Linda S. Schadler
Acting Provost and Senior Vice President
Professor of Mechanical Engineering
University of Vermont
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Summary

Dr. Linda S. Schadler is currently the Acting Provost and Senior Vice President at the University of Vermont. She was the Dean of the College of Engineering and Mathematical Sciences at the University of Vermont from 2018-2024. She held previous positions as the Vice Provost and Dean of Undergraduate Education and the Russell Sage Professor in Materials Science and Engineering in the School of Engineering and as the Associate Dean of Academic Affairs in the College of Engineering at Rensselaer Polytechnic Institute. She graduated from Cornell University in 1985 with a B.S. in materials science and engineering and received a PhD in materials science and engineering in 1990 from the University of Pennsylvania. She did two years of post-doctoral work at IBM Yorktown Heights and spent 4 years as a faculty member at Drexel University in Philadelphia, PA before going to Rensselaer.

Active in materials research for over 30 years, Schadler is an experimentalist. Her research focus has always been on the impact of interfaces on properties in polymer composites. Her interests currently include the tailoring nanoparticle surfaces to control the morphology, and mechanical, optical, and electrical behavior of nanofilled polymer composites. Schadler has co-authored more than 190 journal publications, several book chapters, and one book. She has an h factor of 70. Dr. Schadler received a National Science Foundation National Young Investigator award in 1994 and the ASM International Bradley Stoughton Award for Teaching in 1997. She is a Fellow of the Materials Research Society, ASM International, and AAAS.

Linda is the Publications Chair for the Materials Research Society. She is a past member of the NRC, National Materials Advisory Board, the ASM International Board of Trustees, TMS Foundation Board, and the Materials Research Society Board of Directors. Among the things she is proud of is her role as an executive producer for the Molecularium – a new style of planetarium show that takes the audience (primarily students in K-8) on a magical musical adventure into the world of atoms and molecules with the help of oxy, hydro and hydra (www.molecularium.com). Children learn that "everything is made of atoms and molecules" and about the three states of matter "solids slow, liquids flow, gas is fast!"

Educational Preparation

Cornell University Department of Materials Science and Engineering	B.S.	1985
University of Pennsylvania Department of Materials Science and Engineering	Ph.D.	1990

Professional Experience

Acting Provost & Sr Vice President	University of Vermont	2024
Dean, College of Engineering and Mathematical Sciences	University of Vermont	2018 - 2024
Vice Provost and Dean of Undergraduate Education	Rensselaer Polytechnic Institute	2014 - 2018
Associate Dean of Academic Affairs	Rensselaer Polytechnic Institute	2009 - 2014
Russell Sage Endowed Chair	Rensselaer Polytechnic Institute	2012 - 2018
Full Professor	Rensselaer Polytechnic Institute	2003 - 2012
Associate Professor	Rensselaer Polytechnic Institute	1999 - 2003
Assistant Professor	Rensselaer Polytechnic Institute	1996 - 1999
Assistant Professor	Drexel University	1992 - 1996
Post Doctoral Position	IBM, Yorktown Heights	1990 - 1992

Honors and awards

American Association for the Advancement of Science Fellow	2024
Cornell University, Department of Materials Science and Engineering, Distinguished Alumni Award	2017
Fellow, Materials Research Society	2015
ASM, Liberty Bell Chapter, 2014, Albert Sauveur Lecture Award	2014
Member, ASM Board of Trustees	2011 – 2014
Named to Top 100 Materials Scientists in the Last Decade (#92) by Reuters	2011
Children's Museum of Science and Technology, Troy, NY "Explore, Discover, Imagine Award,"	2011
University of Pennsylvania, Grace Hopper Lecture	2009
University of Florida, Mechanical Engineering Department, Curie Lecture	2008
Rensselaer School of Engineering, Outstanding Faculty Member Award	2008
Rensselaer School of Engineering, Team Education Award for the Molecularium	2006
Fellow, ASM International	2006
Rensselaer School of Engineering Research Award	2004
Member, TMS Strategic Planning Advisory Board	2001 – 2005
Geisler Award, Awarded by the local ASM chapter honoring a young Materials Engineer	2000
Louis C. Ianneillo Graduation Prize (awarded by the Seniors in the Materials Science and Engineering Department)	1999, 2000
National Academy of Engineerings' Gallery of Women Engineers, August	1999 -
ASEE, St Lawrence Section, Dow Outstanding New Faculty Award	1998
ASM International 1997 Bradley Stoughton Award	1997
NSF - National Young Investigator Award	1994 – 1999
Society of Plastic Engineers, Plastics Recycling Divisions Fellowship Award	1993

Professional Activities

External Service

Engineering Research Visioning Alliance	2022 -
Cornell Materials Science and Engineering Advisory Board	2018 -
Chair	2020 -
Engineering College Council, Cornell University	2019 - 2024
Editorial Advisory Board, Polymer Engineering & Science	2019 -
Editorial Advisory Board, Polymer Composites	2019 -
President's Council for Cornell Women	2014 - 2020
Associate Editor – Polymer and Organic Matls, Journal of Materials Research	2014 – 2019
Editorial Board – New Maney Journal – Nanocomposites	2014 -
Guest Co-Editor, IEEE Transactions on Dielectrics and Electrical Insulation, Special Issue on Nanodielectrics	2014
Member, National Materials Advisory Board	2002 - 2008
Editorial Board – Composite Interfaces	2008 -
Guest Co-Editor, IEEE Transactions on Dielectrics and Electrical Insulation, Special Issue on Nanodielectrics	2007
Vice Chair, International Materials Reviews, Impact Factor 3.4	2006 -2014
Editorial Board, Journal of Nanostructured Polymers and Nanocomposites	2006 -
Member, US Advisory Committee for "Interfaces 2007" Sonoma, CA March, 2008	2006-2008
Member, Advisory Board to University of Wisconsin NSEC "Guided Self Assembly"	2005 - 2010
TMS Strategic Planning Advisory Board	2001 - 2006
National Materials Advisory Board Committee on High Performance Fibers	1998 - 2001

Significant Professional Society Service (

Materials Research Society, Publication Chair	2023 -

Materials Research Society Board of Directors	2019 - 2021
Chair, Ellen Swallow Richards Diversity Award Committee	2013
Advisory Organizing Committee, *First TMS Summit on Diversity in the Minerals, Metals and Materials Professions: Honoring the First Female Member of AIME, Ellen Swallow Richards*.	2013 - 2014
MRS Von Hippel Award Committee	2013 - 2015
ASM Board of Trustees	2011 - 2014
ASM - DLM/MAR Award Selection Committee	2010 - 2011
TMS – TAG Committee on Nanomaterials	2006
TMS – TAG Committee on Integrated Computational Materials Engr.	2006
AIME Rossiter W. Raymond Memorial Award Committee Member	2002 - 2004
TMS – Information Technology Committee Member	2002 - 2004
TMS – National Education Committee Member	1995 – 2005
Vice Chair	1997 – 1999
Chair	1999 – 2001
TMS – National Career Resource Center Committee Member	1996 – 1997
ASM – Nominating Committee	2001
ASM – International Journal of Materials Reviews Committee	1996 – 2004
ASM – Engineering Materials Achievement Award Selection Committee	1996 – 1999
Vice Chair	1998
Chair	1999
Society of Plastics Engineers	1993 –
Education Chair Philadelphia Section	1994 - 1996

Publications

Books, Monographs, Recordings, Large Scale Musical or Video Works, Commissions

11. "Materials Informatics and Data System for Polymer Nanocomposites Analysis and Design," W. Chen, L.S. Schadler, L.C. Brinson, Y. Wang, Y. Zhang, A. Prasad, X. Li, and A. Iyer, Handbook on Big Data and Machine Learning in the Physical Sciences: Volume 1 Big Data Methods in Experimental Materials Discovery, World Scientific Press **(**2019).

10. "The Elusive Interphase/Interface in Polymer Nanocomposites," Linda S. Schadler, Comprehensive Composite Materials II, edited by Peter Beaumont and Carl Zweben, Elsevier (2017)

9. "Polymer Nanocomposite Interfaces: The Hidden Lever for Optimizing Performance in Spherical Nanofilled Polymers," Ying Li, Yanhui Huang, Timothy Krentz, Bharath Natarajan, Tony Neely, and Linda S. Schadler, Interfacial and Adhesion Aspects in Polymer Nanocomposites edited by Anil N. Netravali & K. L. Mittal, Scrivener Publishing & John Wiley and Sons, Beverly, MA (2016)

8. "Electrical behavior of particle filled polymer nanocomposites," R.C. Smith, J.K. Nelson, L.S. Schadler, Physical Properties of Polymer Nanocomposites, edited by Tjong and Mai, Woodhead Publishing, Cambridge, UK, (2010).

7. "Non-Linear Field Grading Materials and Carbon Nanotube Nanocomposites with Controlled Conductivity," Linda S. Schadler, X. Wang, J.K. Nelson, H. Hillborg, Dielectric Polymer Nanocomposites edited by J.K. Nelson, Springer, New York, NY (2010).

6. "Surface and Particle Modification via the RAFT Process: Approach and Properties," Yu Li, L.S. Schadler, B.C. Benicewicz, Handbook of RAFT Polymerization edited by Christopher Barner-Kowollik Wiley-VCH, KGaA, Weinheim, Germany (2008).

5. "Polytetrafluoroethylene Matrix Nanocomposites For Tribological Applications," D.L. Burris, T. A. Blanchet, K. Santos, S.L. Lewis, X. Liu, S.K. Pal, S.S. Perry, L.S. Schadler, W.G. Sawyer, in Tribology of Polymeric Nanocomposites: Friction and Wear and Bulk Materials and Coatings, edited by K. Friedrich, Elsevier, New York, NY (2008).

4. "Balancing Professional and Personal Life," Valerie A. Cornish, Sarah E. Randolph, L. Cate Brinson, Linda S. Schadler, in Success Strategies for Women in Science: A Portable Mentor, Edited by Peggy Pritchard, Elsevier, New York, NY (2005).

3. "Polymer Nanocomposites with Particle and Carbon Nanotube Fillers," B.J. Ash, A. Eitan, L.S. Schadler, in Dekker Encyclopedia of Nanoscience & Nanotechnology, 2917-2930. 1st Ed., Edited by Schwarz, J.A., Contescu, C.I., Putyera, K.; Marcel Dekker, Inc.: New York, NY (2004).

2. Chapter 10, "The emergence of studio courses – an example of interactive learning," Linda S. Schadler, John B. Hudson, in Effective Learning and Teaching in Engineering Edited by Caroline Baillie and Ivan Moore, RoutledgeFalmer, New York, NY (2004).

1. Nanocomposite Science and Technology, P.M. Ajayan, P. Braun, L.S. Schadler, Wiley-VCH Verlag GmbH&Co. KgaA, Weinham (2003).

Issued Patents

1. C.B. Ng, L.S. Schadler, R.W. Siegel, "Nanoparticle-Filled Polymers," Patent No. 6,667,360 (Issue Date: 23 December, 2003).
2. T. Li, Q. Chen, L.S. Schadler, R.W. Siegel, J. Mendel, G.C. Irvin, "Gelatin Nanocomposites," U.S. Patent No. 6,783,805 (Issue Date: 31 August 2004).
3. Ma, D., Schadler, L. S., and Siegel, R. W., "Tubular Microstructures via Controlled Nanoparticle Assembly", U.S. Patent No. 6,960,378 (Issue Date: Nov 1, 2005).
4. Y.-C. Chen, N. R. Raravikar, Y.-P. Zhao, L. S. Schadler, P. M. Ajayan, T.-M. Lu, G.-C. Wang, and X.-C. Zhang, "Ultrafast All-optical Switch Using Carbon Nanotube Polymer Composites," U.S. Patent No. 6,782,154 (2004).
5. E. Martensson, J.-I. Hong, L.S. Schadler, R.W. Siegel, Lars Palmqvist, Anders Gustafsson, Carina Önneby, "Field Grading Material," U.S. Patent No. 7,868,079 (Issue Date: Jan 11, 2011).
6. J.K. Nelson, W. Zenger, R. Keefe, L.S. Schadler, "Nanostructured Dielectric Composite Materials," U.S. Patent No. 7884149 (Issue Date: February, 2011).
7. R.W. Siegel, L.S. Schadler, D. Ma, J. I. Hong, E. Martensson, C. Onneby, "Nanocomposites with Controlled Resistivity and Permittivity" Issued in India IN 242852 and China 200480030818.2 October, 2010, U.S. Patent 7,923,500 (Issue Date: April 12, 2011).
8. Praveen Bhimaraj, Crayton Gregory Toney, Linda S. Schadler-Feist, Richard W. Siegel, "Method for Producing Polyester Nanocomposites" US 8,436,076 (Issue Date: May 27, 2013): Issued in Japan. 5073748, Issued in Mexico.
9. Peng Tao, Yu Li, Brian Benicewicz, Richard W. Siegel, Linda S. Schadler, Anand Viswanath "Nanofilled Polymeric Nanocomposites with Tunable Index of Refraction," U.S. Patent No. 8518473 (Issue Date: August, 2013).
10. J.K. Nelson, B.C. Benicewicz, A. Rungta, L.S. Schadler, "Self-Healing Electrical Insulation" US Patent No. 8,796,372 (Issue Date: Aug 4, 2014).
11. B.C. Benicewicz, V. Anand, L. S. Schadler, D. Dukes, "Nanoparticles with Multiple Attached Polymer Assemblies and Use Thereof in Polymer Composites" US Patent No. 8,865,796 titled (issued on October 21, 2014).
12. L.S. Schadler, H. Hillborg, B. Benicewicz, S. Zhao, "Preparing electric insulation, useful in e.g. electrical machines/motors, bushings, transformers and surge arresters, comprises providing modified nanoparticles and dispersing the nanoparticles in a polymer matrix to provide nanocomposite"; WO2010118336-A1; US2011061891-A1 ; EP2417171-A1 ; CN102449010-A ; US2014127958-A1 ; CN102449010-B
13. Z. Wang, L.S. Schadler, H. Hillborg, S. Zhao; Preparing high dielectric constant ceramic filler particles comprises heating ceramic/polymer filler particles, calcinating ceramic filler particles to obtain calcinated ceramic filler particles containing perovskite structures and cooling; WO2012006416-A2 ; WO2012006416-A3.

14. Z. Wang, L.S. Schadler, H. Hillborg, S. Zhao; "Composite material used e.g. as field grading material and electric insulating material in medium or high voltage cable systems, and in machines bushings, comprises polymer material and reduced graphene oxide within the polymer material"; WO2013033603-A1; EP2742098-A1 ; CN104093786-A ; US2015001448-A1.

Refereed Journal Articles (H Index = 70, Google Scholar H Index 87)

198. "Design of polymer nanodielectrics for capacitive energy storage," Prajakta Prabhune, Yigitcan Comlek, Abhishek Shandilya, Ravishankar Sundararaman, Linda Schadler, Cate Brinson, Wei Chen, **Nanomaterials**, DOI: 10.3390/nano13172394 (2023).

197. "Nanoparticle Diffusion in Miscible Polymer Nanocomposite Melts," Nicholas F. Mendez, Deboleena Dhara, Qingteng Zhang, Suresh Narayanan, Linda S. Schadler, Alejandro J. Müller, and Sanat K. Kumar, **Macromolecules,** https://doi.org/10.1021/acs.macromol.3c00490 (2023).

196. "Machine-Learning-Assisted Understanding of Polymer Nanocomposites Composition−Property Relationship: A Case Study of NanoMine Database," Boran Ma, Nicholas J. Finan, David Jany, Michael E. Deagen, Linda S. Schadler, and L. Catherine Brinson, **Macromolecules,** https://doi.org/10.1021/acs.macromol.2c02249 (2023).

195. "Dielectric Properties of Polymer Nanocomposite Interphases Using Electrostatic Force Microscopy and Machine Learning," Praveen Gupta, Eric Ruzicka, Brian C. Benicewicz, Ravishankar Sundararaman, Linda S. Schadler, **ACS Applied Electronic Materials**, doi.org/10.1021/acsaelm.2c01331 (2023).

194. "Crystallization Kinetics and Mechanical Properties of Miscible Polymer Blend Nanocomposites: Linear vs. Grafted Systems," A. Abdullah, M. Husam,N. Mendez, L. S. Schadler, A. Müller, S. Kumar, **Macromolecules**, vol 55, no. 18, 8210-8221 (2022).

193. "*In-situ* AFM tracking of Nanoparticle Migration in Semicrystalline Polymers," Kamlesh Bornani, Nicholas F. Mendez, Abdullah S. Altorbaq, Alejandro J. Müller, Yueqian Lin, Eric Zhonghang Qu, Kai Zhang, Sanat K. Kumar and Linda S. Schadler **ACS Macro Letters,** vol. 11, 818-824 (2022).

192. "Charts as Metadata—FAIR, Interactive Data Graphics from a Materials Science Knowledge Graph," Michael E. Deagen, Jamie P. McCusker, Tolulomo Fateye, Samuel Stouffer, L. Cate Brinson, Deborah L. McGuinness, and Linda S. Schadler, **Scientific Data**, vol. 9, 239, https://doi.org/10.1038/s41597-022-01352-z (2022).

191. "The Materials Tetrahedron has a Digital Twin,"M.E. Deagan, R.A. Vaia, L.C. Brinson, L.S. Schadler, **MRS Bulletin**, vol. 4, no. 4, pp. 379–388 (2022).

190. "Using Nanofiller Assemblies to Control the Crystallization Kinetics of High-Density Polyethylene," Kamlesh Bornani, Md Anisur Rahman, Brian Benicewicz, Sanat Kumar, and Linda Schadler, **Macromolecules**, vol. 54, no. 12, 5673-5682 (2021).

189. "Dielectric properties of polymer nanocomposite interphases from electrostatic force microscopy using machine learning," **Materials Characterization**, vol. 173, article number 110909**,** Praveen Gupta, Linda S. Schadler, Ravishankar Sundararaman, (2021).

188. "Data centric nanocomposites design *via* mixed-variable Bayesian optimization**,"** Akshay Iyer**,** Yichi Zhang**,** Aditya Prasad**,** Praveen Gupta**,** Siyu Tao**,** Yixing Wang, Prajakta Prabhune**,** Linda S. Schadler, L. Catherine Brinson**,** and Wei Chen **Molecular Systems Design and Engineering**, vol. 5, no. 8, 1376-1390 (2020).

187. "Mining structure-property relationships in polymer nanocomposites using data driven finite element analysis and multi-task convolutions neural networks, Yixing Wang, Min Zhang, Anqi, Lin, Akshay Iyer, Aditya Prasad, Xiaolin Li, Yichi Zhang, Linda S. Schadler, Wei Chen, L.C. Brinson, **Molecular Systems Design and Engineering,** vol. 5, no. 5, 962-975 (2020).

186. "A Novel Method to Characterize Thermal Properties of The Polymer and Gas/Supercritical Fluid Mixture Using Dielectric Measurements," X. Yao, H. Park, P. Lee, L.S. Schadler, **Polymer Testing**, vol. 92, 10686 (2020).

185. "Polymer Nanodielectrics – Short History and Future Perspective," L.S. Schadler, and J.K. Nelson, **Journal of Applied Physics** (invited perspectives article), vol. 128, no. 12, 120902 (2020). **Editors Pick**

184. "Polymer Nanocomposite Data: Curation, Frameworks, Access and Potential for Discovery and Design, L. Catherine Brinson, Michael Deagen, Wei Chen, James McCusker, Deborah McGuinness, Linda S. Schadler, Marc Palmeri, Umar Ghumman, Anqi Lin, Bingyin Hu, **ACS Macro Letters (Viewpoints article)**, vol. 9, 10867-1094 (2020). [COVER]

183. "Investigating the Effect of Surface Modification on the Dispersion Process of Polymer Nanocomposites," A.S. Prasad, Y. Wang, X. Li, A. Iyer, W. Chen, L. C. Brinson, L. S. Schadler, **Nanocomposites**, vol. 6, no. 3, 111-124 (2020).

182. A perspective on the data-driven design of polymer nanodielectrics," L.S. Schadler, W. Chen, L.C. Brinson, R. Sundararaman, P. Gupta, P. Prabhune, A. Iyer, Y. Wang, A. Shandilya, **Journal of Physics D: Applied Physics**, vol. 53, no. 33, 333001 (2020).

181. "First-principles identification of localized trap states in polymer nanocomposite interfaces," A. Shandilya, L.S. Schadler, R. Sundararaman, **Journal of Materials Research**, vol. 35, no. 8, 931-939 (2020).

180. "Rethinking Interphase Representations for Modeling Viscoelastic Properties for Polymer Nanocomposites," X. Li, M. Zhang, Y. Wang, A. Prasad, W. Chen, L. Schadler, L.C. Brinson, **Materialia**, vol. 6, 100277 (2019).

179. "Nanoparticle Organization by Growing Polyethylene Crystal Fronts" X. Ning, A. Jimenez, J. Pribyl, B. Benicewicz, S. Kumar, L.S. Schadler, **ACS Macro Letters**, vol. 8, no. 10, 1341-1346 (2019).

178. "Dye Doped Concentric Shell Nanoparticles for Enhanced Photophysical Performance of Downconverting Light Emitting Diodes, X. Ning, J. Chittigori, Y. Li, G. Horner, Z. Zhou, L. S. Schadler, C. Ullal, **Journal of Colloid and Interface Science**, vol. 556, no. 25 753-760 (2019).

177. "Corona treatment for nanotransfer molding adhesion," M.E. Deagen, C.P. Chan, L.S. Schadler, C. K. Ullal. **ACS Applied Polymer Materials**, vol. 1, no. 5, 997-1005 (2019) DOI: 10.1021/acsapm.9b00028

176. "Polyethylene Grafted Silica Nanoparticles Prepared via Surface- Initiated ROMP," Julia Pribyl, Brian Benicewicz, Michael Bell, Kenneth Wagener, Xin Ning, Linda Schadler, Andrew Jimenez. Sanat Kumar, **ACS Macro Letters**, vol. 8, 28-232 (2019).

175. "Polymer grafted nanoparticle viscosity modifiers," M. Giovino, E. Buenning, A. Jiminez, S. Kumar, L.S. Schadler, **Macromolecular Chem. and Phys.** vol. 220, 1800543 (2019).

174. "Size effects in plasma-enhanced nano-transfer adhesion," M.E. Deagen, E.P. Chan, L.S. Schadler, C. K. Ullal, **Soft Matter,** vol. 14, 9220–9226, DOI: 10.1039/c8sm01862f (2018).

173. "NanoMine Schema: An Extensible Data Representation for Polymer Nanocomposites," He Zhao, Yixing Wang, Anqi Lin, Bingyin Hu, Rui Yan, James McCuster, Wei Chen, Deborah L. Mcguinness, Linda Schadler, and L. Catherine Brinson, **APL Materials**, vol. 6, no. 11 (2018)

172. "Stochastic continuum model for mycelium-based biofoam," Mohammad R Islam, Greg Tudryn, Ron Bucinell, Linda Schadler, and Catalin Picu, **Materials and Design**, vol. 160, 549-556 (2018).

171. "Mechanical behavior of mycelium-based particulate composites," Mohammad R Islam, Greg Tudryn, Ron Bucinell, Linda Schadler, and Catalin Picu, **Journal of Materials Science**, vol. 53, no. 24, 16371–16382 (2018).

170. "Identifying Interphase Properties in Polymer Nanocomposites using Adaptive Optimization," Yixing Wang, Yichi Zhang, He (Richard) Zhao, Xiaolin Li, Yanhui Huang, Linda Schadler, Wei Chen, L. Catherine. Brinson, **Composites Science and Technology**, vol. 162, 146-255 (2018).

169. "Mechanical properties of polymer grafted nanoparticle composites," M. Giovino, P. Pribyl, B.C. Benicewicz, R. Bucinell, L.S. Schadler, **Nanocomposites**, vol. 4, 244-252 (2018).

168. "Linear rheology of polymer nanocomposites with polymer-grafted nanoparticles," M. **Giovino, P.** Pribyl, B.C. Benicewicz, S. Kumar, L.S. Schadler, **Polymer**, vol. 131, 104-110 (2017).

167. "Dielectric Spectroscopy Analysis using Viscoelasticity-inspired Relaxation Theory with Finite Element Modeling**,"** He Zhao, Yang Li, Yanhui Huang, Tim Krentz, Michael Bell, Brian Benicewicz, Linda S. Schadler, L. Catherine Brinson, **IEEE Transactions on Dielectrics and Electrical Insulation**, vol. 24, No. 6, 3776-3785 (2017).

166. "Wetting regimes for residual-layer-free transfer molding at the micro- and nanoscale" Michael Deagen, Linda Schadler, Chaitanya Ullal, **ACS Applied Materials and Interfaces**, vol. 9, no. 41, 36385-36391 (2017).

165. "Morphology and mechanics of fungal mycelium," by Mohammad R Islam, Greg Tudryn, Ron Bucinell, Linda Schadler, and Catalin Picu, **Scientific Reports**, vol. 7, article #13070 (2017).

164. "Predicting the breakdown strength and lifetime of nanocomposites using a multi-scale modeling approach," Yanhui Huang, He Zhao, Yixing Wang, Tyree Ratcliff, Curt Breneman, L. Catherine Brinson , Wei Chen, Linda S. Schadler, **Journal of Applied Physics**, vol. 122, 065101 (2017).

163. "Understanding the strain-dependent dielectric behavior of carbon black reinforced natural rubber – An interfacial or bulk phenomenon?" Y. Huang, L.S. Schadler, **Composite Science and Technology**, vol. 142, 91-97 (2017).

162. "Transition Metal Doping of Amorphous Silica Particles" Emily E. Downs, Shyang Shuoh Ao, Richard W. Siegel, Linda S. Schadler, **Journal of Nanoparticle Research**, vol. 19, no. 10, article # 337 (2017).

161. "Tunable Multiscale Nanoparticle Ordering by Polymer Crystallization," D. Zhao, V. Gimenez-Pinto, A. Jimenez, L. Zhao, J. Jestin, S.K. Kumar, B. Kuei, E. Gomez, A. Prasad, L. Schadler, M. Khani, B. Benicewicz, **ACS Central Science**, vol. 3, no. 7, 751-758 (2017).

160. "Processing and Morphology Impacts on Mechanical Properties of Fungal Based Biopolymer Composites," Gregory J. Tudryn, Leah C. Smith, Jamie Freitag, Ron Bucinell, and Linda S. Schadler, **Journal of Polymers and the Environment**, vol. 26, no. 4, 1473-1483, https://doi.org/10.1007/s10924-017-1047-9 (2017).

159. "Suppression of space charge in crosslinked polyethylene filled with poly(stearyl methacrylate)-grafted SiO_2 nanoparticles," Ling Zhang, Mohammad M. Khani, Timothy M. Krentz, Yanhui Huang, Yuanxiang Zhou,Brian C. Benicewicz, J. Keith Nelson, Linda S. Schadler, **Applied Physics Letters**, vol. 110, no. 13, 132903 (2017).

158. "Investigation of Dielectric Breakdown in Silica-Epoxy Nanocomposites Using Designed Interface," Michael H Bell, Timothy Krentz; J. Keith Nelson, Linda Schadler, Ke Wu; Curt Breneman, Su Zhao, Henrik Hillborg, B.C. Benicewicz, **Journal of Colloid and Interface Science**, vol. 495, 130-139 (2017)

157. "Morphologically Dependent AC and DC Breakdown Strength in Silica-Polypropylene Nanocomposites," T. Krentz, M. M. Khani, M. Bell, B. C. Benicewicz, J. K. Nelson, S. Zhao, H. Hillborg, L. S. Schadler, **Polymer**, vol. 34, no.1, Article # 44347 (2017).

156. "On the nature of high field charge transport in reinforced silicone dielectrics: Experiment and simulation," Y. Huang, L.S. Schadler, **Journal of Applied Physics**, vol. 120, no. 5, 055101 (2016).

155. "The effects of nanoparticles and organic additives with controlled dispersion on dielectric properties of polymers: Charge trapping and impact excitation," Y Huang, K. Wu, M. Bell, A. Oakes, T. Ratcliff, N.A. Lanzillo, C. Breneman, B.C. Beniceewicz, L.S. Schadler, **Journal of Applied Physics**, vol. 120, no. 5, 05122 (2016).

154. "Core@Double-Shell Structured Nanocomposites: A Route to High Dielectric Constant and Low Loss Material," Y. Huang, X. Huang, L.S. Schadler, J. He, P. Jiang, **ACS Applied Materials and Interfaces**, vol. 8, no. 38, 25496-25507 (2016).

153. Perspective: Nanomine: A material genome approach for polymer nanocomposites analysis and design". H. Zhao, X. Li, Y. Zhang, L.S. Schadler, W. Chen, L.C. Brinson, **APL Materials**, vol. 4, no. 5, 053204 (2016).

152. "Towards the Development of a Quantitative Tool for Predicting Dispersion of Nanocomposites Under Non-Equilibrium Processing Conditions," I. Hassinger, X. Li, H. Zhao, H. Xu, Y. Huang, A. Prasad, L. S. Schadler, W. Chen, L.C. Brinson, **Journal of Materials Science**, vol. 51, no.9, 4238-4249 (2016).

151. "Microstructure Reconstruction and Structural Equation Modeling for Computational Design of Nanodielectrics," Y. Zhang, H. Zhao, I. Hassinger, L.C. Brinson, L.S. Schadler, W. Chen, **Integrating Materials and Manufacturing Innovation,** vol. 4, no. 14 (2015).

150. "Engineered nanoparticles enable higher LED efficiency and improved color conversion," Ying Li, Bharath Natarajan, Glenn Horner, Linda Schadler, and Robert Karlicek, **LEDs Magazine**, April 30 (2015).

149. "Bimodal 'matrix-free' polymer nanocomposites," Y. Li, L. Wang, B. Natarajan, P. Tao, B.C. Benicewicz, C. Ullal, L.S. Schadler, **RSC Advances**, vol. 5, no. 19, 14788-14795 (2015).

148. "Dielectric Breakdown Strength of Epoxy Bimodal-Polymer-Brush-Grafted Core Functionalized Silica Nanocomposites," S. Virtanen, T. Krentz, J.K. Nelson, L.S. Schadler, M. Bell, B.C. Benicewicz, H. Hillborg, S. Zhao, **IEEE Transactions on Dielectrics and Electrical Insulation**, vol. 21, no. 2, 563-570 (2014).

147. "Ligand Engineering of Polymer Nanocomposites: From the Simple to the Complex," Ying Li, Tim Krentz, Lei Wang, B.C. Benicewicz, L.S. Schadler, **Applied Materials and Interfaces, Spotlight**, vol. 6, no. 9, 6005-6021 (2014).

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1. "Characterization of Carbon-Carbon Composites by Laser Raman Spectroscopy," A. Elkind, M.J. Koczak, and L.S. Schadler, presented and published in Ceramic Engineering and Science Proceedings, **18th Annual Conference on Composites and Advanced Ceramic Materials**, January 9-14, Cocoa Beach, FL, 1994.

Professional and Public Lectures

Plenary, Keynote, and Named Lectures

10. "Polymer Nanodielectrics: The development of a design approach," **IEEJ Committee on Nanodielectrics special workshop, Tokyo, Japan**, November 10, 2016.

9. "The Power of the Small, Why Nanomaterials are Unique," **Albert Sauveur Lecture**, Liberty Bell Chapter, ASM Liberty Bell Chapter, Philadelphia, PA, January 15, 2015.

8. "Strategies for a Professional STEM Career and Successful Personal Life," **Materials Research Society, 2013 keynote women's breakfast speaker**, Boston, MA, Dec. 4, 2013.

7. "The Enthalpic / Entropic Dance to Control Dispersion," **Plenary Lecture - 9th Eurofillers International Conference**, Dresden, Germany, August 21-25, 2011.

6. "To Disperse or Not To Disperse – That is the Question!" Society of Plastics Engineers, **Keynote Lecture of the Polymer Analysis Division**, **ANTEC 2010**, Orlando, FL, May 16-20, 2010.

5. "Towards Design of Polymer Nanocomposites: Using the Interface to Tailor Polymer Nanocomposites Properties," University of Pennsylvania, **Grace Hopper Lecture**, April 2, 2009.

4. "Designing Polymer Nanocomposites," University of Florida, **Curie Lecture Series**, Oct 7, 2008.

3. "Improving Mechanical and Electrical Properties of Polymers Using Nanofillers," **Polymer Nanocomposite Symposium**, Lehigh University, Bethlehem, PA, March 4-5, 2008.

2. With S. Lewis, B. Benicewicz, "Polymer Nanocomposites with Designed Interfaces," **The 5th Asian-Australian Conference on Composite Materials,** Hong Kong, China, Nov 27-30, 2006.

1. "From Fairy Dust to Designed Polymer Nanocomposites," **DURACOSYS 2006, 7th International Conference on Durability of Composite Systems**, Blacksburg, VA, September 10-13, 2006.

Invited Talks

129. "From Nanotube to NanoMine, My Collaborations with Cate," **Society of Engineering Science**, College Station, TX, Oct 16-19, 2022.

128. "An Approach to Data Driven Design of Nanodielectrics," **241st ECS meeting**, Vancouver, BC, June 1-3, 2022

127. **"**Nanodielectrics under high electric field," **High Polymers Research Conference, Polymers in Extreme Conditions,** Manchester, UK. April 24-28, 2022.

126. "Polymer Nanocomposites: Tailoring the Interphase – Small Changes – Big Results," **U. Washington** (virtual)**,** November, 2020.

125. "Polymer Nanocomposites: Tailoring the Interphase – Small Changes – Big Results," **U. Mass Lowell** (virtual**),** October, 2020.

124. "Nanodielectrics: Tailoring Dispersion to Optimize Properties," **Workshop on Next-generation dielectric materials for microelectronics/electrical applications,** sponsored by the Army Research Lab, Boston, MA, Dec 4-5, 2019.

123. "Controlling Filler Organization / Crystalline Organization with Tailored Interfaces," **American Chemical Society,** Orland, FL, April 1, 2019.

122. "Are Hairy Nanoparticles the Key to Robust Mechanical Properties?**," Adhesion Society, 2018 Award for Excellence Symposium Honoring Ray Pearson**, San Diego, CA, February 25, 2018.

121. "Polymer Nanodielectrics: The development of a design approach**," Materials Research Society**, Phoenix, AZ, April 3, 2018.

120. "Polymer Nanodielectrics: The development of a design approach**," Mitsubishi Electric**, Osaka, Japan, November 7, 2016.

119. "Polymer Nanodielectrics: The development of a design approach," **Kyushu Institute of Technology**, Kitakyushu, Japan, November 8, 2016.

118. "Stalking the Materials Genome: A Data-Driven Approach to the Virtual Design of Nanostructured Polymers," **ACS Conference – Polymer Composites and High Performance Materials,** Santa Rosa, CA, July 25-28 (2016).

117. "Polymer Nanodielectrics: Using Bimodal Grafted Polymer Brushes to Control Functionality and Develop Design Tools." **ABB Corporation**, Vasteros, Sweden, September 24, 2015.

116. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **University of Connecticut**, Storrs, CT, April, 10, 2015.

115. "Creativity in Nanocomposite Design: The Role of Surface Ligand Engineering," **Polymer Physics Gordon Conference**, Gordon Research Conferences, July, 2014

114. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **Case Western Reserve University**, Cleveland, OH, April, 4, 2014.

113. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **INRS**, Montreal, CA, Nov. 8, 2013.

112. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **Virginia Tech,** Blacksburg, VA, Oct. 9, 2013.

111. "Stalking the Materials Genome: A Data-Driven Approach to the Virtual Design of Nanostructured Polymers," **ACS Conference – Polymer Composites and High Performance Materials,** Santa Rosa, CA, July 21-24, 2013.

110. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **Milliken Corporation,** Spartanburg, SC, June 11, 2013.

109. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **Chemistry Department, University of South Carolina,** June 10, 2013.

108. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **Henkel Corporation,** Rocky Hill, CT, May 23, 2013.

107. "Polymer Nanocomposites: They Hype Beyond the Reality," **ASM International Pittsburgh Chapter**, Pittsburgh, PA, April 18, 2013.

106. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **Cabot Corporation,** Billerica, MA, January 14, 2013.

105. "Polymer Nanocomposite as Potential Dental Materials," **IADR Dental Materials Research Workshop**, London, UK, Dec 10-11, 2012.

104. "Nanodielectrics: Potential Materials For High Voltage Insulation," **ASM International, NYNJ Metro**, Mountainside, NJ, September 13, 2012.

103. "A Materials Informatics Approach to Optimizing Nanofiller / Polymer Enthalpic and Entropic Interactions For Controlled Properties," **NIST**, Gaithersburg, MD, May 17, 2012.

102. "Polymer Nanocomposites: Bimodal and Block Copolymer Grafted Brushes to Control Functionality," **MS&T Materials Science & Technology 2012 Conference & Exhibition**, Pittsburgh, PA, Oct 7-10, 2012.

101. "Nanocomposites: To Control Properties Locally, Think Globally," **ASM International, DC Chapter,** Washington, DC, May 17, 2012.

100. "Nanocomposites: To Control Properties Locally, Think Globally," **ASM International, Boston Chapter**, Boston, MA, March 14, 2012.

99. "Nanodielectrics: Potential Materials For High Voltage Insulation," **ASM International, Hartford Chapter**, Hartford, CT, January, 2012.

98. "Mechanical and Dielectric Properties of Polymer Nanocomposites," **General Electric Composite Damage Prediction workshop, General Electric Global Research Center**, Niskayuna, NY, Nov14-15, 2011.

97. "Materials Informatics Applied to Nanocomposites," **Composites at Lake Louise**, Lake Louise, AB, Canada, Oct 30-Nov 4, 2011.

96. "Polymer Nanocomposites: To Improve The Properties Globally, Think Locally," **University of Delaware**, Newark, DE, May 4, 2011

95. "Nanocomposites for High Voltage Cable Transmission and Smart Lighting," **First Northeast Composites Manufacturing Forum**, Albany, NY, April 27, 2011.

94. "Polymer Nanocomposites – The Siegel Impact Factor," **Siegel Honorary Symposium**, Rensselaer Polytechnic Institute, Oct 1-12, 2010.

93. "Tailoring the Properties of Hairy Nanoparticle Composites Through Interface Design," **Nano 2010**, Rome, Italy, Sept 12-17, 2010.

92. "Introduction to Nanocomposites," **Burnt Hills Ballston Spa School District**, In service day. November, 18, 2010.

91. With C. Breneman, C. Brinson, *Thomas Kuhn Paradigm Shift Competition Symposium*, "Materials Informatics Applied to Nanocomposites for Advanced Technology," **239th ACS National Meeting,** San Francisco, CA, March 21-25, 2010.

90. "Towards Design of Polymer Nanocomposites: Using the Interface to Tailor Polymer Nanocomposites Properties," **University of Virginia**, September 24, 2009.

89. "Nanodielectrics For Improved Cable Insulation and Field Grading Materials," **Hydro Quebec's Research Institute**, Varennes, QC, Oct 6, 2009.

88. "Towards Design of Polymer Nanocomposites," **ABB Research Laboratory**, Vasteras, Sweden, June 2, 2009.

87. With C. Brinson, and C. Breneman, "Intelligent Design of Polymer Nanocomposites via Informatics" 237th **Annual ACS meeting**, Salt Lake City, UT, March 22-26, 2009.

86. With J. Bult, "Evaluation of interfacial load transfer in carbon nanotube composites using polarized Raman spectroscopy," 237th **Annual ACS meeting**, Salt Lake City, UT, March 22-26, 2009.

85. "Nanotechnology Curriculum Development Institute," **NSF Global NSEE Workshop**, Washington, DC, Nov 13-14, 2008.

84. "Tailored Dispersion and Organization Through Brush Modification of Nanoparticles," **MS&T 08**, Pittsburgh, PA, Oct 5-9, 2008.

83. "Load Transfer Behavior in MWNT/Thermoplastic Composites," **Mississippi State University**, Oxford, MS, Sept 23, 2008.

82. "Towards Design of Polymer Nanocomposites," **Cross Industry Issues in Nanomanufacturing Workshop, NIST,** Gaithersburg, MD, May 20-22, 2008.

81. "Towards Design of Polymer Nanocomposites," **Dupont Experimental Station**, Wilmington, DE, May 5, 2008.

80. "Processing and Properties of Hierarchically Structured Graphite Fiber / MWNT / Epoxy Composites," **Lockheed Martin**, Baltimore, MD, April 8, 2008.

79. "Towards Design of Polymer Nanocomposites: Using the Interface to Control Polymer Nanocomposite Properties", **University of Oklahoma, School of Chemical, Biological and Materials Engineering**, Norman, OK, April 2, 2008.

78. "Towards Design of Polymer Nanocomposites: Interface Mechanics, **Interfacial Phenomena in Nanostructured Materials and Devices at Telluride**, Telluride, CO, Feb 4-7, 2008.

77. "Designed Interfaces in Polymer Nanocomposites," **Composites Gordon Conference**, Ventura, CA, Jan 13-18, 2008.

76. "Using the Interface to Control Polymer Nanocomposite Properties," Sarah L. Lewis, Pinar Ackora, Brian C. Benicewicz, Sanat K. Kumar, **MS&T 2007**, Detroit, Michigan, Sept 17, 2007.

75. "The Challenges of Designing Nanoparticle / Polymer Nanocomposites: The Infamous Interface," **Clemson University**, Greenville, SC, Sept 13, 2007.

74. "The Challenges of Designing Nanoparticle / Polymer Nanocomposites: The Infamous Interface," **Northcentral States Nanosystems Consortium Web Seminar**, July 23, 2007.

73. "Nanotechnology – Is It Coming to Fruition?" **Knolls Atomic Power Laboratory Retired Scientists Organization**, Glenville, NY, April 24, 2007.

72. "Opportunities for Nanoparticle Filled Polymers: Beyond the Hype." **ABB Corporation,** Vastaros, Sweden, March 29, 2007.

71. With S.L. Lewis, B.C. Benicewicz, S.K. Kumar, Y. Li, "Designed Interfaces in Nanoparticle Filled Polymer Composites," **233rd National American Chemical Society Meeting**, Chicago, IL, March 25-30, 2007.

70. With C. Brinson, "Materials Informatics: The complexity of data and its impact on computational material science," **MS&T,** Cincinnati, OH, Oct 15-19, 2006.

69. With C. Ryu, "Developing Nanotechnology Modules for Existing Secondary School Curriculum," **National Center for Learning and Teaching Nanoscale Science and Engineering Webcast Seminar Series**, April 4, 2006.

68. "Nanotechnology – Is It Coming to Fruition?" **Schenectady County Public Library**, March 20, 2006. Also rebroadcast on Cable Channel 16 twice.

67. With P.L. Dickrell, S.K. Pal, P.M. Ajayan, W.G. Sawyer, "Friction Behavior of Aligned Multi-walled Carbon Nanotubes," **231st National American Chemical Society**, Atlanta, GA, March 26-30, 2006.

66. "The Challenges of Designing Nanoparticle / Polymer Nanocomposites: The Infamous Interface," **New Jersey Institute of Technology**, March 6, 2006.

65. "Designed Nanocomposites," **Cornell University, Dept of Materials Science and Engineering 45th Anniversary Symposium**, September 20, 2005.

64. "The Wonders and Challenges of Designing Polymer Matrix Nanocomposites: The Infamous Interface," **United Technologies Research Center**, August 10, 2005.

63. "The Wonders and Challenges of Designing Polymer Matrix Nanocomposites: The Infamous Interface," **Virginia Tech**, Blacksburg, VA, August 24, 2005.

62. "The Effect of Nanoparticles in Polymer Behavior," **University of Massachusetts – Lowell**, Lowell, MA, April 6, 2005.

61. "Nanotube Filled Polymers – The Interface, Pullout, and the Second Mechanism of Reinforcment?" **Carbon Nanotube Reinforced Composite Workshop**, Lexington, KY, January 11-12, 2005.

60. "Tribology of Polymer Nanocomposites," **Society of Tribologists and Lubrication Engineers Local Chapter**, Niskayuna, NY, March 24, 2005.

59. With B. Benicewicz, S. Kumar, C. Li, A. Bansal, H. Yang, "Tg Behavior of Silica/Polystyrene Nanocomposites – Interface Effects," **229th National American Chemical Society**, San Diego, CA, March 13-17, 2005.

58. With L.C. Brinson, "Polymer Nanocomposites – Challenges of Modeling," **National Science Foundation Short Course**, Northwestern University, June 11, 2004.

57. "Polymer Nanocomposites – It's All Interface," **Nanotechnology: Innovation, Opportunity, and Commercialization**, Rensselaer Polytechnic Institute, Troy, NY, Nov 15, 2004.

56. "Introduction to Polymer Nanocomposites," **Rensselaer Nanotechnology's Chautauqua Course,** June 28-29, 2004.

55. With C. Li, B. Benicewicz, S. Kumar, A. Bansal, "Polymer Nanocomposites: Controlling the Interface," **Northeast Regional Meeting of the American Chemical Society**, Rochester, NY, Nov 1-3, 2004.

54. With A. Bansal, C. Li, B. Benicewicz, S. Kumar, "Glass transition behavior of Silica/Polystyrene nanocomposites: a new perspective" **European Materials Research Society**, Strasbourg, France, May, 2004.

53. With B. Benicewicz, C. Li, A. Bansal, "Designed Polymer Nanocomposites Through Controlled Interfaces," **Eastman Kodak Company**, May, 2004.

52. With P. Bhimaraj, A. Eitan, D. Ma, A. Bansal, R.W. Siegel, "Nanoparticle and nanotube filled polymers - It's all in the interface," **Particles 2004**, Orlando, FL, March, 2004.

51. "Polymer Nanocomposites – The Effect of the Interface on Properties," **Northwestern University**, April 2, 2004.

50. "Polymer Nanocomposites – It's All in the Interface," **SUNY Binghamton,** April 21, 2004.

49. "Polymer Nanocomposites – It's All in the Interface," **Composites Gordon Conference**, January 4-9, 2004.

48. "Polymer Nanocomposites – Property Control via the Interface," **General Electric Global Research Center**, October 16, 2003.

47. "Nanomaterials," **Union College** Freshmen Course in Engineering, September 23, 2003.

46. "Polymer Nanocomposites – The Interface and the Second Mechanism of Reinforcement?" **Wright Patterson Air Force Base**, Dayton, OH, August 7th, 2003.

45. Eminent Scientist Lecture "Composite Interfaces: A Perspective on Combining Research, Teaching, and Family Life," **NERM 2003, Northeast Regional American Chemical Society Meeting**, Saratoga Springs, NY, June 15-18, 2003.

44. "Polymer Nanocomposites – Engineering Development and Fundamental Understanding," **NERM 2003, Northeast Regional American Chemical Society Meeting**, Saratoga Springs, NY, June 15-18, 2003.

43. "Nanomaterials – What's New, What's Different, What's Commercially Promising," **NYS DOT**, Saratoga Springs, NY, May 29, 2003.

42. "Polymer Nanocomposites – Is Smaller Better?" **University of Illinois Urbana Champaign**, Urbana-Champaign, IL, February 4, 2003.

41. "Polymer Nanocomposites – A Look at How Small is Big" – **Polymer Gordon Conference,** Ventura, CA, January 6-9, 2003.

40. "Polymer Nanocomposites – Is Smaller Better?" **Eastman Kodak Company**, Rochester, NY, October 29, 2002.

39. "Nanotechnology and Wire," **WireDrawing 101 short course**, Latham, NY, November 6, 2002.

38. "Applications of Nanocomposites," **Union College**, Schenectady, NY, November 5, 2002.

37. "Polymer Nanocomposites – Is Smaller Better?" **Mt. Holyoke College**, South Hadley, MA, October 3, 2002.

36. "Polymer Nanocomposites – Is Smaller Better?" **Los Alamos National Laboratory**, Los Alamos, NM, September 12, 2002.

35. "Polymer Nanocomposites – Is Smaller Better?" **Cornell University**, Ithaca, NY, November 14, 2002.

34. "Nanocomposites – Is Smaller Better?" **Benet Labs**, Watervliet, NY, July 25, 2002.

33. "An Introduction to Materials Engineering," **Flying Cloud Institute**, Science and Art for Young People, Simon's Rock College, New Marlborough, MA, July 29, 2002.

32. With J.B. Hudson, J. Moore, "A Studio Version of Introduction to Materials," Fall Meeting of the **Materials Research Society**, Dec 2-6, 2002.

31. "Nanocomposites – Is Smaller Better?" **Union College**, Schenectady, NY, June 6, 2002.

30. With A. Eitan, K. Jiang, P.M. Ajayan, R.W. Siegel, R. Andrews, "Mechanical Properties of MWNT / Polymer Composites: The Effect of Dispersion and Interface Chemistry," 10th **US-Japan Conference on Composite Materials**, Stanford University, Stanford, CA, September 16-18, 2002.

29. "Nanocomposites – Is Smaller Better?" **St. Rose College**, Albany, NY, April 17, 2002.

28. "Properties of Nanoparticle and Carbon Nanotube Filled Polymers," **Université Catholique de Louvain**, Louvain-la-Neuve, Belgium, November, 2001.

27. "Issues in the Processing and Properties of Carbon Nanotube Composites," Fall Meeting of the **Materials Research Society,** Boston, MA, November, 2001.

26. "Properties of Polymer Nanocomposites," **UMASS Amherst**, Polymer Department Seminar Series, Amherst, MA, November, 2000.

25. "Carbon Nanotubes as Reinforcing Materials," Keynote Lecture, **American Carbon Society Workshop 2000**, Clemson University, October, 2000.

24. "Polymer Nanocomposites," **NASA Langley** Materials and Structures Branch Seminar, Hampton, VA, October, 2000.

23. With R.W. Siegel, P.M. Ajayan, R. Doremus, B.J. Ash, J. Stone, S.K. Chang, "Nanostructured Composites," **Nano2000**, Sendai, Japan, August, 2000.

22. "Nanoparticle Filled Polymer Composites", **Composites Gordon Conference**, Ventura, CA, January 10-15, 2000.

21. "Micro Raman Spectroscopy: a Tool for Measuring Micromechanical Properties," **ASM/TMS Spring Symposium**, General Electric Corporate Research and Development Center, Niskayuna, NY, April 26, 2000.

20. With P.M. Ajayan, C. Giannaris, "Some Thoughts on Load Transfer in Carbon Nanotube / Polymer Composites," **Nanospace 2000**, Houston, TX, January, 2000.

19. "Designing Materials One Molecule at a Time," an invited talk by the local AAUW chapter to local High School Students, **General Electric Corporate R & D**, Niskayuna, NY, November 17, 1999.

18. "Designing Materials One Molecule at a Time," Keynote lecture **at Glens Falls High School Science Symposium**, Glens Falls, NY, May, 1999.

17. With R.W. Siegel and P.M. Ajayan, "Mechanical Properties of Polymer Nanocomposites," **Adhesive and Sealants Council Annual Meeting**, Pittsburgh, PA, October 24-27, 1999.

16. "Mechanical Properties of Nanocomposites," **Swiss-US-Forum on Nanoscience and Nanotechnology**, Zurich, Switzerland, September 20 – 22, 1999.

15. With R.W. Siegel, C.B. Ng, R. Webber, P. Hess, B. Benicewicz, "Mechanical Behavior of Nano-TiO_2 Filled Polymer Composites," **Fall TMS meeting**, Cincinnati, OH, October 30 – November 3, 1999.

14. With R.W. Siegel, R. Doremus and P.M. Ajayan, "Nanostructured Composites," **Army Sagamore Materials Research Conference on Nanostructured Materials**, Easton, MD, August, 1999.

13. "Polymer Composites: A Look at Mechanical Behavior From the Inside Out," **Carnegie Mellon University**, Pittsburgh, PA, March 8, 1999.

12. "Micromechanical Behavior of Graphite/Epoxy Composites in Compression," **Composites Gordon Conference,** Ventura, CA, January 4-9, 1998.

11. "A Glimpse at the Mechanical Behavior of Nanoparticulate Filled Polymers," **GE Plastics**, Selkirk, NY, September 18, 1998.

10. With S. Naryanan, M. Amer, S.L. Phoenix, I.J. Beyerlein, "The Effect of Interface Strength and Ductility on the Mechanical Behavior of Graphite / Polymer Composites," Fall Meeting of the **Materials Research Society**, Boston, MA, December 1-5, 1997.

9. "Micromechanics of Failure Initiation in Graphite/Polymer Composites: A Study using Micro Raman Spectroscopy," **Composite Materials, Issues in Processing and Mechanics**, a NSF sponsored workshop, Ruidoso, NM, October 5-8, 1997.

8. "Advanced Experimental Techniques for Micromechanical Measurements," **25th Midwestern Mechanics Conference**, South Dakota School of Mines, SD, September 22-24, 1997.

7. "A Study of Fiber/Fiber Interaction in Graphite / Polymer Composites Using Micro Raman Spectroscopy", **Virginia Polytechnic Institute** Materials Seminar Series, Blacksburg, VA, April 30, 1997.

6. With M.S. Amer, B. Iskandarani, "A study of Interface Behavior in Graphite / Polymer Composites Using Micro Raman Spectroscopy," **Society of Engineering Science**, Tempe, AZ, October, 1996.

5. With M.S. Amer and M.J. Koczak, "Interface Degradation Mechanisms in Graphite / Epoxy Single and Multi-Fiber Composites," **AIChE**, Miami Beach, FL, November 12-17, 1995.

4. With A. Lawley, S.R. Kalidindi, "Materials Engineering Undergraduate Courses Developed Via the NSF/Gateway Program," **Fall TMS** meeting, Cleveland, OH, October 30 - November 2, 1995.

3. "Delaware Valley Forum: Discussion of Women in Engineering," **Channel 17,** Philadelphia, PA, April, 1993.

2. "A Study of Interface Behavior in Graphite/Polymer Composites using Micro Raman Spectroscopy," **Society of Engineering Science**, Texas A&M University, October 10 –13, 1994.

1. "Designer Materials," Young Engineers Night, **ASM International, Liberty Bell Chapter** meeting, Philadelphia, PA, November 16, 1994.

Research Grant Awards (PI unless otherwise noted)

Agency/Company	Title	*Period*	*Amount ($)*
Howard Hughes Medical Institute, Co-PI with J. Dickinson (UVM)	Fullfilling the Promise of *Our Common Ground:*Transforming UVM's Culture	2023-2028	$2.5M
National Science Foundation, DMREF, UVM PI, Collaborative with C. Brinson & C. Rudin (Duke), E. Roumeli (U. Wash), K. Sprenger (Colorado)	Collaborative Research: DMREF: Accelerated Discovery of Sustainable Bioplastics: Automated, Tunable, Integrated Design, Processing and Modeling	2023-2027	$364,000 (UVM Portion)
Department of Energy, Basic Energy Sciences Collaborative with S. Kumar (Columbia)	Non-Equilibrium Synthesis of Hierarchical Semicrystalline Polymer Architectures for Sustainability Applications	2024-2027	$340,000 (UVM portion)
National Science Foundation, UVM PI, Collaborative with C. Brinson (Duke), W. Chen, (NWU D. McGuinness (RPI)	Framework: Data: HDR: Nanocomposites to Metamaterials	2018-2023	~$105,000/year
Department of Energy, Basic Energy Sciences	Fundamentals of Scalable Nanoparticle Assembly in Engineering Polymers	2020-2023	$333,000
Department of Energy, Basic Energy Sciences	Using Crystallization to Control Filler Dispersion and Vice Versa in Polymer Nanocomposites	2017-2020	$335,000 (RPI /UVM portion)
National Science Foundation PI, Co-PI. C. Breneman, and	DMREF: A Data-Centric Approach for Accelerating the Design of Future Nanostructured	2017-2023	$730,000 (RPI/UVM

R. Sundararaman	Polymers and Composites Systems		portion)
National Science Foundation RPI, PI,	CIF21 DIBBs: PD: Ontology-enabled Polymer Nanocomposite Open Community Data Resource	2016-2018	$500,000
National Science Foundation	Fungal Based Biopolymer Composites – Structure/Property/Processing Relationships	2014-2017	$473,629 / 3 yrs
NYS NYSERDA	Novel high index, thermally conductive additives for high brightness white LEDS	2013-2014	$100K / 12 months
ABB Corporation	Nanocomposites for High Voltage Cable Applications	2013-2015	$400K/3 years
National Science Foundation RPI-PI Collaborative with C. Brinson. W. Chen, Northwestern University	NanoMine: Data Driven Discovery for Nanocomposites	2013-2016	RPI Share $120K / 3 years
National Science Foundation RPI-PI Collaborative with C. Brinson. W. Chen, Northwestern University	Collaborative Research: Engineering Polymer Nanodielectric Systems Using a Descriptor-Based Design Methodology	2013-2017	RPI Share $244,359 / 3 years
National Science Foundation PI: Johnson Samuel My Share 50%	A micro/nano-scale manufacturing course module aimed at addressing the technological relevance of the undergraduate manufacturing curriculum.	2013-2016	$245,402
Office of Naval Research PI: C. Breneman My share 30%	Computer Aided Design of Materials: Nanocomposites	2009 & 2010-2012, Renewed 2013-2016	$71,000 & $250K/year
National Science Foundation PI: R. Karlicek	Smart Lighting Engineering Research Center Materials Thrust	2008-2018	~ 1 students worth of funding
Sealed Air PI: Jon Dordick	Nanocomposites for food packaging	2010-2012	$75K/ year
EPRI Co-PI: Brian Benicewicz	Self Healing Nanodielectrics	10/11-3/12	$65,000
TetraGChem – subcontract on DOE STTR	Large-Scale SWNT Purification and Solubilization	1/1/10-5/31/10	$58,000
National Science Foundation PI: Dan Lewis My share (10%)	NUE: Integration of Nanotechnology Engineering Education into an Introductory Materials Course	2008-2011	$122,000
ABB Corporation Co-PI: R.W. Siegel (RPI)	Nanocomposites for High Voltage Cable Applications	2000-2012	$150,000/year
National Science Foundation Education and Outreach Coordinator, PI: R.W. Siegel	Nanoscale Science and Engineering Center for the Directed Assembly of Nanostructures	2001-2011	~$2 million / year for the whole Center
Electric Power Research Institute PI: J.K. Nelson Co-PI: B. Benicewicz	Self Healing Nanocomposites	2009 - 2010	$48,000
Electric Power Research Institute PI: J.K. Nelson	Moisture Migration and Impact in Nanocomposite Dielectrics for Utility Cable Applications	2008-2010	$87,000
Lockheed Martin – a few small contracts	Interface Behavior of Hierarchical Composites	2008-2009	~$70,000
Air Force Office of Scientific Research Co-PI: T. Blanchet (RPI)	DURIP: Nanotribological and Nanomechanical Testing Equipment in Support of the AFOSR MURI: Multifunctional Nanocomposites for Air	2007-2008	$322,365

	and Space Tribology		
Wright Patterson Air Force Base Co-PI with J.K. Nelson (RPI)	Nanodielectrics for Enhanced High Temperature Structures	2007-2010	$450,000
Northrup Grumman	Hierarchical Nanotube/Graphite Fiber/Epoxy Composites	2004-2006	$200,000
National Science Foundation PI: R. Ozisik (RPI)	Supercritical Fluid Assisted Processing of SWNT/Polymer Composites	2005-2009	$425,000
Plug Power Co-PI with G. Eisman (RPI)	Stack related Issues with respect to the Mechanical Properties of PBI Membrane and Electrode Assemblies	2005-2006	$180,000
National Science Foundation PI: L.C. Brinson (Northwestern) Co-PI: S. Kumar (RPI)	NIRT: Interphase Design for Extraordinary Nanocomposites: multiscale modeling and characterization	2004-2009	~$130,000/year to RPI
Air Force PI: W.G. Sawyer (U. Florida) Co-PI: T. Blanchet (RPI)	MURI: Multifunctional Tribological Coatings for Space Applications	2004-2009	~$190,000/year to RPI
Eastman Kodak Company Co-PI with R.W. Siegel (RPI)	Nanocomposites for Optical Applications	2000-2004	$120,000/year
Albany International Co-PI with R. Ozisik, R.W. Siegel (RPI)	Nanocomposites for Tribological Applications	2000-2004	$120,000/year
National Science Foundation Multi-investigator grant PI: M. Shephard (RPI)	Multiscale Systems Engineering of Nanocomposites	2003-2006	$550,000/year
National Science Foundation Co-PIs: R.W. Siegel, S. Garde (RPI)	The Molecularium: Supplement to NSEC for Directed Assembly of Nanostructures	2004-2007	$660,000
Army – Natick Soldier Center Co-PI: R. Doremus, R.W. Siegel (RPI)	SBIR (Phase I and II) Nanotube/Alumina Nanocomposites	2002-2004	$110,000
Office of Naval Research Co-PIs: S. Sternstein, P. Keblinski, C. Picu (RPI)	Modeling of Macromolecular Behavior in the Presence of Nanoscale Interfaces	2001-2005	$750,000
National Science Foundation Co-PI W.G. Sawyer (U Florida)	Wear of Polymer Nanocomposites	2003-2005	$180,000
National Science Foundation PI: G. Ramanath	Research Experiences for Undergraduates in Materials Science and Engineering	2001-2003	~75,000/year
National Science Foundation Co-PI: M. Tomozawa	Research Experiences for Undergraduates in Materials Science and Engineering	1998-2001	~70,000 / year
Army Natick Soldier Center PI: R.W. Siegel Co-PI: R. Doremus	Hierarchical Multilayered Nanocomposites for Ballistic Protection	2000-2003	$250,000/year
National Science Foundation Co-PI: D. Duquette, R.W. Siegel	A Ph.D. Co-Op Program	1999-2005	$277,000
National Science Foundation	Acquisition of a State of the Art Micro Raman Spectrometer	1999-2001	$166,000
National Science Foundation Co-PI: L. Phoenix (Cornell)	Creep Fatigue of Graphite / Polymer Composites: Experiments and Modeling to Predict Lifetime (with Cornell University)	1998-2001	$157,000 to RPI
National Science Foundation Co-PIs: S.S. Sternstein, B.C.	Mechanical and Molecular Behavior of Nanoparticle / Polymer Composites	1998-2001	$562,000

Benicewicz, R.W. Siegel (RPI)			
National Science Foundation Co-PI: J. Hudson	Hands on Modules for Use in a Chemistry of Materials Course	1998-2000	$100,000
National Science Foundation PI: J.B. Hudson	Full Integration of Classroom and Laboratory in a First Year Chemistry/Materials Course	1998-2000	$110,000
Amoco Corporation PI: S. Sternstein	High Thermal Conductivity Polymer Composites	1997-1998	$200,000
Office of Naval Research	Micromechanics of Compression Failure in Graphite / Polymer Composites and the Effect of Hydrothermal Exposure	1996-1998	$185,000
National Science Foundation	National Young Investigator	1994-1999	$62,500/year

Graduate Advising

Master's Degrees

Drexel University

Sung Chul Park	1994	Komal Laul	1995
Tam Phan	1996	David Bucci	1996
Lisa Kamdar	1997	Jung June Han	1999

Rensselaer

Chek Ng	"Mechanical Properties of Nanoparticle Filled Epoxy	1998
Brian Garland	"Damage Development of Aligned Continuous Fiber 1 Composites in Compression"	1999
Mike Mehan	"Stress Concentration in Short Fiber / Epoxy Composites Using Raman Spectroscopy"	1999
Tolga Goren	"Micromechanical Behavior of Carbon Nanotube-Covered SiC Fibers in Polymer Matrix Composites"	2009
Alisha Travelpeace	"Dielectric Integrity of High Temperature Nanocomposites"	2009
James Pressley	"Nanocomposites Assembled into Photonic Crystals"	2014
Richard Hutchinson	"Novel High Refractive Index, Thermally Conductive Additives for High Brightness White LEDs"	2015

University of Vermont

Mason Martell	"Effects of Crystallization on Micromechanical Behavior of Polyethylene Nanocomposites"	2023
Kevin Zuniga Cuellar	"Tools to Measure Dispersion Descriptors from Polymer Nanocomposites"	2022

Ph.D.s

Drexel University

Maher S. Amer	"Interfacial Micromechanics and Environmental Degradation in Graphite / Epoxy Composites: A Study Using Micro Raman Spectroscopy" ***Prof. Wright State University***	1995

Bassel Iskandarani	"Plasma Modification of Composite Interfaces: Effects Effects of Adhesion on Stress Concentration" ***Johnson and Johnson***	1996
E. Denise Williams	"Fracture Toughness of Short Fiber Reinforced Composites"	1997
Sundararaman Narayanan	"Micromechanical Study of Compression Failure In Graphite Reinforced Epoxy using Micro Raman Spectroscopy" ***Strategic Programs, Applied Materials .***	1998
Elena Petrovicova	"Structure and Properties of Polymer Nanocomposite Coatings" ***Director, Research and Development, Church & Dwight***	1999
Carie Wilkinson Major	"PSZ Toughening of Hydroxyapatite"	2000

Rensselaer Polytechnic Institute

Chaohui Zhou	"Time Dependent Micromechanics in Continuous Fiber / Epoxy Composites" ***Chomerics Asia Pacific at Parker Hannifin***	2002
Benjamin Ash	"Investigation of the Thermal and Mechanical Behavior of Alumina/Polymethylmethacrylate (PMMA) Nanocomposites" ***Senior Director, Manufacturing Operations, Kymeta Corporation***	2003
Dongling Ma	"Electrical Breakdown of Nanoparticle filled Polyethylene" ***Prof. U. Quebec***	2003
Ami Eitan	"Nanotube Polymer Composites: Tailoring the Interface for Improved Mechanical Properties." ***Director, TSMC***	2003
Zafer Evis	"Ceramic Coatings for Prosthesis" ***Assoc. Prof. Middle East Technical University***	2003
Nachiket Rararavikar	"Properties and Processing of Aligned Nanotube Composites" ***Director Display Engineering, Mojo Vision***	2004
Amitabh Bansal	"Mechanical Behavior of Nanoparticle / Amorphous Polymer Composites" ***Technology and Innovation Leader, Hexion***	2004
Praveen Bhimaraj	"Wear Behavior of Nanoparticle Filled Polyethylene Terephthalate" ***Engineering TD Manager, INTEL***	2004
Mihir Roy	"An examination of the Potential for Nanocomposites in the Formulation of High Voltage Cable Insulation" ***Engineering Manager, Synaptics Incorporated***	2005
Sarah Lewis	"Designed Interfaces in Polymer Nanocomposites" ***Research and Development Manager, Specialty Silicone Products***	2006

Su Zhao	"Mechanical and Thermal Properties of Nanoparticle Filled Epoxy Nanocomposites" ***Principle Scientist, ABB Research***	2007
Justin Bult	"Controlled Carbon Nanotube Synthesis For Quantification of Polymer-Nanotube Composite Micromechanics" ***Senior Staff Engineer, TESLA***	2007
Renee Duncan	"Micromechanical Behavior of Carbon Nanotube Composites" ***New Innovations Program Manager, Eastman***	2008
Chris Calebrese	"Experimental Study and Modeling of Swelling and Bubble Growth in Carbon Nanofiber Filled Mesophase Pitch During Carbonization" ***General Electric Corporate Research and Development***	2009
Xiaoping Wang	"High Field Non-linear Resistive SiC, ZnO-based Silicone Rubber Composites for Cable Field Grading Application: Mechanisms, Properties and Filler Treatment" ***Researcher in China***	2009
Doug Dukes	"Behavior of Grafted Polymers on Nanofillers and Their Influence on Polymer Nanocomposite Properties," ***Director of Technology Development, Pallidus Inc.***	2010
Iti Srivastava	"Mechanical Properties of Polymer Nanocomposites" ***Boeing Research and Technology***	2010
Limeng Chen	"Polymer Nanocomposite Foams Filled with Carbon Nanomaterials: Structure and Properties" ***R&D Manager, Cabot Corporation***	2010
Kerem Goren	"Foam Property Enhancement of Poly (methyl methacrylate)-Silica Nanocomposite Through Modified Nanofiller Interfaces" ***Düzce Cam Sanayi ve Tic. A.Ş.***	2011
Zepu Wang	"Dielectric and Electrical Properties of Polymer Composites with High Aspect Ratio Fillers" ***R&D Project Manager, Hitachi ABB Power Grids***	2012
Peng Tao	"Epoxy and Silicone Optical Nanocomposites Filled with Grafted Nanoparticles" ***Faculty Shanghai Jiao Tong University***	2012
Jianing Gao	"Mechanical Properties Of Rubbery Copolymer Grafted SiO_2 Filled Epoxy Nanocomposites" ***Senior Materials Engineering Lab Manager, Desktop Metal***	2012
Bharath Natarajan	"A Quantitative Exploration of the Effect of Interfacial Phenomena on the Thermomechanical Properties of Polymer Nanocomposites" ***Exxon Mobil***	2013
Ying Li	"Highly Integrated Surface Ligand Platform for	2014

	Multifunctional Polymer Nanocomposites and Their Applications in LED Lighting" ***Principle Scientist, Celgene, Inc.***	
Tim Krentz	"Dielectric Property Enhancement in Polymer Composites with Engineered Interfaces" ***Savanah River National Laboratory***	2016
Yanhui Huang	**"**Charge Transport and Dielectric Breakdown in Polymer Dielectrics and Their Composites," ***Process Manager, Lam Research***	2016
Emily Downs	"Protein-Nanoparticle Interactions: Improving Immobilized Lytic Enzyme Activitity and Surface Energy Effects"	2017
Marissa Giovino	"The Effect of Brush and Matrix Molecular Weight on the Viscoelastic and Mechanical Properties of Polymer Nanocomposites" ***ASML***	2018
Michael Deagan	"Soft Lithographic Printing of Mesoscale Periodic Structures" **Post Doc at MIT**	2018
Aditya Prasad	"Processing Structure Property Relationships For Polymer Dielectrics" ***Process Engineer Intel***	2018
Xin Ning	"Structure and Properties of Crystalline Polymer Nanocomposites: Filler Dispersion and Crystallization Behavior" ***Packaging R&D Engineer, Intel***	2019
Praveen Gupta	"Dielectric Properties of Interfaces in Polymer Nanocomposites along Two Lines" ***Intel***	2022

Current Students at UVM
Vighnesh Pai (Ph.D. Expected 2027), Sourena Azidahk (Ph.D. Expected 2026)

Post Doctoral Fellows

Maher Amer	Kuiyang Jiang	Quan Chen
Jung Il Hong	Jim Tkacik	Treese Hugener-Campbell
Steve Bartolucci	Simone Herth	Pinar Akcora
Meisha Shofner	Chris Calebrese	Zepu Wang
Irene Hassinger	M. Deagan	K. Bornani