Annual Nanotechnology for Defense Conference, October 24-27, 2011, Bellevue, WA.
71. B. Chen, K. Lu, "Hierarchically Branched TiO<sub>2</sub> Nanotubes with Controlled Branch Numbers and Diameters," 2011 MRS Fall Meeting & Exhibit, November 28-December 2, Boston, MA.
70. K. Lu, B. Chen, "Directed Material Synthesis-Focused Ion Beam Guided Anodization and Soft Lithographic Molding," MRS Directed Self-Assembly of Materials Workshop, September 28 - October 1, 2011, Nashville, Tennessee.
69. B. Chen, K. Lu, "Highly Ordered TiO<sub>2</sub> Nanotube Arrays with Novel Arrangements by Focused Ion Beam Guidance," Materials Science & Technology 2011 Conference and Exhibit (MS&T '11), October 16-20, 2011, Columbus, OH.
68. W. Li, K. Lu, J. Walz, "Kaolinite Effects on Sintering of Freeze-Cast Kaolinite-Silica Nanocomposite," Materials Science & Technology 2011 Conference and Exhibit (MS&T '11), October 16-20, 2011, Columbus, OH.
67. K. Lu, T. Jin, "Interfacial Interactions of Electrolyte-(La<sub>0.8</sub>Sr<sub>0.2</sub>)<sub>x</sub>MnO<sub>3</sub>-Interconnect Tri-layer for Solid Oxide Fuel Cells," Materials Science & Technology 2011 Conference and Exhibit (MS&T'11), October 16-20, 2011, Columbus, OH.
66. K. Lu, Z. Tian, B. Chen, "TiO<sub>2</sub> Nanoparticle Array Patterning by Freeze Casting," 35th International Conference & Exposition on Advanced Ceramics & Composites, January 23-28, 2011, Daytona Beach, FL.
65. K. Lu, T. Jin, "Cathode Microstructure and Composition Effect on Interaction with Interconnect in Solid Oxide Fuel Cells," 35th International Conference & Exposition on Advanced Ceramics & Composites, January 23-28, 2011, Daytona Beach, FL.
64. J. Walz, W. Li, K. Lu, "Structure and Properties of Sintered Kaolinite-Silica Nanocomposites," 35th International Conference & Exposition on Advanced Ceramics & Composites, January 23-28, 2011, Daytona Beach, FL.
63. K. Lu, B. Chen, "Titania Nanoparticle Synthesis and Soft Lithographic Molding," 2011 NSF Engineering Research and Innovation Conference, Atlanta, Georgia, January 4-7, 2011.
62. B. Chen, K. Lu, "Unique Nanopore Templates by Focused Ion Beam Guided Anodization," 2011 NSF Engineering Research and Innovation Conference, Atlanta, Georgia, January 4-7, 2011.
61. K. Lu, T. Jin, "AISI441 Interconnect-Air Electrode Interfacial Study for Solid Oxide Fuel/Electrolyzer Cells," Materials Science & Technology 2010 Conference and Exhibit (MS&T'10), October 17-21, 2010, Houston, TX.
60. K. Lu, Z. Tian, "Mechanisms of Focused Ion Beam Guided Anodization," Materials Science & Technology 2010 Conference and Exhibit (MS&T'10), October 17-21, 2010, Houston, TX.

59. K. Lu, B. Chen, "Focused Ion Beam Guided Anodization," Materials Science & Technology 2010 Conference and Exhibit (MS&T'10), October 17-21, 2010, Houston, TX.
58. J. Y. Walz, W. Li, and K. Lu, "Understanding Microstructural Evolution and Integrity of a Silica-Kaolinite System," Materials Science & Technology 2010 Conference and Exhibit (MS&T '10), October 17-21, 2010, Houston, TX.
57. K. Lu, T. Jin, "Compatibility between AISI441 Interconnect and Sr-doped Lanthanum Manganite Electrode in Solid Oxide Fuel/Electrolyzer Cells," First International Conference on Materials for Energy, July 4-8, 2010, Karlsruhe, Germany.
56. K. Lu, Z. Tian, "Novel Template Formation by Focused Ion Beam Guided Anodization," First International Conference on Materials for Energy, July 4-8, 2010, Karlsruhe, Germany.
55. K. Lu, B. Chen, "Unique Nanopore Templates by Focused Ion Beam Guided Anodization," First International Conference on Materials for Energy, July 4-8, 2010, Karlsruhe, Germany.
54. K. Lu, T. Jin, "Interfacial Behavior of T441 Interconnect/Glass Seal for Solid Oxide Fuel/Electrolyzer Cells," 34th International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 24-29, 2010, Daytona Beach, FL.
53. M. Mahapatra, K. Lu, "Sealing Performance of an Alkaline Earth Silicate Glass for Solid Oxide Fuel/Electrolyzer Cells," 34th International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 24-29, 2010, Daytona Beach, FL.
52. K. Lu, J. Zhao, J. Sions, "A Liquid-based TiO<sub>2</sub> Nanoparticle Synthesis and Array Patterning Process," 34th International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 24-29, 2010, Daytona Beach, FL.
51. K. Lu, J. Zhao, "Synthesis of Single Nanometer Zinc Oxide Nanoparticles for Optical Applications," 34th International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 24-29, 2010, Daytona Beach, FL.
50. T. Jin and K. Lu, "Thermal Stability of a SrO-La<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> glass," Materials Science & Technology 2009 Conference and Exhibit (MS&T '09), October 25-29, 2009, Pittsburgh, PA.
49. M. K. Mahapatra and K. Lu, "Interfacial Stability of Uncoated and (Mn,Co)<sub>3</sub>O<sub>4</sub> Coated Interconnect/glass Seal Joint," Materials Science & Technology 2009 Conference and Exhibit (MS&T '09), October 25-29, 2009, Pittsburgh, PA.
48. K. Lu, J. Z. Zhao, "Heterogeneous Patterning by Focus Ion Beam Assisted Anodization," Materials Science & Technology 2009 Conference and Exhibit (MS&T '09), October 25-29, 2009, Pittsburgh, PA.
47. K. Lu, C. Hammond, "Patterning Nanoparticle-Based Arrays through a Liquid Process," Materials Science & Technology 2009 Conference and Exhibit (MS&T '09), October 25-29, 2009, Pittsburgh, PA.
46. C. T. McKee, J. Walz, K. Lu, "Properties of Freeze-Casted Composites of Silica and Kaolinite," Materials Science & Technology 2009 Conference and Exhibit (MS&T '09), October 25-29, 2009, Pittsburgh, PA.
45. K. Lu, Chase Hammond, "Template-Assisted Nanoparticle Processing," NSF CMMI Research and Innovation Conference 2009, June 22-25, 2009, Honolulu, Hawaii.
44. M. K. Mahapatra, and K. Lu, "Compatibility of Interconnect/glass Seal at Different Atmosphere for Solid Oxide Cell Application," 8th Pacific Rim Conference on Ceramic and Glass Technology. May 31-June 5, 2009, Vancouver, BC, Canada.

43. T. Jin and K. Lu, "Thermochemical Stability Evaluation of a Solid Oxide Cell Glass" 8th Pacific Rim Conference on Ceramic and Glass Technology. May 31-June 5, 2009, Vancouver, BC, Canada.
42. K. Lu, J. Qian, "Assembly of Multi-walled Carbon Nanotubes and Titania Sol," 33rd International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 18-23, 2009, Daytona Beach, FL.
41. M. K. Mahapatra, K. Lu, and W. T. Reynolds, "Thermochemical Stability at the Interface of a New Seal Glass and Crofer 22 APU Interconnect," 33rd International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 18-23, 2009, Daytona Beach, FL.
40. K. Lu, "Templated Nanostructures for Solar Cell Electrode," Workshop on Efficient Conversion of Solar Energy to Electricity and Fuels: Critical Research Directions and Tutorial, August 1-15, 2008, Boulder, CO.
39. M. K. Mahapatra, K. Lu, and W. T. Reynolds, "Diffusion Study of a Novel Glass Seal with Metallic Interconnect and Shape Memory Alloy for Solid Oxide Cells," Materials Science & Technology 2008 Conference and Exhibit (MS&T '08), October 5-9, 2008, Pittsburgh, PA.
38. K. Lu, X. Zhu "Ni-B Nanolayer Evolution on Boron Carbide Particle Surfaces at High Temperatures," Materials Science & Technology 2008 Conference and Exhibit (MS&T '08), October 5-9, 2008, Pittsburgh, PA.
37. K. Lu, C. Hammond, "Nanoparticle-based Bulk Material Templating," Materials Science & Technology 2008 Conference and Exhibit (MS&T '08), October 5-9, 2008, Pittsburgh, PA.
36. K. Lu, X. Zhu, "Nickel-Boron Nanolayer Coated Boron Carbide Pressureless Sintering," 2008 International Conference on Sintering, November 16-20, 2008, La Jolla, California.
35. K. Lu, H. Dong, X. Zhu, C. Glomb, E. Logan, K. Nagarathnam, "Applying Nickel Nanolayer Coating onto B<sub>4</sub>C Particles for Processing Improvement," 32nd International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 28-February 1, 2008, Daytona Beach, FL.
34. K. Lu, M. K. Mahapatra, and W. T. Reynolds, "SrO-La<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> Based Glass Seal Phase Stability Study," 32nd International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, January 28-February 1, 2008, Daytona Beach, FL.
33. K. Lu, X. Zhu, K. Nagarathnam, "Coating Ni-B Nanolayer onto Boron Carbide Particles for High Density Forming," Proceedings of 2008 NSF Engineering Research and Innovation Conference, Knoxville, Tennessee, Jan. 7-10, 2008.
32. K. Lu, "Gradient Meshed and Toughened SOEC Composite Seal with Self-Healing Capabilities," FY07 Nuclear Hydrogen Initiative Semiannual Review Meeting, Idaho Falls, Idaho, October 23-25, 2007.
31. M. K. Mahapatra, C. Story, K. Lu, W. T. Reynolds, "Glass-Ceramic Seal Stability Study for Solid Oxide Electrolyte/Fuel Cells," Materials Science and Technology 2007 Conference, September 16-20, 2007, Detroit, Michigan, Energy: Fuel Cells: Materials, Processing, Manufacturing and Power Management Technologies, Organized by P. Singh, A-M. Azad, D. C. Collins, P. N. Kumta, C. Legzdins, A. Manthiram, A. Manivannan, S. K. Sundaram, and Z. G. Yang.
30. N. L. Yue, K. Lu, W. T. Reynolds, and C. Story, "Fabrication of Shape Memory Alloy Mesh Using Three Dimensional Printing," Materials Science and Technology 2007 Conference, September 16-20, 2007, Detroit, Michigan, Energy: Fuel Cells: Materials, Processing, Manufacturing and Power Management Technologies, Organized by P. Singh, A-M. Azad,

- D. C. Collins, P. N. Kumta, C. Legzdins, A. Manthiram, A. Manivannan, S. K. Sundaram, and Z. G. Yang.
29. K. Lu, Xiaojing Zhu, Hongying Dong, Karthik Nagarathnam, "Electroless Coating of Ni-B Nanolayer onto Boron Carbide Particles for Bulk Compact Forming," Materials Science and Technology 2007 Conference, September 16-20, 2007, Detroit, Michigan, Nanotechnology: Innovative 3D Nanoparticulate Materials Processing, Organized by K. Lu, A. Aning, and M.-J. Pan.
  28. H. Dong, K. Lu, "TiO<sub>2</sub> Nanoparticle Self-assembly onto Carbon Nanotubes," Materials Science and Technology 2007 Conference, September 16-20, 2007, Detroit, Michigan, Nanotechnology: Innovative 3D Nanoparticulate Materials Processing, Organized by K. Lu, A. Aning, and M.-J. Pan.
  27. K. Lu, C. Story, W. T. Reynolds, "Glass/Shape Memory Alloy Composite Study for Solid Oxide Fuel/Electrolyzer Cell Applications," 31st International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, Jan. 21-26, 2007, Daytona Beach, FL.
  26. K. Lu, X. Zhu, F. Zhang, "Freeze Casting as a 3D Nanoparticulate Material Forming Method," 31st International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, Jan. 21-26, 2007, Daytona Beach, FL.
  25. C. Story, K. Xu, K. Lu, W. T. Reynolds, "Self-Healing Composite Seal for Solid Oxide Fuel/Electrolyzer Cells," Deans' Forum on Energy Security and Sustainability, Blacksburg, VA, Oct. 16, 2006.
  24. X. J. Zhu, K. Lu, "Coating B<sub>4</sub>C Particles with Ni Using Electroless Coating Technique", Workshop on Instrumentation, Metrology, and Standards for Nanomanufacturing, Gaithersburg, MD, Oct. 17-19, 2006.
  23. K. Lu, "Alumina and Carbon Nanotube-Alumina Nanocomposite Freeze Casting and Sintering," Ceramics, Solid State Studies in, Gordon Conference, August 13-18, 2006, Andover, NH.
  22. C. Story, W. Reynolds, and K. Lu, "Shape Memory Alloy/Glass Composite Gas Seal for Solid Oxide Fuel Cells," 2007 TMS 136<sup>th</sup> Annual Meeting & Exhibition, 02/25/2007 - 03/01/2007, Orlando, FL.
  21. X. J. Zhu, K. Lu, "Electroless Nickel Coating of Boron Carbide Particles," 2006 Materials Science & Technology International Conference, Cincinnati, OH, October 15-19, 2006.
  20. K. Lu, "Carbon Nanotube and Alumina Nanoparticle Suspension and Freeze Casting Study," 2006 Materials Science & Technology International Conference, Cincinnati, OH, October 15-19, 2006.
  19. K. Lu, C. S. Kessler, X. Zhu, "Nanoparticle Colloidal Processing and Freeze Casting for Complex Shape Forming," Virginia Nanotech 2006-Working Together to Lead the Nation, Newport News, VA, June 11-13, 2006.
  18. K. Lu, X. Zhu, "Coating Nanolayer onto Boron Carbide Particles," Virginia Nanotech 2006-Working Together to Lead the Nation, Newport News, VA, June 11-13, 2006.
  17. K. Lu, C. S. Kessler, X. Zhu, "Colloidal Processing and Freeze Casting for Net-Shaping," 2006 CNMS User Meeting, June 14-16, 2006, Oak Ridge, TN.
  16. K. Lu, C. Story, and W. T. Reynolds, "Three-Dimensional Printing of Gradient Meshed Solid Oxide Fuel Cell Seal Composites" University Coal Research/Historically Black Colleges and Universities and Other Minority Institutions Contractors Review Conference, June 6-7, 2006, Pittsburgh, PA.

15. X. Zhu, K. Lu, "Modification of Boron Carbide Particle Surface by Electroless Nickel Coating," 2006 Annual Meeting of Virginia Academy of Science, May 23-26, 2006, Blacksburg, VA.
14. K. Lu, X. Zhu, "Electroless Coating Boron Carbide Particle Surfaces with Nickel," Nanomaterials for Defense Applications, Virginia Beach, VA, May 1-4, 2006.
13. K. Lu, "Nanoparticle and its Composite Colloidal Processing and Freeze-Cast Forming," Nanomaterials for Defense Applications, Virginia Beach, VA, May 1-4, 2006.
12. K. Lu, C. S. Kessler, "Nanoparticle Colloidal Suspension Optimization and Freeze-Cast Forming," 30<sup>th</sup> International Conference on Advanced Ceramics and Composite, Cocoa Beach, FL, 2006.
11. C. S. Kessler, K. Lu, X. J. Zhu, "Understanding of First Year Engineering Students on Nanotechnology," 2<sup>nd</sup> Annual Mid-Atlantic Conference on the Scholarship of Diversity, Blacksburg, VA, February 2-3, 2006.
10. K. Lu, "The Needs in Nanoparticulate Material Sintering Simulation," Partner in Technology Forum, Oak Ridge, TN, April 21-22, 2005.
9. K. Lu, "Powder Material Processing for Multifunctional Applications," DARPA/DSO Unmanned Underwater Vehicles (UUV) Power Systems Workshop, Ellicott City, MD, April 20, 2005.
8. C. S. Kessler, K. Lu, "Nanostructured Alumina Study by Freeze Casting of Water-Based Dispersions," The 107<sup>th</sup> American Ceramic Society Meeting, Baltimore, Maryland, April 10-13, 2005.
7. K. Lu and R. M. German, and R. G. Iacocca, "Pre-sintering Effects on Tungsten Heavy Alloy Liquid Phase Sintering," The 2001 International Conference on Powder Metallurgy & Particulate Materials (PM<sup>2</sup>), New Orleans, May 13-17, 2001.
6. K. Lu, B. M. Marx, and R. M. German, "Porosity Effects on Densification in Liquid Phase Sintering," The 3<sup>rd</sup> CISP Industry Member Meeting, University Park, PA, October 3-4, 2000.
5. K. Lu, B. M. Marx, and R. M. German, "Porosity Effects in Liquid Phase Sintering," The 55<sup>th</sup> Pennsylvania Ceramics Association Annual Forum, University Park, PA, September 28-29, 2000.
4. K. Lu, and J. J. Lannutti, "Generic Connections between Discrete Particles and Macroscopic Shrinkage in the Presence of Density Gradients," The 102<sup>th</sup> American Ceramic Society Meeting, St. Louis, MO, April 30-May 3, 2000.
3. J. J. Lannutti and K. Lu, "Ultimate Particle-Macroscopic Shrinkage Connections in the Presence of Density Gradients," The 102<sup>th</sup> American Ceramic Society Meeting, St. Louis, MO, April 30~May 3, 2000.
2. K. Lu, and J. J. Lannutti, "Barriers to Maintaining Dimensional Tolerance in the Presence of Density Gradients," The 101<sup>th</sup> American Ceramic Society Meeting, Indianapolis, IN, May 3-6, 1999.
1. K. Lu, and J. J. Lannutti, "Binder Effects on Dimensional Tolerance at Low Temperature," The 100<sup>th</sup> American Ceramic Society Meeting, Cincinnati, OH, May 3-6, 1998.

#### **Technical Reports and Working Papers**

1. Office of Naval Research monthly reports since November 2010
2. 4 Quarterly Project Reports to DOE on "SiC-ODS Alloy Gradient Nanocomposites as Novel Cladding Materials"
3. 2 Annual Project Reports to ONR on "New Solid Oxide Fuel Cell Interconnect Coatings"

4. 4 Annual Project Reports to ONR on “Material Degradation in Severe High Temperature Environments of Solid Oxide Fuel/Electrolyzer Cells”
5. 3 NSF Program Annual Reports on “Multi-Scale Study of Nanoparticle Sintering”
6. 4 NSF Program Annual Reports on “Template-Assisted Nanoparticle Processing”
7. 2 NSF Program Annual Reports on “Nanodesign and Efficient Processing of Boron Carbide Nanocomposites”
8. 4 DOE Program Annual Reports on “Digital Manufacturing of Gradient Meshed SOFC Sealing Composites with Self-Healing Capabilities”
9. 4 DOE Program Yearly Reports on “Digital Manufacturing of Gradient Meshed SOFC Sealing Composites with Self-Healing Capabilities”
10. 16 DOE Program Quarterly Reports on “Gradient Meshed and Toughened SOEC Composite Seal with Self-Healing Capabilities”
11. 1 PRF Program Annual Report “Multilayer Assembly of Nanoparticles Using Carbon Nanotube as Backbone Phase”
12. 1 ORAU Program Annual Report on “Co-Dispersion and Freeze Casting of Nanotube-Nanoceramic Composite”
13. 35 confidential technical reports at Energizer Battery Company

## Professional Service

### National:

1. Established and Direct *Innovative Particulate Materials Laboratory* at Virginia Tech.
2. Chair of the Nanomaterials Technical Division, American Nano Society, 2014.
3. External Board Member of Tennessee Solar Conversion and Storage using Outreach, Research and Education (TN-SCORE), 2014-2015
4. Editorial Review Board of *Frontiers in Energy Research*, section Fuel Cells, 2014-
5. Editorial Board Member of *Annals of Material Science & Engineering*, 2014-
6. Advisory Board Member, Sintering2014 International Conference, Dresden, Germany, 2014.
7. Associate Editor, *Journal of the American Ceramic Society*, 2015-
8. Member of the Committee on Society Awards Karl Schwartzwalder-Professional Achievement in Ceramic Engineering Award Sub-Committee, 2009-2014
9. Member of the Committee on Friedberg Lecture Award for American Ceramic Society (2014-)
10. Secretary of National Institute of Ceramic Engineers, 2011-2012.
11. Vice president of National Institute of Ceramic Engineers, 2012-2013.
12. President-Elect of National Institute of Ceramic Engineers, 2013-2014.
13. President of National Institute of Ceramic Engineers, 2014-2015.
14. Book proposal review for John Wiley & Sons, Inc.
15. PhD dissertation review for Thapar University, India.
16. Symposium Organizer and Session Chair, Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way): The Elizabeth Judson Memorial Symposium, Materials Science and Engineering 2016 Conference, Salt Lake City, Utah, October 23-27, 2016.
17. Symposium Organizer and Session Chair, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, Materials Science and Engineering 2016 Conference, October 23-27, 2016, Salt Lake City, Utah.

18. Session chair, 2016 145th TMS Annual Meeting & Exhibition, February 14-18, 2016, Nashville, TN.
19. Session Chair, The 11th International Conference of Pacific Rim Ceramic Societies (PacRim-11), Aug. 30-Sept. 4, 2015, Jeju Island, South Korea.
20. Session Chair, 2015 TMS 144<sup>th</sup> Annual Meeting & Exhibition, March 15- 19, 2015, Orlando, FL.
21. Symposium Organizer and Session Chair, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, Materials Science and Engineering 2015 Conference, October 4-8, 2015, Columbus, OH, USA.
22. Session Chair, International Conference on Sintering 2014, August 24-28, Dresden, Germany.
23. Symposium Organizer and Session Chair, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, Materials Science and Engineering 2014 Conference, October 12-16, 2014, Pittsburgh, PA.
24. Session chair, 8th International Symposium on Nanostructured Materials and Nanocomposites during 38th International Conference and Expo on Advanced Ceramics and Composites, January 26-31, 2014, Daytona Beach, FL.
25. Symposium Organizer and Session Chair, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, Materials Science and Engineering 2013 Conference, October 27-31, 2013, Montreal, QC, Canada.
26. Session Chair, Flow and Assembly of Dense Suspensions, 12th International Conference on Ceramic Processing Science, August 4-7, 2013, Portland, Oregon.
27. Session Chair, Solid Oxide Fuel Cells and Hydrogen Technology, 10th Pacific Rim Conference on Ceramic and Glass Technology including GOMD 2013 - Glass & Optical Materials Division Annual Meeting, June 2-7, 2013, Coronado, CA.
28. Symposium Organizer, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, Materials Science and Engineering 2012 Conference, Pittsburgh, PA, October 7-11, 2012.
29. Session Chair, 6th International Symposium on Nanostructured Materials and Nano-Composites: Synthesis, Functionalization, Processing and Self-assembly of Nanoparticles, 36th International Conference on Advanced Ceramics & Composites in Daytona Beach, Daytona Beach, FL, January 22-27, 2012.
30. Symposium Organizer, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, Materials Science and Engineering 2011 Conference, Columbus, OH, October 16-20, 2011.
31. Session Chair, 5<sup>th</sup> International Symposium on Nanostructured Materials and Nanotechnology: Development and Application, 35th International Conference & Exposition on Advanced Ceramics & Composites, January 23-28, 2011, Daytona Beach, FL.
32. Session Chair, Materials in Clean Power Systems VI: Clean Coal-, Hydrogen-Based Technologies, and Fuel Cells, TMS Annual Meeting & Exhibition, San Diego, CA, February 27-March 3, 2011,
33. Symposium Organizer, Controlled Processing of Nanoparticle-based Materials and Nanostructured Films, Materials Science and Engineering 2010 Conference, Houston, TX, October 17-21, 2010.
34. Symposium Organizer, Controlled Processing of Nanoparticle-based Materials and Nanostructured Films, Materials Science and Engineering 2009 Conference, Pittsburgh,

- Pennsylvania, October 25-29, 2009.
35. Session Chair, International Conference on Sintering 2008, 11/16/2008-11/20/2008, La Jolla, California.
  36. Symposium Organizer and Session Chair, Novel Processing of Nanoparticle and Composite Particulate Systems, Materials Science and Engineering 2008 Conference, Pittsburgh, Pennsylvania, October 5-9, 2008.
  37. Symposium Organizer, Second International Symposium on Nanostructured Materials and Nanotechnology: Development and Applications, 32nd International Cocoa Beach Conference and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, January 27-February 1, 2008.
  38. Symposium Chair, Innovative 3D Nanoparticulate Material Processing, Materials Science and Engineering 2007 Conference, Detroit, Michigan, September 16-20, 2007.
  39. Session Chair, Nanostructured Materials and Nanotechnology, the 107th Annual Meeting & Exposition of the American Ceramic Society, Baltimore, Maryland, April 10-13, 2005.
  
  40. NSF NRT Panel Review, June 2015
  41. NSF STC Review Panel, February 2015
  42. Proposal Review, National Science Foundation (NSF), DMR.
  43. Panelist, National Science Foundation (NSF) Panel for NRT, September 2014.
  44. Panelist, National Science Foundation (NSF) Panel for CMMI MPM, May 2013.
  45. Panelist, National Science Foundation (NSF) Review Panel for DMR, March 2013.
  46. Panelist, National Science Foundation (NSF) Review Panel for CMMI, November 2012.
  47. Panelist, National Science Foundation (NSF) Panel for Ceramics Program of DMR, January 2012.
  48. Panelist, National Science Foundation (NSF) Panel for Nanomanufacturing Program of CMMI, May 2011.
  49. Proposal review: NSF CMMI, April 2010.
  50. NSF Nanomanufacturing program (CMMI) review panel, May 2009.
  51. Proposal review: NSF DMR, October 2009.
  52. National Science Foundation (NSF) DMR Proposal Review, October 2009.
  53. Panelist, National Science Foundation (NSF) Review Panel for Engineering Division Nanomanufacturing Program, May 2009.
  54. Proposal review: ACS PRF Research Proposal Review, March 2009.
  55. Proposal review: NSF, DMR, October 2008
  56. Proposal review: U.S. Civilian Research and Development Foundation, June 2008.
  57. NSF International Research Fellowship Program reviewer, International Research Fellowship Program, December 2006
  58. Member of Selected Professional Fellowships Panel of AAUW Educational Foundation (January 1, 07-December 31, 2008).
  59. Panelist, National Science Foundation (NSF) Panel for CBET Program, November 2007.
  60. Panelist, National Science Foundation (NSF) Panel for CMMI/TTP Program, January 2007.
  61. Panelist, National Science Foundation (NSF) Panel for Engineering Division Nanomanufacturing Program, December 2006.
  62. Proposal Reviewer, Department of Energy, Nuclear Energy Research Initiative, October 2005.
  63. Proposal Reviewer, U.S. Civilian Research and Development Foundation, 2008.

64. Panelist, National Science Foundation (NSF) Panel for DMR NIRT Program, March 2005.
65. Panelist, National Science Foundation (NSF) Panel for DMII/TTTP Manufacturing Program, January 2005.
66. Review of proposals: Academy of Finland, Natural Sciences and Engineering Research
67. Journal reviewer:
  - 1) 32nd International Conference & Exposition on Advanced Ceramics & Composites
  - 2) 38th International Conference on Metallurgical Coatings and Thin Films
  - 3) ACS Applied Materials & Interfaces
  - 4) Acta Materialia
  - 5) American Society for Engineering Education Southeastern Section Annual Meeting
  - 6) Applied Energy
  - 7) Applied Surface Science
  - 8) Ceramic Transaction Proceedings 2009
  - 9) Ceramic Transactions
  - 10) Ceramics International
  - 11) Chemical Engineering Journal
  - 12) Crystal Growth & Design
  - 13) Electrochemistry Communications
  - 14) Fuel Cells
  - 15) International Journal for Numerical Methods in Fluids
  - 16) International Journal of Applied Ceramic Technology
  - 17) International Journal of Applied Glass Science
  - 18) International Journal of Hydrogen Energy
  - 19) Journal of Alloys and Compounds
  - 20) Journal of Applied Electrochemistry
  - 21) Journal of Fuel Cell Science and Technology
  - 22) Journal of Materials Science
  - 23) Journal of Nanoparticle Research
  - 24) Journal of Nanoscience and Nanotechnology Letters
  - 25) Journal of Nanoscience and Nanotechnology
  - 26) Journal of New Materials for Electrochemical Systems
  - 27) Journal of Power Sources
  - 28) Journal of the American Ceramic Society
  - 29) Journal of the American Chemical Society
  - 30) Journal of The Electrochemical Society
  - 31) Journal of The European Ceramic Society
  - 32) Langmuir
  - 33) Materials Chemistry and Physics
  - 34) Materials Letters
  - 35) Materials Research Bulletin
  - 36) Materials Science and Engineering B
  - 37) Metallurgical and Materials Transactions A
  - 38) MS&T 09 Ceramic Transactions
  - 39) Nanoscience and Nanotechnology Letters

- 40) Powder Technology
- 41) Proceeding of 30th International Conference on Advanced Ceramics and Composites
- 42) Proceeding of International Conference on Sintering 2008
- 43) Proceeding of the 107th American Ceramic Society Annual Meeting
- 44) Proceedings of the ASME 2010 Eighth International Fuel Cell Science, Engineering and Technology Conference, FuelCell2010
- 45) Proceedings of the ASME 2010 International Mechanical Engineering Congress & Exposition, reviewer.
- 46) Science of Advanced Materials
- 47) Surface and Coatings Technology

**University:**

1. Commission on Graduate Studies & Policies (CGSP) of Virginia Tech, 2016-2019
2. COE Dean's Search committee, 2016.
3. Mechanical Engineering Faculty Search Committee for the Advanced Manufacturing cluster, 2014-2015.
4. Virginia Tech ICTAS The JFC (Sustainability) panel review March, 2013
5. Nominee and Participant of National Effective Teaching Institute, 2007
6. Faculty study program at Virginia Tech's Center for Excellence in Undergraduate Teaching with a focus on learning theory and technology, 2005-2007
7. Biomaterial Cluster Hiring Search Committee of Virginia Tech, 2005-2006
8. MSE1004 Materials in Today's World, lab demo and presentation, 2008-2010

**Departmental:**

1. Department Faculty Search Committee Chair for the Advanced Manufacturing cluster, 2014-2015.
2. Department ABET Review committee, 2012
3. Department Faculty Search Committee for the VT-Fire initiative 2009-2010
4. Department Diversity Committee, Chair, 2007-present
5. Department Undergraduate Recruitment Committee, 2004-2006
6. Ad-Hoc Committee on Restructuring Promotion & Tenure for MSE Department of Virginia Tech, 2004-2005
7. MSE Graduate Committee, 2005-present
8. MSE P&T committee, 3/1/2016 – 2/28/2019

**Community:**

1. Western Virginia Science Museum summer camp, 2015
2. Engineering Freshmen Seminar and Communication Program Seminars, 2004-present
3. C-Tech<sup>2</sup> and Imagination Camps: 2006-2013, lab demos, MSE overview presentation, and nano-presentation, 2005-2009
4. Hypatia Female engineers, 2007-present
5. VT Stars summer camp for economically disadvantaged high school students (2005, 2006)

**Affiliations**

1. The American Ceramic Society
2. Materials Research Society
3. APMI International

4. American Association for the Advancement of Science
5. American Society for Engineering Education
6. Sigma Xi, The Scientific Research Society
7. Alpha Sigma Mu International Professional Honor Society
8. National Institute of Ceramic Engineers
9. TMS, The Minerals, Metals & Materials Society