

SUMMARY

Michael Kessler, the Berry Family Director and Professor of Mechanical and Materials Engineering, is the chief academic and administrative officer for the School of Mechanical and Materials Engineering (MME) at Washington State University (WSU), where he is responsible for teaching, research, and outreach in the mechanical engineering and materials science and engineering programs. He is charged with providing leadership to define and advance the school's academic and research agendas. The School of MME has 60 faculty and staff, about 1,200 students, and expenditures exceeding \$10M/year.

In addition to his responsibilities as school director and professor of MME, he is the founding co-director of the Center for Bioplastics and Biocomposites (CB²), a National Science Foundation (NSF) Industry and University Cooperative Research Center (I/UCRC) co-located at Washington State University and Iowa State University that focuses on developing high-value biobased products from agricultural and forestry feedstocks and sponsored by about 30 member companies and the NSF. He is also an affiliate faculty in the Composite Materials and Engineering Center at WSU.

An expert in the mechanics, processing, and characterization of polymer matrix composites and nanocomposites, his research thrusts include the development of multifunctional materials (including the development of self-healing structural composites), polymer matrix composites for extreme environments, bio-renewable polymers and composites, and the evaluation of these materials using experimental mechanics and thermal analysis. These broad-based topics span the fields of organic chemistry, applied mechanics, and processing science. He has extensive experience in processing and characterizing thermosets including those created through ring-opening metathesis polymerization (ROMP), such as poly-dicyclopentadiene, and the cyclotrimerization of cyanate ester resins.

He has developed an active research group with external funding of over eleven million dollars—including funding from the National Science Foundation, ACS Petroleum Research Fund, Strategic Environmental Research and Development Program (SERDP), Department of Defense, Department of Agriculture, and NASA. His honors include the Army Research Office Young Investigator Award, the Air Force Office of Scientific Research Young Investigator Award, the NSF CAREER Award, and the Elsevier Young Composites Researcher Award from the American Society for Composites. He has over 160 journal papers and 6600 citations, holds nearly 20 patents and provisional patents, edited 5 books, presented over 200 talks at national and international meetings, and serves as a frequent reviewer and referee in his field.

I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

A. Educational Background

University of Illinois at Urbana-Champaign; Ph.D., Theoretical and Applied Mechanics; May 2002
University of Illinois at Urbana-Champaign; M.S., Theoretical and Applied Mechanics; January 1998
LeTourneau University; B.S., Engineering (Mechanical), Math Minor, Summa Cum Laude; May 1996

B. Faculty Appointments

8/2013– present; Berry Family Director and Professor, School of Mechanical and Materials Engineering;
Washington State Univ.; Pullman, WA
2/2013– 8/2013; Wilkinson Professor in Interdisciplinary Engineering; Iowa State Univ.; Ames, IA
5/2013– 8/2013; Professor, Iowa State Univ.; Depart. of Materials Science and Eng.; Ames, IA
5/2010 – 5/2013; Associate Professor, Iowa State Univ.; Depart. of Materials Science and Eng.; Ames, IA
1/2011 – 8/2013; Associate Professor & Professor (by courtesy); Iowa State Univ.; Dept. of Mechanical Eng;
Ames, IA
8/2005 – 5/2010; Assistant Professor, Iowa State Univ.; Depart. of Materials Science and Eng.; Ames, IA
6/2002 – 8/2005; Assistant Professor, Univ. of Tulsa; Depart. of Mechanical Eng.; Tulsa, OK

C. Academic Leadership

8/2013– present; Director, School of Mechanical and Materials Engineering; Washington State Univ.; Pullman, WA

- Chief academic and administrative officer: 2 degree programs; four campuses; >45 faculty (35 tenure-track); 15 research faculty, AP, and classified Staff; >1000 undergraduate students; >170 graduate students; >\$10M budget.
- Grew the research funding (expenditures) by >60% from \$3.5M in 2012 to \$5.7M in 2015.
- Recruited and hired 10 new tenure-track faculty and 8 non-tenure-track faculty
- Successful faculty retention

2014 – present; Co-Director, Center for Bioplastics and Biocomposites; NSF I/UCRC

- Co-Founder and Co-Director of National Science Foundation Industry/University Cooperative Research Center (NSF I/UCRC) with about 30 member companies, co-located at Washington State University and Iowa State University, and focused on developing high-value biobased products from agricultural and forestry feedstocks.

D. Other Professional Employment

8/2001 – 5/2002; Beckman Institute Graduate Research Fellow, University of Illinois; Urbana, IL

7/1998 – 7/2001; Graduate Research Assistant, University of Illinois; Urbana, IL

9/1997 – 7/2001; Laboratory Manager, University of Illinois, Composites Manufacturing Lab; Urbana, IL

8/1996 – 6/1998; Graduate Teaching Assistant, University of Illinois; Urbana, IL

5/1995 – 8/1995; Engineering Intern, Galtronics Ltd.; Tiberias, Israel

E. Honors, Recognitions, and Outstanding Achievements

- Who is Who in Thermal Analysis and Calorimetry, 2nd Edition, 2014 – *published by Springer in 2014 in the Hot Topics in Thermal Analysis series.*
- Fellow of the North American Thermal Analysis Society; NATAS Fellows Award Recipient, 2013.
- International Advisory Board member of Springer Series on Polymer and Composite Materials (<http://www.springer.com/series/13173>), 2013-present.
- International Advisory Board member of *Composites Research*, International Journal published bi-monthly by the Korean Society for Composite Materials, 2013-present.
- Kavli Fellow, National Academy of Sciences – Invited participant in the National Academy of Science's Israeli-American Frontiers of Science Symposiums, Irvine, CA, June 16-18, 2013 and Jerusalem, Israel, February 22-26, 2015. – *Attendees are selected by a committee of Academy members to bring together outstanding young scientists (under 45 years of age) to discuss exciting advances and opportunities in a broad range of disciplines.*
- Selected for Fulbright US Scholar Award from the US-UK Fulbright Commission (2013-14 Fulbright Awards competition cycle)—declined to accept the director position at Washington State University.
- Wilkinson Endowed Professorship in Interdisciplinary Engineering, 2013.
- Nominated by Iowa State University to participate in the Defense Science Study Group (DSSG), 2013.
- Vice Chair for the 19th International Conference on Composite Materials (ICCM19), representing the American region, July 28-August 2, 2013, Montreal, Canada.
- Research Recognition Award, NASA Iowa Space Grant Consortium, July 2012.
- Iowa State University Award for Early Achievement in Research, 2011. – *This award recognizes a faculty member who, unusually early in his or her professional career, has demonstrated exemplary research performance or scholarship accomplishments as documented by peers and experts in the field*
- Conference Chair of the 39th Annual Conference of the North American Thermal Analysis Society, August 7-10, 2011, Des Moines, IA.

- Akinc Excellence in Research Award, Materials Science and Engineering Department, 2010-2011.
- Invited participant in the National Academy of Engineering's Frontiers of Engineering Education (FOEE) Symposium, 2010. – *The participants were nominated by fellow engineers or deans and chosen from a highly competitive pool of applicants.*
- National Science Foundation's CAREER Award, 2010-2015.
- Elsevier Young Composites Researcher Award from the American Society for Composites, 2009 – *awarded to "a member of the composites community who early in their career has made a significant impact on the science and technology of composite materials through a sustained research effort."*
- Akinc Excellence in Teaching Award, Materials Science and Engineering Department, 2007-2008.
- Air Force Office of Scientific Research Young Investigator Award, 2008-2010.
- Army Research Office Young Investigator Award, 2004-2007.
- Registered Professional Engineer in the state of Iowa (Certificate No. 17762), 2006-Present.
- Selected as Faculty Escort (Graduate College) for the summer 2007 ISU Commencement Ceremony.
- American Society of Engineering Education (ASEE) Best Paper Award in Instrumentation Division at the 2005 ASEE Annual Conference and Exposition.
- Elected Member of Sigma Xi, The Scientific Research Society, 2006.
- Honorable Mention Award for the best paper in New Materials and Equipments Division at the Rio Pipeline Conference and Exposition 2005.
- Ph.D. thesis research on autonomic healing plastic was selected by *Popular Science* as one of their Top Ten Science Stories of 2001 (for details see pg. 52 of January 2002 issue). Other top stories included a 3.5-million-year-old human fossil, stem cell research, and the first nano-circuit.
- *Science News* listed research on self-healing materials as one of the top technology stories of 2001. *Science News*, Vol. 160, No. 25, December 22, 2001, p. 402.
- American Society for Composites (ASC) Best Paper Award in Polymer Matrix Composites Division at 16th Annual ASC Technical Conference 2001.
- Selected based on outstanding research quality to represent the University of Illinois and the Science Coalition to meet with U.S. congress and senate members to encourage support of federal investment in the sciences and engineering through NSF, NIH, NASA, DOD, NOAA, NIST, USDA, and DOE research accounts. Science Day, July 11-12, 2001.
- Beckman Institute Graduate Fellow, 2001, 2002.
- The Tech Museum of Innovation Award Finalist for Technology Benefiting Humanity, San Jose, CA. Fall 2001, for work on self-healing polymers.
- Louis J. Larson Graduate Award – Department of Theoretical and Applied Mechanics, 2001.
- General Electric Teaching Incentive Grant, August 2000.
- Phi Kappa Phi Honor Society.
- 2nd Prize in the First Annual Entrepreneurial Engineering Center Idea and Innovation Competition, Univ. of Ill., May 2000.
- Named to "Incomplete List of Teachers Ranked as Excellent by Their Students" published by the *Daily Illini* for Spring 1997, Spring 1998.
- Sigma Gamma Tau – National Honor Society for Aerospace Engineering.
- Pierre E. Tangent Memorial Scholarship for academic achievement, Spring 1997.
- Recipient of LeTourneau University's Outstanding Junior Engineering Student Award, 1995.
- Gold Key Honor Society, LeTourneau University, 1995.
- Chairman (1994-1995) and (1995-1996), Vice Chairman (1993-1994) L. U. Student Section American Society of Mechanical Engineers (ASME).
- LeTourneau University Student Senate, 1995-1996.
- National Collegiate Engineering Award, 1995, 1996.
- Presidential Scholarship, LeTourneau University, 1992-1996.

F. Formally Invited Lectures and Invited Conference Presentations

Invited Seminars at Universities, Government Labs, and Technical Forums

28. M. R. Kessler, "Multi-functional Liquid Crystalline Epoxy Networks" Golden Gate Polymer Forum Dinner Lecture, January 19, 2016, Mountain View, CA.
27. M. R. Kessler, "Bioplastics and Biocomposites Research at Washington State: Thermosetting Polymers and Composites from Agricultural Oils" Distinguished Lecture Series in Mechanical Engineering, Mississippi State University, October 19, 2015, Starkville, MS.
26. M. R. Kessler, "Scalable Methods for the Utilization of Multi-walled Carbon Nanotubes in Polymer Composites" Pacific Northwest National Laboratory, June 25, 2015, Richland, WA.
25. M. R. Kessler, "Multifunctional Self-Healing Polymer Composites" University of Idaho, Department of Chemistry, Graduate Seminar Series, September 16, 2014, Moscow, ID.
24. M. R. Kessler, "Sustainable Polymers: Thermosets from Agricultural Oils" Washington State University, Biological Systems Engineering Graduate Seminar Series, April 25, 2014, Pullman, WA.
23. M. R. Kessler, "Sustainable Polymers: Thermosets from Agricultural Oils" University of Idaho, Materials Advantage Seminar Series, December 12, 2013, Moscow, ID.
22. M. R. Kessler, "Multifunctional Self-Healing Polymer Composites" Washington State University, Mechanical and Materials Engineering Graduate Seminar Series, September 26, 2013, Pullman, WA.
21. M. R. Kessler, "Sustainable Polymers: Thermosets from Agricultural Oils" Washington State University, Materials Science and Engineering Program Colloquia, August 30, 2013, Pullman, WA.
20. M. R. Kessler, "Thermosetting Polymers from Agricultural Oils" Iowa State University, Department of Food Science and Human Nutrition, Graduate Seminar Series, September 26, 2012, Ames, IA.
19. M. R. Kessler, "Thermosetting Polymers from Agricultural Oils" University of Surrey, Division of Civil, Chemical and Environmental Engineering, June 22, 2012, Guildford, UK.
18. M. R. Kessler, "Thermosetting Polymers from Agricultural Oils" University of York, Green Chemistry Centre of Excellence, June 15, 2012, York, UK.
17. M. R. Kessler, "Recent Advances in Self-healing Polymer Composites" National Institute of Standards and Technology (NIST), January 26, 2012, Gaithersburg, MD.
16. N. Bowler, L. Li, P.R. Hondred, T. Chen, and M.R. Kessler, "Dielectric Properties of Wiring Insulation Polymers in Response to Thermal, Hydrolytic and Mechanical Aging, and a Capacitive Sensor for Inspecting Wiring Insulation, NASA Langley Research Center Nondestructive Evaluation Sciences Branch, Hampton, VA, June 24, 2011.
15. M. R. Kessler, "Polymer Nanocomposites for Enhanced Toughness and Tailored Thermal Expansion" Iowa State University, Department of Mechanical Engineering, Graduate Seminar Series, January 18, 2011, Ames, IA.
14. M. R. Kessler, "Toughness Enhancement in Ring Opening Metathesis Polymerization Based Nanocomposites" Toughness in Polymers Workshop, Sponsored the University of Minnesota's IPrime and MRSEC, January 14, 2010, Minneapolis, MN.
13. M. R. Kessler, "Multifunctional Composite Materials" Iowa State University, Department of Chemical Engineering, Graduate Seminar Series, January 28, 2010, Ames, IA.
12. Michael Kessler, "Multifunctional Composite and Autonomic Materials" NASA Glenn Research Center, December 16, 2009, Cleveland, OH.
11. N. Bowler, L. Li, P. Hondred, T. Chen, M. R. Kessler, "Investigation of Dielectric and Thermal Properties of Wire Insulating Polymers for Development of Capacitive Nondestructive Evaluation" Inter-agency S&T Wiring Review, NASA Kennedy Space Center, December 8-10, 2009, Merritt Island, FL.
10. M. R. Kessler, "New Directions and Chemistries in Self-healing Structural Polymers" Drake University Chemistry Colloquium Series, November 6, 2009, Des Moines, IA.

9. M. R. Kessler, "Self-healing Fiber-reinforced Polymers: A New Paradigm in the Design of Composite Materials" Oklahoma State University, May 11, 2009, Stillwater, OK.
8. M. R. Kessler, "Self-healing Fiber-reinforced Polymers: A New Paradigm in the Design of Composite Materials" Cornell University, Department of Fiber Science Seminar Series, March 12, 2009, Ithaca, NY.
7. M. R. Kessler, "Self-healing: A New Paradigm in the Design of Composite Materials" University of Iowa, Department of Mechanical Engineering Seminar Series, October 9, 2008, Iowa City, IA.
6. M. R. Kessler "Multi-functional Self-healing Composite Materials" Department of Civil Engineering, Iowa State University, Geotechnical and Materials Engineering Seminar Series. January 31, 2007, Ames, IA.
5. M. R. Kessler "Self-healing: A New Paradigm in Materials Design" MSE Fall 2006 Seminar Series, December 7, 2006, Iowa State University. Ames, IA.
4. M. R. Kessler "Recent Research Trends in the US: Multifunctional Composites and Autonomic Materials: Part 2" *Distinguished Scholar Seminar*. June 8, 2005, Kumoh National Institute of Technology. Gumi, Gyungbuk, Korea.
3. M. R. Kessler "Recent Research Trends in the US: Multifunctional Composites and Autonomic Materials: Part 1" *Distinguished Scholar Seminar* sponsored by Korea's New University for Regional Innovation (NURI) Fund and Brain Korea 21 (BK21). June 7, 2005, Kumoh National Institute of Technology. Gumi, Gyungbuk, Korea.
2. M. R. Kessler "A Material Fix: Multifunctional Autonomically Healing Composite Material" Invited Seminar at NASA Jet Propulsions Lab. November 10, 2003, Pasadena, CA.
1. M. R. Kessler "Self-healing of Composite Using Embedded Microcapsules: Repair of Delamination Damage in Woven Composites" Invited Seminar at NASA Langley Research Center. December 9, 2002, Hampton, VA.

Invited Workshop Presentations

17. M. R. Kessler "Low Thermal Expansion Composites: Nano-Zirconium Tungstate Reinforcement and Liquid Crystalline Epoxy Resins" AFOSR 2014 Low Density Materials Program Review, June 11, 2014. Arlington, VA.
16. T. Garrison, M. R. Kessler, R. Larock "Practical Waterborne Agricultural Oil-Based Coatings", 2014 Consortium for Plant Biotechnology Research (CPBR) Symposium, March 4, 2014, Washington, D.C.
15. T. Garrison, M. R. Kessler, "Fiberglass Reinforced Polymers from Agricultural Oils", 2014 CPBR Symposium, March 4, 2014, Washington, D.C.
14. M. R. Kessler, "Aerospace Research and Education at Washington State University", King County Aerospace Alliance, Quarterly Meeting, December 4, 2013, Redmond, WA.
13. N. Bowler, C. S. Daily, W. X. Sun, D. M. Rock and M. R. Kessler, "Nano-scale Effects on Dielectric Properties of Composite Materials", IEEE Technical Committee on Nanodielectrics workshop, October 2013, Shenzhen, China.
12. M. R. Kessler "Low Thermal Expansion Composites: Nano-Zirconium Tungstate Reinforcement and Liquid Crystalline Epoxy Resins" AFOSR 2014 Low Density Materials Program Review, June 10, 2013. Arlington, VA.
11. M. R. Kessler, "Thermal Analysis Applied to Self-healing Polymers and Composites" 2012 TA Instruments Users Meeting, April 29-May 2, 2012. New Orleans, LA.
10. M. R. Kessler, "Thermal Analysis and Rheology of Thermosetting Polymers" Webinar sponsored by TA Instruments, December 5, 2011 (over 850 people registered to attend this webinar) - ([URL](#)).
9. M. R. Kessler, "Multifunctional Polymer Matrix Composites" 2011 Great Midwestern Space Grant Regional Meeting, October 3-5, 2011. Urbana-Champaign, IL.

8. M. R. Kessler and P. Badrinarayanan, "Cyanate Ester Based Hybrid Composites with Tailored Thermal Expansion" AFOSR 2011 Low Density Materials Program Review, January 4-5, 2011. Arlington, VA.
7. M. R. Kessler, "Cyanate Ester Resins Modified with Nano-Particles for Inclusion in Continuous Fiber Reinforced Composites" AFOSR 2009 Low Density Materials Program Review, October 8-9, 2009. Arlington, VA.
6. T. Mauldin and M. R. Kessler, "Structural Composites with Self-Healing Functionality: Healing Agent Development," Composite Durability and Multifunctional Materials for Facilities, Workshop sponsored by the ERDC-CERL, June 25, 2008. Champaign, IL.
5. M. R. Kessler, "Cyanate Ester Resins with Negative Thermal Expansion Nano-Fillers for Inclusion in Fiber Reinforced Composites" AFOSR 2008 Polymer Chemistry Program Review, May 5-9, 2008. College Park, MD.
4. M. R. Kessler "Materials with Structural and Power Roles: Challenges and Opportunities in Multifunctional Composites" Annual Meeting of the Technical Cooperation Programme (TTCP-MAT-TP1-TP8). March 6, 2007, Halifax, Nova Scotia, Canada. **Keynote Lecture.**
3. M. R. Kessler and M. Akinc "Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites" Brief to the Scientific Advisory Board of the Strategic Environmental Research and Development Program (SERDP). Washington, D.C. September 12, 2006.
2. M. R. Kessler "Self-healing Composites at Iowa State University" Invited Seminar for Department of Defense (ARO) Sponsored Workshop on Self-Healing Materials. January 4-5, 2006, Research Triangle Park, NC.
1. M. R. Kessler and J. M. Wilson "Overview of Composite Repair System Research for High Risk Applications" Invited Seminar for ASME Special Working Group on Non-metallic Composite Repair Systems for Pipelines and Pipework of ASME's Post Construction Repair Committee. December 14, 2004, San Francisco, CA.

G. Offices Held in Professional Societies

- Secretary (2007-2008), Treasurer (2008-2009), Program Vice-Chair (2009-2010), Program Chair (2010-2011), Division Chair (2011-2012), New Engineering Educators Division, American Society of Engineering Education.
- Program Chair (2011-2012), Division Chair (2012-2015), Immediate Past Chair (2015-present), Materials Division, American Society of Engineering Education – a division of over 800 materials engineering educators.
- Academic Liaison for the North American Thermal Analysis Society (NATAS), 2006-Present.

H. Editorships of Journals or Other Learned Publications

- Editorial Board Member, *Composite Communications*, Published by Elsevier, 2015-Present
- Editorial Advisory Board, *Polymers and Polymeric Composites – A Reference Series*, Springer, 2015-Present.
- Editorial Advisory Board, *Encyclopedia of Polymers and Composites*, Springer, 2013-2015.
- International Advisory Board of *Springer Series on Polymers and Composite Materials* (www.springer.com/series/13173), 2013-Present
- International Advisory Board of *Composites Research*, formal journal published bi-monthly by the Korean Society for Composite Materials (KSCM), 2012-Present.
- Editorial Board Member, *Journal of Multifunctional Composites*, 2012-Present.
- Editorial Board Member, *International Journal of Materials Engineering Innovation (IJMatEI)*, 2008-2013.
- Editorial Board Member, *The Open Process Chemistry Journal*, 2007-2008.
- Co-Editor-in-Chief, *The Open Process Chemistry Journal*, 2008-2012.

- Guest Editor, *Journal Thermal Analysis and Calorimetry (JTAC)* Special Issue with selected contributions from the 2011 NATAS Annual Conference. Vol. 109, Issue 3, 2012.
- Guest Editor, *Polymer Reviews*, Special Issue on Composite Materials, Vol. 52, Issue 3, 2012.

I. Grants and Contracts Received

65. co-PI with H. Liu, J. Zhang, M. Kessler, M. Wolcott, and W. Zhong “Advanced Functional Fabrics of America Institute Partnership”, 1/1/2016-12/31/2021.
64. **PI** with J. Zhang “Bio-based Acrylonitrile for Low-Cost, Renewable Carbon Fiber” Joint Center for Aerospace Technology Innovation (JCATI), July 2015-June 2016, \$84,060.
63. WSU **PI** and Site Director “Collaborative Research: I/UCRC: Center for Bioplastics and Biocomposites” NSF, September 2014 to September 2019, \$324,995.
62. **PI** “Ballistic Response of Carbon Nanotube Enhanced Poly(dicyclopentadiene): Sample Preparation & Collaborative Testing” Army Research Lab, John Hopkins University (Prime), June 2014-December 2015, \$49,458.
61. **PI** with S. Madbouly “Acquisition of an Advanced Instrument for Rheological and Dielectric Characterization of Polymer Composites” Department of Defense University Research Instrumentation Program (DURIP), June 2013-June 2014, \$276,143.
60. Co-PI with Y.A. Lee (PI), C. Farr, C. Xiang, “Developing Sustainable Products Using Renewable Cellulose Fiber and Biopolymer Composites” Environmental Protection Agency (EPA) P3 Award Program, August 2013 to August 2014, \$15,000.
59. Co-PI with D. Grewell (PI), D. H. Jarboe “Center for Bioplastics and Biocomposites Planning Grant” NSF, January 2013 to December 2014, \$15,940. (~33% allocated to MRK)
58. Co-PI with J. Alleman (PI) “Concrete Brick Preparation and Concrete and Lunar and/or Martian Regolith Simulant Brick Testing” NASA, December 2012 to September 2013, \$24,963. (~50% allocated to MRK)
57. **PI** “Development of Long Term Creep Curves for Five PVC Samples from Various Extrusion Suppliers Using DMA and Superposition Techniques” Pella Corporation, October 2012 to September 2013, \$11,407.
56. Co-PI with M. Frank (PI), S. Sritharan, F. Peters, & E. Takle “Collaborative Research: Planning Grant: I/UCRC for Wind Energy, Science, Technology, and Research (WindSTAR)”, NSF, June 2012 to May 2013, \$11,500.
55. Co-PI with S. Laflamme (PI), R. Geiger, K. Rajan, N. Bowler “Sensing Skin for Automated Condition Assessment of Wind Turbine Blades” IAWIND, August 2012 to July 2015, \$256,689 plus matching contribution from Heartland Energy Solutions (~20% allocated to MRK).
54. **PI** “Bio-based Inks from Nitro-lignin”, Siegwerk USA Co., May 2012 to April 2014, \$191,117.
53. Co-PI with D. Grewell (PI) “Development of Soy-Based Rubber and Soy Rubber Composites” United Soybean Board, June 2012 to May 2013, \$82,631. (~40% allocated to MRK)
52. **PI** “Nano-Zirconium Tungstate Reinforced Liquid Crystalline Thermosetting Composites with Near Zero Thermal Expansion”, Air Force Office of Scientific Research, June 2012 to June 2015, \$428,089.
51. **PI** “Supplement of Summer Internship—Bio-based Resin for Wind Turbine Applications” IAWIND, May 2012 to May 2013, \$10,000.
50. Co-PI with R. Larock (PI) and Byron Brehm-Stecher “Practical Waterborne Agricultural Oil-Based Coatings”, The Consortium for Plant Biotechnology Research, January 2010-December 2013 \$175,076 plus \$175,076 matching contribution from Iowa State and Archer Daniels Midland. (~40% allocated to MRK)

49. Co-PI with William Graves (PI), D. Grewell, B. Kirwan, H. Kratsch, H. Mathers, J. Schrader, and R. Stewart, “Bioplastic Container Cropping Systems: Green Technology for the Green Industry” USDA/SCRI, October 2011-March 2015, Funded \$2,094,137. (~15% allocated to MRK)
48. Senior Personnel with J. McCalley et al. “IGERT: A New PhD Program in Wind Energy Science, Engineering and Policy (WESEP)”, NSF, September 2011-August 2016, Funded \$3,100,000 (*Not included in total below*).
47. **PI** “Zirconium Tungstate/Epoxy Nanocomposites with Low Thermal Expansion for Conformal Coatings – Phase II,” Honeywell Federal Manufacturing and Technologies, LLC, National Nuclear Security Administration, September 2011-September 2012, Funded \$140,657.
46. Senior Personnel with R. Brown et al. “Iowa EPSCoR: Harnessing Energy Flows in the Biosphere to Build Sustainable Energy Systems”, NSF, August 2011-August 2016, Funded \$20,000,000 (*Not included in total below*).
45. science-**PI** with B. Wei (administrative-PI), “Polyurethanes from Vegetable Oil-based Polyols,” Kumho Petrochemical Co., Ltd., August 2011-July 31, 2012, Funded \$105,000 (with option for 3 year renewal at \$105K/year). (~90% allocated to MRK)
44. science-**PI** with B. Wei (administrative-PI) and P. Badrinarayanan, “Novel Hybrid Functionalization Strategies for Muti-walled Carbon Nanotubes-Epoxy Composites,” Kumho Petrochemical Co., Ltd., August 2011-July 31, 2012, Funded \$105,000 (with option for 3 year renewal at \$105K/year). (~90% allocated to MRK)
43. **PI** “Travel Proposal to ICCM 18 in Jeju, Korea”, Iowa State University Foreign Travel Grant Application, November 2007, Funded \$1,499.
42. Senior Personnel with E. Takle (PI) and J. McCalley on REU Site: “Wind Energy Science, Engineering, and Policy”, NSF, April 2011-March 2014, Funded \$399,239. (*Not included in total below*).
41. **PI** with P. Badrinarayanan, “Zirconium Tungstate/Epoxy Nanocomposites with Low Thermal Expansion for Conformal Coatings– Phase I,” Honeywell Federal Manufacturing and Technologies, LLC, National Nuclear Security Administration, March 2011-September 2011, Funded \$69,942. (100% allocated to MRK)
40. **PI** with M. Akinc, “Environmentally Benign Injection Repairs of High Temperature Composites with Cyanate Ester Resins,” The Environmental Security Technology Certification Program (ESTCP), Naval Air Systems Command, Fleet Readiness Center East at Cherry Point, NC (Prime), March 2011-January 2014, Funded \$675,000. (~50% allocated to MRK)
39. **PI** “CAREER: Multifunctional Biorenewable Polymers” National Science Foundation, July 2010-June 2015, Funded \$400,001.
38. **PI** with R. Larock “Fiberglass Reinforced Polymers from Agricultural Oils”, The Consortium for Plant Biotechnology Research, January 2010-December 2012 \$205,000 plus \$205,000 matching contribution from Iowa State and Ashland Performance Materials. (~50% allocated to MRK)
37. **PI** with D. Grewell “Advanced Carbon Fibers from Lignin for Wind Turbine Applications” Iowa Alliance for Wind Innovation and Novel Development (IAWIND), July 2010 to December 2012, \$100,000 plus \$100,000 from Siemens Energy and Iowa State. (~50% allocated to MRK)
36. Co-PI with X. Tan (PI) and Z. Lin “Design and Fabrication of Flexible Piezoelectric Composites for NDE Applications up to 150°C” Year 2, Air Force Office of Scientific Research (CNDE at ISU prime), July 2009-August 2010, Funded \$182,503. (~33% allocated to MRK)
35. **PI** with N. Bowler, X. Tan, Z. Lin, and O. Zhupanska (Univ. of Iowa) “Multifunctional Polymer Matrix Composites” NASA EPSCoR, September 2009-August 2013, Funded, \$700,708 (direct cost). (~25% allocated to MRK)
34. **PI** “Self-healing Polymer Composites Based on ‘Click-Chemistry’” U. S. Army Corps of Engineers, Engineer Research and Development Center, Construction Engineering Research Laboratory, 2009-2011, Funded \$152,281.

33. **PI** with S. Martin “Rapid Heat Cool DSC for Polymer Composites and Mobile Cation Glass Transition” TA Instruments, 2008, Instrumentation Grant, Funded *estimate* \$100,000 (*Not included in total below*).
32. Co-PI with X. Tan (PI) and Z. Lin “Design and Fabrication of Flexible Piezoelectric Composites for NDE Applications up to 150°C” Air Force Office of Scientific Research (CNDE at ISU prime), 2008-2009, Funded \$71,974. (~33% allocated to MRK)
31. Co-PI with R. Larock and S. Sundarajan “Development and Commercialization of Soy/Corn/Linseed Oil Bioplastics”, The Consortium for Plant Biotechnology Research, Inc. September 2008 to August 2009, Funded \$54,000. (~30% allocated to MRK)
30. Co-PI with D. Grewell (PI) and K. Rajan “Soy Protein Plastics Formulation Development to Reduce Water Solubility” United Soybean Board, September 2008 to August 2010, Funded \$78,543. (~20% allocated to MRK)
29. **PI** with R. Larock “Pultruded Window Frames from Agricultural Oils” Grow Iowa Values Fund, September 2008 to May 2010, Funded \$78,400 including \$40,000 from Grow Iowa Values Fund and the remaining as matching contribution from Pella Corp. and Cargill. (~50% allocated to MRK)
28. Co-PI with D. Grewell, K. Rajan, W. Graves, and H. Van Auken “Protein Polymer Product Development” Grow Iowa Values Fund, July 2008 to May 2010, Funded \$217,357 including \$78,452 from Grow Iowa Values Fund and the remaining as matching contribution from Pella Corp., Soy Works Corporation, Global Protein Corp., Iowa State University, Creative Composites, and Vermeer Mfg. (~20% allocated to MRK)
27. **PI** “Supplement for ROMP Healing Agent Development for Self-healing Materials” ACS PRF Supplement for Underrepresented Minority Research (SUMR), \$5,000.
26. **PI** “Viscosity Reduction in Monomer/Nano-particle Suspensions,” Ames Laboratory Seed Grant Program, June 2007-May 2008, Funded \$15,000 (direct).
25. Senior Personnel with S. W. Martin (PI) et al. “REU Site: Materials Education and Research on Far-From-Equilibrium Materials, Structures, Properties, and Processes”, NSF, Summer 2009-Summer 2012, Funded \$273,000. (*Not included in total below*).
24. **PI** “Travel Proposal to ICNP-2007 in Kerala, India”, Iowa State University Foreign Travel Grant Application, November 2007, Funded \$1,633.
23. **PI** “Cyanate Ester Resins Modified with Nano-particles for Inclusion in Continuous Fiber Reinforced Composites” Young Investigator Research Program, Air Force Office of Scientific Research, January 2008-December 2010, Funded \$299,725.
22. **PI** “ROMP Healing Agent Development for Self-healing Materials” ACS Petroleum Research Fund, January 2008-August 2010, Funded, \$100,000 (direct).
21. **PI** with R. Larock “Pultruded Window Frames from Agricultural Oils” The IPRT Company Assistance Seed Grant Program, October 2007-April 2008, Funded, \$20,000 (direct) + \$20,000 (company match). (~50% allocated to MRK)
20. Co-PI with N. Bowler “Electromagnetic Nondestructive Evaluation Of Wire Insulation And Models Of Insulation Material Properties” NASA, January 2008-July 2010, Funded, \$477,610. (~50% allocated to MRK)
19. **PI** with R. Larock “Biorenewable Composites Reinforced with Under-used Co-products from Ethanol Production,” Recycling and Reuse Technology Transfer Center, University of Northern Iowa, July 2007-June 2009, Funded \$30,000. (~50% allocated to MRK)
18. **PI** with S. Sundararajan and R. Larock “Novel Renewable Bio-based Rubber Composites from Plant Oils and Agricultural Co-products” Plant Sciences Institute, Iowa State University, July 2007-June 2009, Funded \$60,000 (including \$18,000 from MSE). (~45% allocated to MRK)
17. **PI** “Testing the fracture toughness of a curved bi-material interface for composite pipeline repair applications,” Air Logistics Corporation, June 2007-August 2007, Funded \$5,000.

16. Co-PI with S. Martin (PI), X. Tan, and N. Bowler “Acquisition of a wide temperature, impedance, and frequency range impedance spectrometer system” The Roy J. Carver Trust Foundation, 2007, Funded. \$472,896. (~equipment is located in S. Martin’s lab and shared between PI’s)
15. **PI** with M. Akinc “Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites” Strategic Environmental Research and Development Program (SERDP), Department of Defense, January 2007-December 2009, Funded \$640,000. (~50% allocated to MRK)
14. Co-PI with D. Grewell and H. Van Auken “Ultrasonic Assisted Exfoliation of Bio-Renewable Polymer Nanocomposites with Micro-Cellular Structures” Grow Iowa Values Fund, September 2006-February 2008, Funded \$143,182 including \$72,682 from Grow Iowa Fund and the remaining as matching contribution from Texel Inc., Branson Ultrasonics, Zein Corp., Iowa State University, Creative Composites, and Vermeer Mfg. (~40% allocated to MRK)
13. **PI** with co-PI K. Rajan “Informatics for Composites Design” Research Grant Development Award Competition, Iowa State University, May 2006-April 2007, Funded \$12,000. (~60% allocated to MRK)
12. **PI** with co-PI S. Martin “Acquisition of a Thermal Analysis Suite for Self-healing Composites, Bulk Metallic Glass, and Ionically Conducting Glass” Department of Defense University Research Instrumentation Program (DURIP), April 2006-March 2007, Funded \$176,835. (183 of 933 funded). (~majority of equipment is located in MRK lab and shared between PI’s).
11. Collaborator with J. DiCesare (Univ. of Tulsa) “Polymer Nanocomposites: Property Enhancement with ROMP Functionalized Carbon Nanotubes”, Oklahoma State Regents for Higher Education (OSRHE), August 2005-May 2006, Funded \$38,750 (*Not included in total funded below*). (0% allocated to MRK because funding was required to remain in Oklahoma)
10. **PI** “Thermal and Mechanical Evaluation of Cyanate Ester Resin Composites”, Oklahoma NASA EPSCoR Research Initiation Grant, February 2005-July 2005, Funded \$21,000.
9. **PI** “Thermal Expansion of CFRP for Extreme Temperature Applications”, Oklahoma NASA EPSCoR Travel Grant Award, Fall 2004, Funded \$1,500.
8. Co-PI with S. Pomeranz, W. Potter, P. LoPresti, and J. McCoy “Enhancing Interdisciplinary Interactions in the College of Engineering and Natural Sciences” National Science Foundation, 2004-2007, Funded, \$99,242. (~20% allocated to MRK)
7. **PI** with co-PI R. Mohan “Resin Transfer Molding Using Catalyzed-Fiber Reinforcement” SME Education Foundation, Research Initiation Grant, July 2004-July 2005, Funded \$15,000. (~100% allocated to MRK)
6. **PI** “Autonomic Healing of Damage in Polymer Matrix Composites” Young Investigator Program, Army Research Office, June 2004-June 2007, Funded \$150,000 (year 2 and year 3 of this Grant were at Iowa State).
5. **PI** “Biomimetic Materials: Artificial Muscles and Self-healing Polymers”, Oklahoma NASA EPSCoR Travel Grant Award, Fall 2003, Funded \$1,500.
4. **PI** “Resin Transfer Molding Applications Using Catalyzed Reinforcement”, Oklahoma NASA EPSCoR Research Initiation Grant, Spring 2003, Funded \$21,000.
3. **PI** with R. Walker and K. Stover “Non-metallic Structural Pipeline Repair Research & Testing”, Oklahoma Applied Research Support (OARS) Program, Oklahoma Center for the Advancement of Science & Technology (OCAST), January 2003-December 2005, Funded \$249,000 plus \$260,778 matching contribution from Citadel Technologies and T. D. Williamson, Inc. (~75% allocated to MRK)
2. **PI** “Polymer Matrix Composites: Processing and Characterization”, Oklahoma NASA EPSCoR Travel Grant Award, Fall 2002, Funded \$1,500.
1. Co-PI with S. Tipton “Thrust Reverser Structural Certification Sub-Component Testing”, Nordam Group, Nordam/Thrust Reverser Systems Division, September 2002-May 2003, Funded \$143,790. (~50% allocated to MRK)

Total Funded Research: **\$11,091,397**

MICHAEL R. KESSLER, Ph.D., P.E.

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J. Grant Review Panels (e.g., for Governmental Agencies, Educational Institutions)

- Reviewer for Alberta Bio Future Research and Innovation program, 2016.
- NSF Panel Reviewer, Materials Engineering and Processing; Division of Civil, Mechanical and Manufacturing Innovation; Engineering Directorate, 2015.
- Reviewer for North Dakota Renewable Energy Program (REP), 2015.
- Reviewer for North Dakota Renewable Energy Program (REP), 2013.
- NSF CAREER Panel Reviewer, Directorate, Arlington, VA, 2012.
- NSF Panel Reviewer, SBIR/STTR Phase II Panel, Engineering Directorate, Arlington, VA, 2012.
- Reviewer for Natural Sciences and Engineering Research Council of Canada (NSERC) - Collaborative Research and Development (CRD) Grant program, 2012.
- NSF Panel Reviewer, SBIR/STTR Phase I Panel, Engineering Directorate, Arlington, VA, 2012.
- Reviewer for U.S. Department of Energy, Office of Basic Energy Sciences, Biomolecular Materials Program, 2011.
- Reviewer for Research Foundation Flanders (FWO) – Foundation for Scientific Research Belgium, 2011.
- Reviewer for Volkswagen Foundation, 2011.
- NSF Site Visit Reviewer for Partnership for Research and Education in Materials (PREM)/Materials Research Science and Engineering Center (MRSEC) at University of Texas-Pan American, April 7-8, 2011.
- Reviewer for North Dakota Renewable Energy Program (REP), 2011.
- NSF Reviewer, Polymers Program, Division of Materials Research, Mathematical and Physical Sciences Directorate, 2011.
- Proposal Reviewer for Iowa Space Grant Consortium, 2010.
- Reviewer for the Defense Threat Reduction Agency (DTRA), Basic Research Program, 2009.
- NSF Panel Reviewer, Structural Materials and Mechanics Program, Civil, Mechanical and Manufacturing Innovation Division, Engineering Directorate, Arlington, VA, 2009.
- NSF Reviewer, Struct. Sys. & Haz. Mit. Of Struct., Division of Civil, Mechanical and Manufacturing Innovation (CMMI), Engineering Directorate, 2008.
- NSF Reviewer, Infrastructure Materials and Structural Mechanics, Division of Civil, Mechanical and Manufacturing Innovation (CMMI), Engineering Directorate, 2008.
- NSF Reviewer, Polymers Program, Division of Materials Research, Mathematical and Physical Sciences Directorate, 2008.
- Reviewer for Air Force Office of Scientific Research, 2008
- NSF Reviewer, Organic and Macromolecular Chemistry, Division of Chemistry, Mathematical and Physical Sciences Directorate, 2007.
- NSF Panel Reviewer, Small Business Innovation Research (SBIR) program, Arlington, VA, 2007.
- Reviewer for American Chemical Society, Petroleum Research Fund, 2006, 2007, 2008, 2009, 2011.
- Reviewer for U. S. Army Research Office, 2006.
- NSF Panel Reviewer, Mechanics and Structures of Materials Program, Engineering Directorate, Arlington, VA, 2006.

K. Policy, Advisory or Corporate Panels or Boards (e.g., for Governmental Agencies, Educational Institutions, Companies)

- Member of Alumni Board for the Department of Mechanical Science & Engineering (MechSE), University of Illinois, 2014-present.
- Member of Advisory Council for Materials Analysis and Research Laboratory (MARL), Iowa State University, 2013-2014
- Member of the Engineering Advisory Board, Department of Engineering, John Brown University. 2003-2008. Secretary 2004, President 2005, 2006.
- Army Research Office Panel Member for Future of Self-Healing Materials, Research Triangle Park, NC, January 4-5, 2006.
- Member of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Subcommittee II, Materials, Special Working Group on Non-Metallic Materials (SWG-NMM) chartered to review all applications of non-metallic materials proposed for use in Boiler & Pressure Vessel Construction Codes and Code Cases, and recommend necessary rules for such use. 2003-2012.
- Member of the E37.01.26 Task Group for the ASTM International Committee E37 (on Thermal Measurements) to initiate two new standards for “Heats and Temperatures of Transition by High Rate Differential Scanning Calorimetry” 2008-2012.

L. Academic Leadership Training

- 2015 ASME Mechanical Engineering Education Leadership Summit, Newport Beach, CA, March 11-14, 2015.
- Academic Engineering Leadership Workshop, University of Delaware, April 19, 2012 – Designed for prospective or emerging department chairs and deans to model effective leader behavior and review effective methods currently used.

II. PUBLICATIONS AND CREATIVE WORKS

Notes:

- # Denotes any publication derived from the candidate's thesis.
- * Denotes publication that has undergone stringent editorial review by peers.
- + Denotes publication that was invited and carries special prestige and recognition.
- ^a Corresponding author
- ^b Graduate student advised or visiting scholar/postdoctoral associate supervised
- ^c Undergraduate student supervised

A. Doctoral thesis title

Kessler, M. R. *Characterization and Performance of a Self-healing Composite Material*, Ph.D. dissertation, University of Illinois at Urbana-Champaign, 2002.

B. Books Authored or Co-Authored (in print or accepted)

None

C. Books Edited or Co-Edited (in print or accepted)

5. Vijay Kumar Thankur^b and Michael R. Kessler, eds., *Liquid Crystalline Polymers: Volume 1–Structure and Chemistry*, Springer, ISBN 978-3-31922893-8, (doi: 10.1007/978-3-319-22894-5), 2016, 626 pages.
4. Vijay Kumar Thankur^b and Michael R. Kessler, eds., *Liquid Crystalline Polymers: Volume 2–Processing and Applications*, Springer, ISBN 978-3-319-20269-3, (doi: 10.1007/978-3-319-20270-9), 2015, 535 pages.
3. Samy Madbouly, Chaoqun Zhang,^b Michael R. Kessler, eds., *Bio-Based Plant Oil Polymers and Composites*, Elsevier, ISBN 978-0-323-35833-0, 2015, 230 pages.
2. Vijay Kumar Thankur^b and Michael R. Kessler, eds., *Green Biorenewable Biocomposites: From Knowledge to Industrial Applications*, CRC Press – Apple Academic Press, ISBN 978-1-77188-032-9, 2015, 568 pages.
1. Kessler, M. R., ed., *Advanced Topics in Characterization of Composites*, Trafford Publishing, Victoria, BC, Canada, ISBN 1-4120-3639-9, 2004, 202 pages.

D. Chapters in Books (in print or accepted)

11. + Y. Li,^b M. R. Kessler: “Liquid crystalline epoxy resins” in *Liquid Crystalline Polymers: Volume 1–Structure and Chemistry*, V. Kumar, M. R. Kessler, eds., Springer, 2016, 1-17 (ISBN 978-3-31922893-8) (doi: 10.1007/978-3-319-22894-5_1).
10. + T. F. Garrison,^b M. R. Kessler: “Plant oil-based polyurethanes” in *Bio-Based Plant Oil Polymers and Composites*, S. Madbouly, C. Zhang, M. R. Kessler, eds., Elsevier, 2015, 37-54 (ISBN: 978-0-323-35833-0) (doi: 10.1016/B978-0-323-35833-0.00003-7).
9. + K. Mireles,^b M. R. Kessler: “Introduction, Evaluation, and Advances in Self-healing Polymers and Polymer Composites” in *Multifunctional Composites*, E. J. Barbero, ed, 2015, 205-236. (ISBN: 978-1516804528).
8. + J. Bergman,^b M. R. Kessler: “Monomers and Resulting Polymers from Biomass” in *Introduction to Chemicals from Biomass, 2nd Edition*, James H. Clark and Fabien Deswarte, eds., John Wiley and Sons, Ltd. 2015, 157-204. (ISBN: 978-1-118-71448-5) (doi: 10.1002/9781118714478.ch5).
7. + V. Kumar Thakur,^b M. R. Kessler: “Polymer Nanocomposites: New Advanced Dielectric Materials for Energy Storage Applications” in *Advanced Energy Materials*, Ashutosh Tiwari and Sergiy Valyukh, eds., Wiley-Scrivener Publishing, 2014, 207-258 (ISBN: 978-1118686294) (doi: 10.1002/9781118904923.ch5).
6. + S. A. Madbouly, M. R. Kessler: “Characterization of Polymer Blends by Dielectric Spectroscopy and Thermally Simulated Current” in *Characterization of Polymer Blends: Miscibility, Morphology*

and Interfaces, Sabu Thomas, Yves Grohens, P. Jyotishkumar, eds., John Wiley & Sons, Hoboken, NJ, 2014. 849-876 (ISBN: 978-3527331536) (doi: 10.1002/9783527645602.ch26).

5. + R. L. Quirino,^b M. R. Kessler, “Vegetable Oil-based Resins and Composites” in *Sustainable Composites: Fibers, Resins and Applications*, Anil Netravali and Chris Pastore, eds., DEStech Publications, Lancaster, PA, 2014. 51-86 (ISBN: 978-1605951119).
4. + V. Kumar Thakur,^b M. Thunga,^b M. R. Kessler: “Vegetable Oils for Green Composites” in *Green Composites from Natural Resources*, Vijay Kumar Thakur, ed., CRC Press, 2013. 355-389 (ISBN: 978-1466570696) (doi: 10.1201/b16076-17).
3. + V. Kumar Thakur,^b M. Kumari Thakur, R. Kumar Gupta, R. Prasanth, M. R. Kessler: “Green Composites – An Introduction” in *Green Composites from Natural Resources*, Vijay Kumar Thakur, ed., CRC Press, 2013. 1-10 (ISBN: 978-1466570696) (doi: 10.1201/b16076-2).
2. + M. R. Kessler, “Cyanate Ester Resins” in *Wiley Encyclopedia of Composites, 2nd Edition*, Luigi Nicolais and Assunta Borzacchiello, eds., John Wiley and Sons, Hoboken, NJ, 2012. 658-672 (ISBN: 978-1118097298) (doi: 10.1002/9781118097298.weoc062).
1. + M. R. Kessler, “Self-healing Composites” in *Delamination Behaviour of Composites*, Srinivasan Sridharan, ed., Woodhead Publishing, Cambridge, 2008. 650-673 (ISBN: 978-1845692445) (doi: 10.1533/9781845694821.5.650).

E. Monographs (in print or accepted)

None

F. Articles in Journals (in print or accepted)

162. *B. Wang,^{a,b} M. Rock,^b K. Mireles,^b Y. Li,^b V. K. Thakur,^b D. Gao, M. R. Kessler^a: *Synthesis and Preparation of Bio-Based ROMP Thermosets from Functionalized Renewable Isosorbide Derivative*, **Macromolecular Chemistry and Physics**, 2016, 217(7), 871-879 (doi: 10.1002/macp.201500506).
161. *R. Ding,^b M. Thunga,^b H. Wu,^b N. Bowler, M. R. Kessler^a: *Processing and Characterization of Low-Cost Electrospun Carbon Fibers from Organosolv Lignin/Polyacrylonitrile Blends*, **Carbon**, 2016, 100, 126-136 (doi: 10.1016/j.carbon.2015.12.078).
160. *H. Wu,^b V. Kumar Thakur,^b M. R. Kessler^a: *Novel Low-cost Hybrid Composites from Asphaltene/SBS Tri-block Copolymer with Improved Thermal and Mechanical Properties*, **Journal of Materials Science**, 2016, 51(5), 2394-2403 (doi: 10.1007/s10853-015-9548-1).
159. *W. Sun, H. Wu,^b X. Tan, M. R. Kessler, N. Bowler: *Silanized-Silicon/Epoxy Nanocomposites for Structural Capacitors with Enhanced Electrical Energy Storage Capability*, **Composites Science and Technology**, 2015, 121, 34-40 (doi: 10.1016/j.compscitech.2015.10.022).
158. *R. Gebhardt, P. Du, A Peer, M. Rock,^b M. R. Kessler, R. Biswas, B. Ganapathysubramanian, S. Chaudhary, *Utilizing Wide Band Gap, High Dielectric Constant Nanoparticles as Additives in Organic Solar Cells*, **Journal of Physical Chemistry C**, 2015, 119(42), 23883-23889 (doi: 10.1021/acs.jpcc.5b08581).
157. *C. Zhang,^b M. Yan, E. Cochran, M.R. Kessler^a: *Biorenewable Polymers Based on Acrylated Epoxidized Soybean Oil and Methacrylated Vanillin*, **Materials Today Communications**, 2015, 5, 18-22 (doi: 10.1016/j.mtcomm.2015.09.003).
156. *C. Zhang,^b S. A. Madbouly, M. R. Kessler^a: *Renewable Polymers Prepared from Vanillin and Its Derivatives*, **Macromolecular Chemistry and Physics**, 2015, 216(17), 1816-1822 (doi: 10.1002/macp.201500194).
155. *K. Liu,^b S. A. Madbouly, J. A.Q. Schrader, M. R. Kessler, D. Grewell, W. R. Graves: *Biorenewable Polymer Composites from Tall Oil-Based Polyamide and Lignin-Cellulose Fiber*, **Journal of Applied Polymer Science**, 2015, 132(48), 42592 (doi: 10.1002/app.42592).
154. *C. Zhang,^b H. Wu,^b M. R. Kessler^a: *High Bio-content Polyurethane Composites with Urethane Modified Lignin as Filler*, **Polymer**, 2015, 6, 52-57 (doi: 10.1016/j.polymer.2015.05.046).

153. *K. Liu,^b S. A. Madbouly, M. R. Kessler: *Bio-based Thermosetting Polymer Based on Soybean Oil and Eugenol*, **European Polymer Journal**, 2015, 69, 16-28 (doi: 10.1016/j.eurpolymj.2015.05.021).
152. *C. Zhang,^b D. Vennerberg,^b M. R. Kessler: *In Situ Synthesis of Biopolyurethane Nanocomposites Reinforced with Modified Multiwalled Carbon Nanotubes*, **Journal of Applied Polymer Science**, 2015, 132(36), 42515 (doi: 10.1002/app.42515).
151. +,* V. Kumar Thakur,^b M. R. Kessler^a: *Self-healing Polymer Nanocomposites: A Review*, **Polymer**, 2015, 69, 369-383 (doi: 10.1016/j.polymer.2015.04.086).
150. *Y. Li,^b C. Pruitt,^c O. Rios, L. Wei, M. Rock,^b J. Keum, A. G. McDonald, M. R. Kessler^a: *Controlled Shape Memory Behavior of a Smectic Main-chain Liquid Crystalline Elastomer*, **Macromolecules**, 2015, 48(9), 2864-2874 (doi: 10.1021/acs.macromol.5b00519). (cover issue)
149. *S. Yang,^b S. A. Madbouly, J. A. Schrader, D. Grewell, M. R. Kessler, W. R. Graves: *Processing and Characterization of Bio-Based Polyhydroxyalkanoate (PHA)/Polyamide (PA) Blends: Improved Flexibility and Impact Resistance of PHA-based Plastics*, **Journal of Applied Polymer Science**, 2015, 132(27), 42209 (doi: 10.1002/app.42209).
148. *C. Zhang,^b M. R. Kessler^a: *Bio-Polyurethane Foam Made from Compatible Blends of Vegetable Oil-based Polyol and Petroleum-based Polyol*, **ACS Sustainable Chemistry and Engineering**, 2015, 3(4), 743-749 (doi: 10.1021/acssuschemeng.5b00049). (cover issue)
147. *H. Wu,^b M. R. Kessler^a: *Multifunctional Cyanate Ester Nanocomposites Reinforced by Hexagonal Boron Nitride after Non-covalent Biomimetic Functionalization*, **ACS Applied Materials and Interfaces**, 2015, 7(10), 5915-5926 (doi: 10.1021/acsami.5b00147).
146. *H. Wu,^b M. R. Kessler^a: *Asphaltene: Structural Characterization, Molecular Functionalization, and Application as Low-cost Filler in Epoxy Composites*, **RSC Advances**, 2015, 5(31), 24264-24273 (doi: 10.1039/C5RA00509D).
145. * C. Zhang,^b S. Madbouly, M. R. Kessler^a: *Bio-based Polyurethanes Prepared from Different Vegetable Oils*, **ACS Applied Materials and Interfaces**, 2015, 7(2) 1226-1233 (doi: 10.1021/am5071333).
144. * R. Chen,^b J. S. Chen, C. Zhang,^b M. R. Kessler^a: *Rapid Room-temperature Polymerization of Bio-based Multiaziridine-containing Compounds*, **RSC Advances**, 2015, 5(2), 1557-1563 (doi: 10.1039/c4ra10335a).
143. * W. Sun, L. Li, E. A. Stefanescu,^b M. R. Kessler, N. Bowler: *Dynamics of Poly(methyl methacrylate)-Montmorillonite Nanocomposites: A Dielectric Study*, **Journal of Non-Crystalline Solids**, 2015, 410, 43-50 (doi: 10.1016/j.jnoncrysol.2014.11.030).
142. * M. D. Zenner,^b S. A. Madbouly, J. S. Chen,^a M. R. Kessler^a: *Unexpected Tackifiers from Isosorbide*, **ChemSusChem**, 2015, 8(3), 448-451 (doi: 10.1002/cssc.201402667).
141. * R. Chen,^b C. Zhang,^b M. R. Kessler^a: *Polyols and Polyurethanes Prepared from Epoxidized Soybean Oil Ring-opened by Polyhydroxy Fatty Acids with Varying OH Number*, **Journal of Applied Polymer Science**, 2015, 132(1), 41213 (doi: 10.1002/app.41213).
140. * S. Yang,^b S. A. Madbouly,^a J. A. Schrader, G. Srinivasan, D. Grewell, K. G. McCabe, M. R. Kessler, W. R. Graves: *Characterization and Biodegradation Behavior of Bio-Based Poly(lactic acid) and Soy Protein Blends for Sustainable Horticultural Applications*, **Green Chemistry**, 2015, 17, 380-393 (doi: 10.1039/c4gc01482k).
139. * Y. Li,^b O. Rios, M. R. Kessler^a: *Thermomagnetic Processing of Liquid Crystalline Epoxy Resins and Their Mechanical Characterization Using Nanoindentation*, **ACS Applied Materials and Interfaces**, 2014, 6(21), 19456-19464 (doi: 10.1021/am505874t).
138. * V. Kumar Thakur,^b M. R. Kessler^a: *Free Radical Induced Graft Copolymerization of Ethyl Acrylate onto SOY for Multifunctional Materials*, **Materials Today Communications**, 2014, 1, 34-41 (doi: 10.1016/j.mtcomm.2014.09.003).
137. * C. Zhang,^b Y. Li,^b R. Chen,^b M. R. Kessler^a: *Polyurethanes from Solvent-Free Vegetable Oil Based Polyols*, **ACS Sustainable Chemistry and Engineering**, 2014, 2(10), 2465-2476 (doi: 10.1021/sc500509h).

136. * R. Ding,^b Y. Xia,^b T. Mauldin,^b M. R. Kessler^a: *Biorenewable ROMP-based Thermosetting Copolymers from Functionalized Castor Oil Derivative with Various Cross-linking Agents*, **Polymer**, 2014, 55(22), 5718-5726 (doi: 10.1016/j.polymer.2014.09.023).
135. * V. Kumar Thakur,^b M. R. Kessler^a: *Synthesis and Characterization of AN-g-SOY for Novel Polymer Composites*, **ACS Sustainable Chemistry and Engineering**, 2014, 2(10), 2454-2460 (doi: 10.1021/sc500473a).
134. * D. Vennerberg,^b M. R. Kessler^a: *Anisotropic Buckypaper Through Shear-Induced Mechanical Alignment of Carbon Nanotubes in Water*, **Carbon**, 2014, 80, 433-439 (doi: 10.1016/j.carbon.2014.08.082).
133. * H. Lu,^b S. A. Madbouly,^a J. A. Schrader, M. R. Kessler, D. Grewell, W. R. Graves: *Novel Bio-based Composites of Polyhydroxyalkanoates (PHA)/Distillers Dried Grains with Solubles (DDGS)*, **RSC Advances**, 2014, 4(75), 39802-39808 (doi: 10.1039/C4RA04455J).
132. * R. Chen,^b C. Zhang,^b M. R. Kessler^a: *Anionic Waterborne Polyurethane Dispersion from Bio-based Ionic Segment*, **RSC Advances**, 2014, 4(67), 35476-35483 (doi: 10.1039/c4ra07519f).
131. * H. Saleem, M. Thunga,^b M. Kollosche, M. R. Kessler, S. Laflamme: *Interfacial Treatment Effects on Behavior of Soft Nano-composites for Highly Stretchable Dielectrics*, **Polymer**, 2014, 55(17), 4531-4537 (doi: 10.1016/j.polymer.2014.06.054).
130. * H. Lu,^b S. A. Madbouly, J. A. Schrader, G. Srinivasan, K. G. McCabe, D. Grewell, M. R. Kessler, W. R. Graves: *Biodegradation Behavior of Poly (lactic acid) (PLA)/Distiller's Dried Grains with Soluble (DDGS) Composites*, **ACS Sustainable Chemistry & Engineering**, 2014, 2(12), 2699-2706 (doi: 10.1021/sc500440q).
129. D. Grewell, G. Srinivasan, J. Schrader, W. Graves, M. Kessler: *Sustainable Materials for a Horticultural Application*, **Plastics Engineering**, 2014, 70(3), 44-53.
128. * D. Vennerberg,^b R. Hall,^c M. R. Kessler^a: *Supercritical Carbon Dioxide-assisted Silanization of Multiwalled Carbon Nanotubes and Their Effect on the Thermo-mechanical Properties of Epoxy Nanocomposites*, **Polymer**, 2014, 55, 4156-4163 (doi: 10.1016/j.polymer.2014.06.020).
127. * H. Cui,^b M. R. Kessler^a: *Pultruded Glass Fiber/Bio-based Polymer: Interface Tailoring with Silane Coupling Agent*, **Composites Part A: Applied Science and Manufacturing**, 2014, 65, 83-90 (doi: 10.1016/j.compositesa.2014.05.021).
126. * M. Thunga,^b A. Bauer,^b K. Obusek, R. Meilunas, M. Akinc, M. R. Kessler^a: *Injection Repair of Carbon Fiber/Bismaleimide Composite Panels with Bisphenol E Cyanate Ester Resin*, **Composites Science and Technology**, 2014, 100, 174-181 (doi: 10.1016/j.compscitech.2014.05.024).
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31. +, * S.H. Yoon,^b W. Jeong,^b M. Valverde Salazar, R. C. Larock, M. R. Kessler “Thermal Analysis of Bio-based Rubber Composites from Plant Oil” SAMPE 2008 Fall Technical Conference, September 8-11, 2008, Memphis, TN. CD-ROM. Pages: 11. **Invited.**

30. +, * D. Grewell, G. Srinivasan, M. Baboi, M. R. Kessler, W. Graves, M. Helgeson “Plant Based Plastics and Applications” Proceedings of the SAMPE 2008 Fall Technical Conference, September 8-11, 2008, Memphis, TN. CD-ROM, Pages: 11. **Invited.**
29. * S. H. Yoon, N. Bowler, and M. R. Kessler “Thermal Analysis Properties of PTFE Electrical Wiring Insulation Material” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2008). Aug. 18-20, 2008. Atlanta, GA. CD-ROM, Paper 06: p 1-9.
28. * P. Badrinarayanan,^b B. Mac Murray,^c and M. R. Kessler “Thermal and Mechanical Characterization of Bisphenol E Cyanate Ester Nanocomposites” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2008). Aug. 18-20, 2008. Atlanta, GA. CD-ROM, Paper 69: 1-9
27. * T. C. Mauldin,^b M. R. Kessler “Latent Catalytic Systems for Ring-Opening Metathesis-Based Thermosets” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2008). Aug. 18-20, 2008. Atlanta, GA. CD-ROM, Paper 64: 1-11.
26. * L. Li, N. Bowler, S. H. Yoon,^b and M. R. Kessler “Dielectric Properties of PTFE Wiring Insulation as a Function of Thermal Exposure” Proceedings of the 2008 IEEE Conference on Electrical Insulation and Dielectric Phenomena (CEIDP), October 26-29, 2008. Quebec City, Canada, 95-98. (doi: 10.1109/CEIDP.2008.4772850)
25. +, * David Grewell, Gowrishankar Srinivasan, Maria Baboi, Michael R. Kessler, William Graves, and Matt Helgeson, “Plant Based Plastics and Applications” SAMPE 2008 Fall Technical Conference, September 8-11, 2008, Memphis, TN. (peer reviewed). **Invited.**
24. * M. R. Kessler, E. Merrick,^c and L. Genalo “Material Advantage at Iowa State: A Case Study for Student Pre-professional Society Success” Proceedings of the 2008 ASEE Annual Conference, June 22-25, 2008. Pittsburgh, PA. AC 2008-2531.
23. * David Grewell, Gowrishankar Srinivasan, Michael Kessler, and Nancy Kieffer, “Case Study of Color Variation of Thermal Formed Automotive Body Components” Proceedings of the 66th Annual Technical Conference for the Society of Plastics Engineers, May 4-8, 2008. Milwaukee, WI.
22. * D. Grewell, G. Srinivasan, M. Baboi, M. R. Kessler, W. Graves, M. Helgeson, “Plant Based Plastics and Applications”, ICIPC (Research Institute for Plastics and Rubber) International Colloquium 2008, February 27-29, 2008, Medellin, Colombia, 1-8.
21. +, * M. R. Kessler,^a R. Larock and D. Grewell “Structural Composites From Agricultural Oils and Proteins” International Conference on Natural Polymers, Bio-Polymers, Bio-Materials, their Composites, Blends, IPNs, and Gels: Macro to Nano Scales (ICNP – 2007). November 19-21, 2007. Kottayam; Kerala, India. CD-ROM, Paper 56: p 1-4. **Invited.**
20. * Xia Sheng,^b Mufit Akinc, and Michael R. Kessler,^a “Cure Kinetics of Thermosetting Bisphenol E Cyanate Ester” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2007). August 26-29, 2007. East Lansing, MI. CD-ROM, Paper 19-441: p 1-11.
19. * William K. Goertzen^b and Michael R. Kessler,^a “Three-phase Cyanate Ester Composites with Fumed Silica and Negative-CTE Reinforcements” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2007). August 26-29, 2007. East Lansing, MI. CD-ROM, Paper 19-628: p 1-10.
18. * Xing Liu,^b Xia Sheng,^b Michael R. Kessler, and Jong Keun Lee,^b “Rheokinetic evaluation of self-healing agents polymerized by Grubbs catalyst embedded in various thermosetting systems” Proceedings of the International Conference on Smart Materials and Nanotechnology in Engineering. July 1-4, 2007, Harbin, China. Proceedings of SPIE-The International Society for Optical Engineering (2007), 6423(Pt. 1), 642348.
17. * Xing Liu,^b Xia Sheng,^b Michael R. Kessler, and Jong Keun Lee,^b “Synthesis and characterization of melamine-urea-formaldehyde microcapsules containing ENB-based self-healing agents” Proceedings of the International Conference on Smart Materials and Nanotechnology in Engineering. July 1-4, 2007, Harbin, China. Proceedings of SPIE-The International Society for Optical Engineering (2007), 6423(Pt. 1), 642337.

16. * Gowrishankar Srinivasan, Michael Kessler, and David Grewell, "Casting of Zein Protein Polymers" Proceedings of the 65th Annual Technical Conference for the Society of Plastics Engineers, May 6-10, 2007. Cincinnati, OH.
15. * Xia Sheng,^b Michael R. Kessler,^a and Jong Keun Lee,^b "The Influence of Cross-linking Agents on Ring-Opening Metathesis Polymerized Thermosets" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2006). August 6-9, 2006. Bowling Green, KY. CD-ROM, Paper 113-16-158: p 1-8.
14. * Xing Liu,^b Xia Sheng,^b Michael R. Kessler, and Jong Keun Lee,^b "Isothermal Cure Characterization of ROMP Healing Agents for Autonomic Damage Repair: The Glass Transition Temperature and Conversion" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2006). August 6-9, 2006. Bowling Green, KY. CD-ROM, Paper 112-16-432: p 1-9.
13. * Wonje Jeong^b and Michael R. Kessler,^a "Processing and Characterization of Carbon Nanotube/Dicyclopentadiene Composites" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2006). August 6-9, 2006. Bowling Green, KY.
12. * J. M. Wilson,^b M. R. Kessler, R. H. Walker, J. M. Duell,^b D. Kadakia, and N. Sousa, "Fatigue Testing of Steel Pipes Repaired with Carbon/Epoxy Composites" Proceedings of the 2005 Rio Pipeline Conference and Exposition. Rio de Janeiro, Brazil, October 2005. Paper IBP1089_05. **Received Honorable Mention Award** for the best paper in New Materials and Equipments Division.
11. +M. R. Kessler, G. E. Larin^b, and N. Bernklau^b "Cure Characterization and Viscosity Development of Ring-Opening Metathesis Polymerized Thermosets" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2005). September 19-21, 2005. Universal City, CA. CD-ROM, Paper 008-48-621: p 1-10. **Invited**.
10. * Shirley Pomeranz, Peter LoPresti, Michael Kessler, William Potter, Jerry McCoy, Leslie Keiser, and Donna Fariior, "Enhancing Interdisciplinary Interactions in the College of Engineering and Natural Sciences: Year I" Proceedings of the 2005 ASEE Annual Conference, June 12-15, 2005. Portland, OR. CD-ROM, Paper 007: p 1-10.
9. * M. R. Kessler, "Air Rocket Thrust Experiment Involving Computerized Data Acquisition, Calibration, and Uncertainty Analysis" Proceedings of the 2005 ASEE Annual Conference, June 12-15, 2005. Portland, OR. CD-ROM, Paper 585: p 1-12. *****Received Best Paper Award***** Instrumentation Division.
8. * M. R. Kessler,^a R. H. Walker, D. Kadakia, J. M. Wilson,^b J. M. Duell,^b and W. K. Goertzen,^b "Evaluation of Carbon/Epoxy Composites for Structural Pipeline Repair" Proceedings of the 2004 ASME International Pipeline Conference, Track 8. Integrity Management, October 4-8, 2004. Calgary, Alberta, Canada, Paper IPC04-0486: p 1-6.
7. * M. R. Kessler, "Biomimetic Composites with Self-healing Functionality" Proceedings of the Eleventh Annual International Conference on Composites Engineering, David Hui, ed., ICCE/11, August 8-14, 2004. Hilton Head Island, SC.
6. * W. K. Goertzen^b and M. R. Kessler,^a "Thermal Expansion of Woven Carbon Fiber Composites Used in Pipe Overwrap Repair Systems" Proceedings of the Eleventh Annual International Conference on Composites Engineering, David Hui, ed., ICCE/11, August 8-14, 2004. Hilton Head Island, SC.
5. * J. M. Wilson,^b M. R. Kessler, and J. M. Duell,^b "Rupture Testing of A-106, Grade B Steel Pipes Repaired with Carbon/Epoxy Composites" Proceedings of the 2004 ASME Pressure Vessels and Piping Conference, July 25-29, 2004. San Diego, CA, published in PVP Vol. 483, Transportation, Storage, and Disposal of Radioactive Materials.
4. * W. K. Goertzen^b and M. R. Kessler,^a "Coefficient of Thermal Expansion Testing of Carbon Fiber Composite Specimens" Proceedings of the Second Joint ASME/SDPS International Graduate Student Technical Conference, March 25-27, 2004. Longview, TX: p 27-31.
3. *,# M. R. Kessler,^a S. R. White, and N. R. Sottos, "Self-healing of Composites Using Embedded Microcapsules: Repair of Delamination Damage in Woven Composites" Proceedings of the 10th

European Conference on Composite Materials (ECCM-10), June 3-7, 2002. Brugge, Belgium., ed. by H. Sol and J. Degrieck, CD-ROM, Paper 164: p 1-5.

2. *,# D. Therriault, E. Brown, M. Kessler, S. Suresh, and S. White, "Autonomic Healing of Polymer Composites," Proceedings Canada-US Cansmart Workshop on Smart Materials and Structures, October 22-23, 2001, Montreal, QC, p 229-235.
1. *,# S. R. White, P. H. Geubelle, N. R. Sottos, J. S. Moore, E. N. Brown, and M. R. Kessler, "Autonomic Healing of Polymer Composites" Proceedings of the American Society for Composites (ASC), 16th Annual Technical Conference, September 10-12, 2001. Blacksburg, Virginia., ed. by M. Hyer et al., CD-ROM, Session TB-4 (peer reviewed). *****Received ASC Best Paper Award 2001*****

I. Bulletins, Reports, or Conference Proceedings That Have Not Undergone Stringent Editorial Review by Peers (in print or accepted).

4. M. R. Kessler, P. Badrinarayanan "Zirconium Tungstate/Epoxy Nanocomposites with Low Thermal Expansion for Conformal Coatings" Honeywell Federal Manufacturing and Technologies, LLC, National Nuclear Security Administration, 2011, Pages: 20.
3. M. R. Kessler, P. Badrinarayanan "Cyanate Ester Resin Modified with Nano-particles for Inclusion in Continuous Fiber Reinforced Composites" Air Force Office of Scientific Research Project FA9550-08-1-0033, 2011, Pages: 56.
2. N. Bowler, M.R. Kessler, L. Li, P.R. Hondred, T. Chen "Electromagnetic Nondestructive Evaluation of Wire Insulation and Models of Insulation Material Properties" NASA/CR-2012-217330, NF1676L-14135, 2012, Pages: 152.
1. M. R. Kessler, M. Akinc "Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites" SERDP Project WP-1580 Final Report, 2011, Pages: 85.

J. Abstracts (in print or accepted) and Technical Presentations

146. + M. R. Kessler, Richard Larock "Thermosetting Polymers and Composites from Agricultural Oils" Composites at Lake Louise, November 8-12, 2015, Alberta, Canada.
145. + M. R. Kessler "Center for Bioplastics and Biocomposites: Bringing Industry and Universities Together to Develop New Biobased Products and Technologies" Composites at Lake Louise, November 8-12, 2015, Alberta, Canada.
144. D. Grewell, M. R. Kessler "Sustainable Plastics and the Center for Bioplastics and Biocomposites" International Conference and Exposition on Biopolymers and Bioplastics, August 10-12, 2015, San Francisco, CA.
143. T. F. Garrison, D. Grewell, M. R. Kessler "Bringing Industry and Universities Together to Develop New Biobased Products and Technologies" CleanTech Showcase 2015, June 22, 2015, Seattle, WA.
142. K. Mireles, D. B. Knorr, M. R. Kessler "Ballistic Response of Carbon Nanotube Polymer Composites for Use in Military Armor" 2015 Wiley Research Exposition, February 21, 2015, Pullman, WA.
141. + M. R. Kessler "Sustainable Polymers: Thermosets from Agricultural Oils" 2014 ASM Northwest Regional Officers Conference, June 7, 2014, Spokane, WA.
140. + M. R. Kessler, M. Thunga "Low cost, bio-renewable precursor fibers from lignin/poly(lactide (PLA) blends and graft copolymers for carbon fiber production" Northwest Wood-Based Biofuels + Co-Products Conference, April 28-30, 2014, Seattle, WA.
139. J. Bergman, M. Kessler "Manipulating Lignin Solubility" 2013 AIChE Annual Meeting, November 3-8, 2013, San Francisco, CA.
138. D. M. Kadam, M. Thunga, C. Wang, M. R. Kessler, D. Grewell, C. Yu, B. Lamsal "Mechanical, Microstructural, and Antimicrobial Properties of Nanoenhancer-reinforced Corn Zein Protein film" American Association of Cereal Chemists International (AACCI) 2013 Annual Meeting, September 29-October 2, 2013, Albuquerque, NM.

137. J. Riedl, D. Grewell, D. R. Raman, M. Kessler, "Peel and Sear Strength and Tear Resistance of Ultrasonically Sealed Coextruded Polyolefin Films for Packaging Applications" International Institute of Welding, Commission XVI – Polymer Joining and Adhesive Technology. Sept. 12-13, 2013. Essen, Germany.
136. M. D. Zenner,^b Y. Xia,^b J. S. Chen, M. R. Kessler "Isosorbide-based diisocyanates and polyurethanes thereof" 246th ACS National Meeting, September 8-12, 2013, Indianapolis, IN, 150-POLY (Abstract reviewed).
135. Y. Li,^b M. R. Kessler, "Thermal analysis and structure characterization of liquid crystalline epoxy resins cured in a magnetic field" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2013). Aug. 4-7, 2013. Bowling Green, KY.
134. + M. Thunga, M. R. Kessler "Low cost, bio-renewable precursor fibers from lignin/poly(lactide) (PLA) blends and graft copolymers for carbon fiber production" Carbon Fiber R&D Workshop Hosted by Harper, July 25-26, 2013, Buffalo, NY.
133. J. Schrader, K. McCabe, G. Srinivasan, D. Grewell, S. Madbouly, M. Kessler, W. Graves "Evaluation of Bioplastic-Coated Fiber Containers for Greenhouse-Grown Plants" The 213 American Society for Horticultural Science (ASHS) Annual Conference, July 22-25, 2013, Palm Desert, CA.
132. J. Schrader, K. McCabe, G. Srinivasan, K. Haubrich, D. Grewell, S. Madbouly, M. Kessler, W. Graves "Development and Evaluation of Injection-Molded Bioplastic Container Prototypes" The 213 American Society for Horticultural Science (ASHS) Annual Conference, July 22-25, 2013, Palm Desert, CA.
131. + M. R. Kessler "Sustainable Polymers: Thermosets from Agricultural Oils" Sustainable Polymers, ACS Division of Polymer Chemistry Conference, May 20-23, 2013, Clearwater, FL.
130. T. Garrison,^b E. Hall, M.R. Kessler "The Role of a Resident Scientist in a High School Science Classroom from the Perspectives of a GK-12 Fellow and a High School Teacher" Iowa Academy of Science 125th Annual Meeting, April 19-20, 2013, Indianola, IA.
129. + D. Grewell, J. Schrader, M. Kessler, W. Graves, G. Srinivasan "Multifunctional Sustainable Plastics for Agricultural Applications" Research Institute for Plastics and Rubber (ICIPC) International Colloquium, March 18-19, 2013, Medellin, Columbia.
128. J. E. De León, S. M. Kilczewski, D. J. O'Brien, E. D. Wetzel, X. Tan, N. Bowler, M. R. Kessler "Structural Capacitors from Cyanate Ester and Nano-Calcium Copper Titanate" MRS Fall Meeting, Nov. 25-30, 2012, Boston, MA.
127. M. R. Kessler "Thermosetting Polymers from Agricultural Oils" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 12-15, 2012. Orlando, FL.
126. P. Badrinarayanan, M. R. Kessler "Thermosetting Nanocomposites with Tailored Thermal Expansion" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 12-15, 2012. Orlando, FL.
125. D. Vennerberg,^b R. Quirino,^b M. R. Kessler "A Novel Microwave-assisted Carbothermic Route for the Production of Metal Matrix Composites" MRS Global Conference on Microwave Energy Applications, July 23-27, 2012, Long Beach, CA.
124. 123. P. Hondred^b and M. R. Kessler "Thermo-Mechanical Properties of Tung Oil-Based Thermosetting Polymers" 2012 NSF CMMI Engineering Research and Innovation Conference. July 8-11, 2012. Boston, MA. (P. Hondred selected as CMMI Conference Graduate Student Fellow to present this paper).
122. + M. R. Kessler "Thermal analysis applied to self-healing polymers and composites" 2012 TA Instruments Users Meeting, April 29-May 2, 2012, New Orleans, LA.
121. A. Bauer,^b M. Thunga,^b M. Akinc, M.R. Kessler "Repair of carbon fiber composite panels with bisphenol E cyanate ester" Iowa Academy of Science 124th Annual Meeting, April 20-21, 2012, Mason City, IA.

120. D. Carda,^b X. Tan, N. Bowler, M. R. Kessler “Construction of multifunctional structural composites using modified bisphenol E cyanate ester and fiberglass” Symposium Undergraduate Research and Creative Expression, April 17, 2012, Ames, IA.
119. +D.M. Kadam, M. Thunga, C. Wang, D. Grewell, M. Kessler, C. Yu, B. Lamsal “Protein based nano-functionalized antimicrobial films and their properties” Invited presentation at the 2012 Conference of Food Engineering, April 2-4, 2012, Leesburg, VA.
118. S. H. Yoon, J. O. Oh, D. H. Choi, S. W. Lee, M. R. Kessler “Material Characterization of Several Resin Systems for High Temperature Carbon Fiber Reinforced Composites” 3rd International Conference on Smart Materials and Nanotechnology in Engineering, December 5-8, 2011, Shenzhen, China.
117. S. H. Yoon, C. G. Kim, M. R. Kessler “Material Characterization of Bio-Renewable Rubber and Its CNT Embedded Composites” 3rd International Conference on Smart Materials and Nanotechnology in Engineering, December 5-8, 2011, Shenzhen, China.
116. + K. Obusek, M. Thunga,^b A. Bauer,^b R. J. Meilunas, O. Zachary, M. Akinc, M. R. Kessler “Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester: Demonstration on AV-8 and F-35 Weapon Platforms” The Partners in Environmental Technology Technical Symposium and Workshop (Sponsored by SERDP and ESTCP), November 29-December 1, 2011, Washington D.C. Poster Presentation.
115. +M. Thunga,^b A. Bauer,^b K. Obusek, M. Akinc, M. R. Kessler “Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester: Evaluation of Injection Repair Efficiency in Repaired Aircraft Panel Composites” The Partners in Environmental Technology Technical Symposium and Workshop (Sponsored by SERDP and ESTCP), November 29-December 1, 2011, Washington D.C. Poster Presentation.
114. M. Rock,^c X. Tan, N. Bowler, M. R. Kessler “Dielectric and Mechanical Characterization of Polyimide-Barium Titanate Nanocomposite Films” Materials Science & Technology MS&T 2011 Conference, Oct. 16-20, 2011, Columbus, OH, Poster Presentation.
113. H. Cui, M. R. Kessler “Improving the interfacial properties of glass fiber reinforced bio-renewable resin with silane coupling agents” 2011 SPE Global Plastics Environmental Conference (GPEC), October 17-19, 2011. Atlanta, GA. Poster Presentation.
112. K. Chen, M. Thunga, D. Grewell, M. R. Kessler “Bio-renewable carbon fiber precursor from lignin” 2011 SPE Global Plastics Environmental Conference (GPEC), October 17-19, 2011. Atlanta, GA. Poster Presentation.
111. W. Sun, J. E. De León,^b M. R. Kessler, X. Tan “Si/Cyanate Ester Nanocomposites for Multifunctional Structural Capacitors” 2011 Great Midwestern Space Grant Regional Meeting, October 3-5, 2011. Urbana-Champaign, IL. Poster Presentation.
110. M. Rock,^c E. A. Stefanescu,^b X. Tan, N. Bowler, M. R. Kessler “Multifunctional Fiberglass-Reinforced PMMA-BaTiO₃ Structural/Dielectric Composites”, 2011 Great Midwestern Space Grant Regional Meeting, October 3-5, 2011. Urbana-Champaign, IL. Poster Presentation.
109. J. E. De León,^b X. Tan, N. Bowler, M. R. Kessler “Improving the dielectric and thermo-mechanical properties of bisphenol E cyanate ester matrix composites for multifunctional capacitor applications”, 2011 Great Midwestern Space Grant Regional Meeting, October 3-5, 2011. Urbana-Champaign, IL. Poster Presentation.
108. + M. R. Kessler, “Biorenewable Polymers and Composites: Structural Thermosets and Waterborne Polyurethane Coatings” Korea Polyurethane Society Conference. Aug. 19, 2011. Daejeon, S. Korea.
107. T. F. Garrison,^b D. P. Pfister, M. R. Kessler, R. C. Larock “Grafted hybrid latexes from castor oil-based waterborne polyurethane” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
106. P. Badrinarayanan,^b M. Rogalski,^c X. Wang, and M. R. Kessler “Low CTE epoxy/zirconium tungstate nanocomposites for conformal coatings” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.

105. H. Wu,^b P. Badrinarayanan,^b and M. R. Kessler “Hydrothermal synthesis of zirconium tungstate nanoparticles with various morphologies and size scales” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
104. R. Ding,^b and M. R. Kessler “ROMP Thermosets from Modified Castor Oil with Various Cross-linking Agents” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
103. J. E. De León,^b X. Tan, N. Bowler, Z. Lin, M. R. Kessler “Improving mass- and volume-efficiencies of energy storage components with glass fiber reinforced multifunctional polymer matrix composites” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
102. T. Mauldin,^b J. Leonard,^c M. R. Kessler “A modified rheokinetic technique designed to enhance the understanding of microcapsule-based self-healing polymers” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
101. M. Thunga,^b M. R. Kessler, Y. Xia, U. Gohs, G. Heinrich, R. C. Larock “Influence of electron beam irradiation on mechanical properties of vegetable oil-based biopolymers” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
100. D. Gottschalk,^b M. R. Kessler, Z. Lin, N. Bowler, X. Tan “Catalyst Dependence of Thermomechanical and Dielectric properties in Polydicyclopentadiene” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
99. K. Chen,^b M. Thunga,^b and M. R. Kessler “Carbon fibers from bio-renewable lignin” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
98. P. Hondred,^b L. Salat,^c and M. R. Kessler “Thermo-Mechanical Properties of Tung Oil-Based Thermosetting Polymers” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
97. Y. Li^b, M. R. Kessler, and P. Badrinarayanan^b “Thermal Characterization of Liquid Crystalline Epoxy Resins” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
96. H. Cui^b and M. R. Kessler “Improving the interfacial properties of glass fiber reinforced bio-renewable resin with silane coupling agents” Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2011). Aug. 7-10, 2011. Des Moines, IA.
95. + T. C. Mauldin,^b J. Leonard,^c K. Earl,^b J. K. Lee, M. R. Kessler “A Rheokinetic Technique Designed to Identify the Properties of Liquid Self-healing Agents” 3rd International Conference on Self-Healing Materials, June 27-29, 2011, Bath, UK.
94. N. Bowler, E. A. Stefanescu,^b L. Li, W. Sun, X. Tan, Z. Lin, and M. R. Kessler “Dielectric properties of PMMA-MMT nano-composites” Dielectrics 2011, April 13-15, 2011, Canterbury, UK.
93. T. C. Mauldin,^b E. F. Spiegel,^b and M. R. Kessler “Block copolymers derived from the acyclic diene metathesis (ADMET) polymerization of a modified vegetable oil” 241st ACS National Meeting, Division of Polymer Chemistry, March 27-31, 2011, Anaheim, CA, POLY-94. **(Selected for the Excellence in Graduate Polymer Research Symposium)**.
92. + M. R. Kessler, “Characterization of Composite Materials: Thermal Analysis of ROMP-Based Thermosets” 2011 TMS Annual Meeting & Exhibition, March 3, 2011. San Diego, CA. **Invited** for symposium on Characterization and Processing Techniques for Composites.
91. M. R. Kessler, R. C. Larock, P. Badrinarayanan “Production of Polyurethanes from Bio-based Diisocyanate and Polyols from Isosorbide” The Consortium for Plant Biotechnology, Inc. Symposium, March 1-2, 2011. Washington, D.C. Poster Presentation.
90. M.R. Kessler “CAREER Proposal: Perspectives from a Recent Awardee” Workshop for Faculty at Iowa State University, February 24, 2011, Ames, IA.

89. T. C. Mauldin^b and M. R. Kessler “Self-healing Polymers and Composites Derived from Renewable Resources” Proceedings of 2011 NSF Engineering Research and Innovation Conference, Jan. 4-7, 2011, Atlanta, GA, Pages: 3.
88. J. E. De León,^b E. A. Stefanescu,^b M. R. Kessler “Catalytic behavior of surface functionalized BaTiO₃ on the cure of bisphenol E cyanate ester” 2010 MRS Fall Meeting, Nov. 29-Dec. 3, 2010, Boston, MA.
87. + M. Thunga,^b Y. Xia, U. Gohs, G. Heinrich, R. C. Larock, M. R. Kessler “Influence of electron beam irradiation on mechanical properties of vegetable oil-based biopolymers” 1st International Symposium on **POLY**mer modification **With High Energy Electrons** (POLYWHEEL 2010), Nov. 24-26, 2010, Dresden, Germany, Poster Presentation, **Invited**.
86. + M. R. Kessler “The Path from an Engineering Student to a Professor: Pursuing a Career in Academia” Materials Science & Technology MS&T 2010 Conference, Oct. 17-21, 2010, Houston, TX, **Invited** by the President’s Council of Student Advisors (PCSA).
85. + K. Lawler, L. Van Steenhuyse, M. R. Kessler, M. Akinc “Viscosity of Alumina Nanopowder Suspensions in the Presence of Saccharides” Materials Science & Technology MS&T 2010 Conference (The American Ceramic Society Annual Meeting), Oct. 17-21, 2010, Houston, TX, **Invited**.
84. H. Cui^b and M. R. Kessler “Effect of silane coupling agent on interfacial properties of glass fiber reinforced bio-renewable resin” 47th Annual Technical Meeting of the Society of Engineering Science, October 4-6, 2010. Ames, IA.
83. X. Sheng^b and M. R. Kessler “Toughening of Bisphenol E Cyanate Ester ” 47th Annual Technical Meeting of the Society of Engineering Science, October 4-6, 2010. Ames, IA.
82. P. R. Hondred,^b S. H. Yoon,^b N. Bowler, and M. R. Kessler “Degradation Kinetics of Wiring Insulation Material ” 47th Annual Technical Meeting of the Society of Engineering Science, October 4-6, 2010. Ames, IA.
81. E. A. Stefanescu,^b D. Gottschalk,^b X. Tan, Z. Lin, N. Bowler, M. R. Kessler “Polymer-Ceramic Formulations for Dielectric Applications” 47th Annual Technical Meeting of the Society of Engineering Science, October 4-6, 2010. Ames, IA.
80. J. E. De León,^b E. A. Stefanescu,^b X. Tan, Z. Lin, N. Bowler, M. R. Kessler “Thermal and Mechanical Properties of Bisphenol E Cyanate Ester Matrix Composites Embedded with Nano- and Micro-scale Fillers for Multifunctional High Energy Density Capacitor Applications” 47th Annual Technical Meeting of the Society of Engineering Science, October 4-6, 2010, Ames, IA.
79. J. E. De León,^b E. Stefanescu,^b X. Tan, Z. Lin, N. Bowler, M. R. Kessler, "Bisphenol-E cyanate ester-based multifunctional composites", 4th Annual Graduate Minority Assistantship Program Research Symposium, June 16 2010, Ames, IA.
78. M. R. Kessler, P. Badrinarayanan,^b R. Larock, and D. Grewell “Advanced Carbon Fiber from Lignin” Midwest Biopolymers & Biocomposites Workshop, May 11, 2010. Ames, IA (Poster Presentation).
77. M. Thunga,^b Y. Xia, U. Gohs, G. Heinrich, R. C. Larock, M. R. Kessler “Engineering the mechanical properties of vegetable oil based biopolymers with electron beam irradiation” Midwest Biopolymers & Biocomposites Workshop, May 11, 2010. Ames, IA (Poster Presentation).
76. H. Cui,^b M. R. Kessler “Effect of silane coupling agent on interfacial properties of glass fiber reinforced biorenewable resin” Midwest Biopolymers & Biocomposites Workshop, May 11, 2010. Ames, IA (Poster Presentation).
75. J. E. De León,^b E. Stefanescu, X. Tan, Z. Lin, N. Bowler, M. R. Kessler “Improvement of Dielectric Properties of Bisphenol E cyanate Ester Matrix Composites with Nano- and Micro-scale Filler for Multifunctional Applications” Iowa Academy of Science 122nd Annual Meeting, April 16-17, 2010, Lamoni, IA.
74. M. Thunga,^b W. Lio,^b M. Akinc, M. R. Kessler “Bisphenol E Cyanate Ester as a Novel Resin for Repairing High Temperature Advanced Aircraft Composites” Iowa Academy of Science 122nd Annual Meeting, April 16-17, 2010, Lamoni, IA.

73. K. Haman^b and M. R. Kessler, "Cure Characterization of Bisphenol E Cyanate Ester-Zirconium Tungstate Composites" *Journal of Undergraduate Research*, 2009; 9, 221.
72. P. Badrinarayanan,^b M. R. Kessler "Advanced Carbon Fibers from Lignin" 2010 IAWIND and IWEA Annual Meeting & Conference, April 6, 2010. Ames, IA (Poster Presentation).
71. + M. R. Kessler, M. Akinc, X. Sheng,^b W. Lio,^b K. Lawler,^b M. Thunga,^b J. Henson^c "Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites: Repair System Evaluation" The Partners in Environmental Technology Technical Symposium and Workshop (Sponsored by SERDP and ESTCP), December 1-3, 2009, Washington D.C. Poster Presentation, **Invited**.
70. J. Trovillion, X. Sheng,^b T. Mauldin,^b M. R. Kessler "Design and Synthesis of Monomers for Self-healing Composite Materials" 2009 US Army Corps of Engineers (USACE) Research and Development Conference, November 17-19, 2009, Memphis, TN.
69. D. Grewell, M. Vlad, G. Srinivasan, M. R. Kessler, R. Larock "Investigation of Processability of Protein Based Plastics and Composites for Industrial Applications" Pacific Rim (PACRIM) Summit on Industrial Biotechnology & Bioenergy, November 8-11, 2009. Honolulu, HI, **Invited**.
68. J. Leonard,^c Prashanth Badrinarayanan, and Michael R. Kessler "Carbon Nanotube Reinforced Bisphenol E Cyanate Ester Nanocomposites" Great Midwestern Regional Space Grant Consortia Meeting, Sept. 24-25, 2009. NASA Glenn Research Center, Cleveland, OH.
67. S. H. Yoon,^b N. Bowler, and M. R. Kessler "Thermal Analysis of PTFE Electrical Wiring Insulation Material Subjected to Heat Treatments" Proceedings of the Seventh Japan-Korea Joint Symposium on Composite Materials, September 25, 2009. Kanazawa, Japan.
66. P. Badrinarayanan^b and M. R. Kessler "Rapid Heating/Cooling DSC for Polymer Characterization" Proceedings of the North American Thermal Analysis Society Annual Conference (NATAS 2009). Sept. 21-23, 2009. Lubbock, TX.
65. + D. Grewell, K. Rajan, D. Fuch, and M. Kessler "VARTM Processing of Self-healing Composites with Reinforcement Bound Microcapsules" Second International Conference on Self-healing Materials, Chicago, IL, June 28-July 1, 2009. **Invited**.
64. + T. C. Mauldin^b and M. R. Kessler^b "Improving Bulk Dissolution of Grubbs' Catalysts in Ring-Opening Metathesis-based Healing Agents" Second International Conference on Self-healing Materials, June 28-July 1, 2009. Chicago, IL. **Invited**.
63. + X. Sheng,^b T. C. Mauldin,^b and M. R. Kessler "Design and Synthesis of Next-generation Monomer Healing Agents" Second International Conference on Self-healing Materials, June 28-July 1, 2009. Chicago, IL. **Invited**.
62. + M. R. Kessler, M. Akinc "High Temperature Resin Injection Repair for Composites" 9th Annual DoD Advanced Composite Maintainers Conference, June 9-11, 2009, Lake Buena Vista, FL, **Invited**.
61. + M. R. Kessler, R. Larock, Y. Lu "Polymers and Composites from Agricultural Oils" 100th AOCS Annual Meeting and Exposition, May 3-6, 2009, Orlando, FL, **Invited**.
60. + D. Pfister, R. Quirino, R. Larock, M. R. Kessler, "Biorenewable Composites Reinforced with Under-Used Agricultural Co-Products" Recycling & Reuse Technology Transfer Center (RRTTC) Advisory Board, April 9, 2009, University of Northern Iowa, **Invited**.
59. M. Valverde, S. H. Yoon,^b W. Jeong,^b R. Larock, and M. R. Kessler "Rubber Composites From Plant Oils" The Consortium for Plant Biotechnology, Inc. Symposium, February 9-11, 2009. Washington, D.C. Poster Presentation.
58. D. Pfister, R. Quirino, R. C. Larock and M. R. Kessler "Biocomposites from Renewable Oils and Ag Co-Products" The Consortium for Plant Biotechnology, Inc. Symposium, February 9-11, 2009. Washington, D.C. Poster Presentation.
57. M. R. Kessler and R. Larock "Fiberglass Reinforced Polymers From Agricultural Oils" 1st ISU Wind Energy Symposium, December 9, 2008. Ames, IA (Poster Presentation).

56. + M. R. Kessler, M. Akinc, X. Sheng,^b W. Lio,^b K. Lawler^b “Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites: Nanofluid Processing and Characterization” The Partners in Environmental Technology Technical Symposium and Workshop (Sponsored by SERDP and ESTCP), December 2-4, 2008, Washington D.C. Poster Presentation, **Invited**.
55. + N. Bowler, L. Li, S. H. Yoon^b and M. R. Kessler “Dielectric and Thermal Analysis Properties of PTFE Wiring Insulation for Nondestructive Evaluation and Lifetime Prediction” NASA Aviation Safety Technical Conference, October 21 - 23, 2008, Denver, CO. **Invited**.
54. X. Liu,^b G. H. Lee, G. C. Huang, J. K. Lee,^b J. S. Kim, S. H. Yoon,^b M. R. Kessler, "A Damage Repairing Technique in Composite Materials (III): Mechanical Properties of Epoxy Embedded with Microcapsules", The Polymer Society of Korea, Society's Spring Meeting, Apr. 10-11, 2008, DaeJeon, Korea, Korea.
53. G. C. Huang, X. Liu,^b J. K. Lee,^b J. S. Kim, S. H. Yoon,^b M. R. Kessler, “A Damage Repairing Technique in Composite Materials (I): Adhesion of Self-healing Agents to Epoxy”, The Polymer Society of Korea, Society's Fall Meeting, October 9-10, 2008, Ilsan, Korea.
52. M. Valverde, Sungho Yoon,^b Wonje Jeong,^b Richard Larock, and Michael Kessler “Bio-based Rubbers from Agricultural Oil”; Growing the Bioeconomy, 2008 Biobased Industry Outlook Conference, September 7-9, 2008, Ames, IA (poster presentation).
51. M. Valverde, S. H. Yoon,^b W. Jeong,^b R. Larock, and M. R. Kessler “Bio-based Rubbers from Soy Oil”; ACS Green Chemistry Summer School, July 9-17, 2008, Golden, CO (Poster Presentation).
50. K. Lawler,^b Lisa Nielsen, M. Akinc, M.R. Kessler “Viscosity Reduction in Aqueous Alumina Nanoparticle Suspensions” 2nd International Congress on Ceramics (ICC2), in the session on Theme 6 scheduled on July 2, 2008. (manuscript ID 885). Verona, Italy.
49. D. Grewell, M. Kessler, and H. Van Auken, “Ultrasonic Assisted Exfoliation of Bio-Renewable Polymer Nanocomposites with Micro-Cellular Structures” Grow Iowa Values Fund Summary Presentation, Ames, IA, June 3, 2008.
48. D. Grewell, G. Srinivasan, M. Baboi, M. R. Kessler, W. Graves, and M. Helgeson “Protein Based Plastics” Midwest Biopolymers & Biocomposites Workshop, April 22, 2008. Ames, IA (Poster Presentation).
47. K. Haman,^c M. R. Kessler “Ring-Opening Metathesis Polymerization of Modified Linseed Oil Copolymerized with Bis-norbornadiene Cross-linking Agent” Midwest Biopolymers & Biocomposites Workshop, April 22, 2008. Ames, IA (Poster Presentation).
46. M. Kessler, R. Larock, Y. Lu, and P. Henna “Fiberglass Reinforced Polymers From Agricultural Oils” Midwest Biopolymers & Biocomposites Workshop, April 22, 2008. Ames, IA (Poster Presentation).
45. X. Liu,^b X. Sheng,^b J. K. Lee,^b M. R. Kessler, “A new paradigm in materials design: Self-healing agent candidates” The Polymer Society of Korea, Society's Spring Meeting, Apr. 10-11, 2008, DaeJeon, Korea.
44. X. Liu,^b X. Sheng,^b J. K. Lee,^b M. R. Kessler, “A New Paradigm in Materials Design: Manufacture of Microcapsules”, The Polymer Society of Korea, Society's Spring Meeting, April 10-11, 2008, DaeJeon, Korea.
43. X. Liu,^b J. K. Lee,^b J. S. Kim, S. H. Yoon,^b M. R. Kessler, "A Damage Repairing Technique in Composite Materials (II): Microencapsulation Using a Shirasu Porous Glass (SPG) Technique.", The Polymer Society of Korea, Society's Spring Meeting, April 10-11, 2008, DaeJeon, Korea.
42. X. Liu,^b G. H. Lee, G. C. Huang, J. K. Lee,^b J. S. Kim, S. H. Yoon,^b M. R. Kessler, "A Damage Repairing Technique in Composite Materials (III): Mechanical Properties of Epoxy Embedded with Microcapsules", The Polymer Society of Korea, Society's Spring Meeting, April 10-11, 2008, DaeJeon, Korea, Korea.

41. R. Quirino, R. Larock, and M. R. Kessler “Biorenewable Composites Reinforced with Under-used Agricultural Co-Products” Recycle and Reuse Technology Transfer Center meeting, April 07, 2008, University of Northern Iowa, Cedar Falls, Iowa.
40. S. W. Hong, W. Jeong,^b H. Ko, V. Tsukruk, M. R. Kessler, Z. Lin, “Directed Self-Assembly of Gradient Concentric Carbon Nanotube Rings” 2008 American Physical Society (APS) March Meeting, March 10-14, 2008, New Orleans, LA.
39. A. L. Shipman, M. R. Kessler, and J. C. DiCesare “Strength Enhancement Through Carbon Nanotube Functionalization Using a Pendant Norbornene” 235th ACS National Meeting, Division of Chemical Education, April 6-10, 2008, New Orleans, LA, CHED-338 (Abstract reviewed).
38. + M. R. Kessler, “Polymers and Composites from Vegetable Oils and Proteins” February 25, 2008. Guest Speaker for Environmental Science seminar series (EnSci 690, an R-credit course for grad students enrolled in the interdisciplinary Environmental Science graduate program). Ames, IA.
Invited.
37. + M. R. Kessler and M. Akinc, “WP-1580: Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites” SERDP & ESTCP Joint Annual Winter In-Progress Review, Weapons Systems and Platforms, February 13, 2008. Washington, D.C. **Invited.**
36. M. R. Kessler and R. C. Larock, “Fiberglass Reinforced Polymers from Agricultural Oils” The Consortium for Plant Biotechnology, Inc. Symposium, February 11-13, 2008. Washington, D.C. Poster Presentation.
35. M. R. Kessler, M. Akinc, X. Sheng,^b and W. K. Goertzen,^b “Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites: Resin Development” The Partners in Environmental Technology Technical Symposium and Workshop (Sponsored by SERDP and ESTCP), December 4-6, 2007, Washington D.C. Poster Presentation.
34. Xing Liu,^b Xia Sheng,^b Michael R. Kessler, and Jong Keun Lee,^b “Synthesis and characterization of melamine-urea-formaldehyde microcapsules containing ENB-based self-healing agents”, The Polymer Society of Korea, Society's Fall Meeting, Oct. 11-12, 2007, Ilsan, Korea.
33. Xing Liu,^b Xia Sheng,^b Michael R. Kessler, and Jong Keun Lee,^b “Rheokinetic evaluation of self-healing agents polymerized by Grubbs catalyst embedded in various thermosetting systems”, The Polymer Society of Korea, Society's Fall Meeting, Oct. 11-12, 2007, Ilsan, Korea.
32. M. R. Kessler, “Effective Tools for Student Engagement and Research Group Management” Proceedings of the 2007 ASEE Annual Conference, June 24-27, 2007. Honolulu, HI.
31. J. C. DiCesare, A. Shipman, M. Kessler, and K. Roberts “Synthesis of Functionalized Carbon Nanotubes for Polymer Strength Enhancement” Oklahoma EPSCoR Annual State Conference, May 17, 2007. Stillwater, OK.
30. A. L. Shipman, M. R. Kessler, C. J. Peeples, and J. C. DiCesare, “Synthesis of Functionalized Carbon Nanotubes for Polymer Strength Enhancement” ACS National Meeting, Division of Chemical Education, March 25-29, 2007, Chicago, IL, CHED-493 (Abstract reviewed).
29. M. R. Kessler, “Fun with Ring-Opening Metathesis: Applications to Self-healing Composites” Guest Speaker for the ISU Student Chapter of the Materials Advantage Meeting, February 6, 2007. Ames, IA.
28. J. C. DiCesare, M. R. Kessler, C. J. Peeples, and M. Kiker, “Synthesis of Functionalized Carbon Nanotubes for Ring Opening Metathesis Polymerization Reactions” Oklahoma EPSCoR Annual State Conference, May 18, 2006. Norman, OK.
27. +M. R. Kessler, J. K. Lee,^b X. Liu,^b L. H. Charles^b and X. Sheng^b “Cure Development and Adhesive Fracture Toughness of ROMP Healing Agents” Proceedings of the 15th U.S. National Congress of Theoretical and Applied Mechanics (ICTAM'06). June 25-30, 2006. Boulder, CO (Abstract reviewed) **Invited.**
26. M. R. Kessler, “Enhancing Student Motivation by Publishing a Class Textbook—A New Engineering Educator’s Perspective” Proceedings of the 2006 ASEE Annual Conference, June 18-21, 2006. Chicago, IL.

25. M. R. Kessler, "Opportunities for Materials Informatics in Polymers and Composites" Invited Seminar for NSF Sponsored Workshop on Materials Informatics (CoSMIC-IMI), May 5, 2006. Des Moines, IA.
24. M. K. Kiker, C. J. Peeples, M. R. Kessler, and J. C. DiCesare, "Synthesis of Functionalized Carbon Nanotubes for Ring Opening Metathesis Polymerization Reactions" ACS National Meeting, 231:326-CHED, Division of Chemical Education, March 26, 2006, Atlanta, GA, CHED-326 (Abstract reviewed).
23. +M. R. Kessler and G. E. Larin,^b "Bio-Inspired Composites: The Influence of Polymerization Kinetics on Self-healing" 2005 ASME International Mechanical Engineering Congress. November 5-11, 2005. Orlando, FL. (Abstract reviewed) **Invited**.
22. M. R. Kessler and R. Palakodeti,^b "Bio-Inspired Elastomers: The Effect of Prestrain on the Efficiency of Electroactive Polymer Actuators" 2005 ASME International Mechanical Engineering Congress, November 5-11, 2005. Orlando, FL. (Abstract reviewed).
21. +M. R. Kessler and G. E. Larin,^b "Rheokinetics of Ring-Opening Metathesis Polymerization with Applications to Self-healing Composites" *Proceedings of McMat 2005*, The 2005 Joint ASME/ASCE/SES Conference on Mechanics of Materials. June 1-3, 2005, Baton Rouge, Louisiana. Paper 409. (Abstract reviewed) **Invited**.
20. M. R. Kessler, "Self-healing Composites Research at the University of Tulsa" Invited Lecture for ASME Mid-Continent Section (Region 10) Meeting. April 21, 2005. Tulsa, OK.
19. S. J. Miska,^c M. R. Kessler, and J. M. Wilson,^b "Cure Kinetics, Workability, and Glass Transition of an Epoxy Resin Used in Pipe Repair Applications" 25th Oklahoma AIAA/ASME Symposium, February 12, 2005. Stillwater, OK.
18. G. E. Larin^b and M. R. Kessler, "Autonomic Healing System Optimization: ROMP Rheokinetics" 25th Oklahoma AIAA/ASME Symposium, February 12, 2005. Stillwater, OK.
17. W. K. Goertzen^b and M. R. Kessler, "Heating Rate and Frequency Dependence of the Glass Transition Temperature for an Epoxy Matrix Composite" 25th Oklahoma AIAA/ASME Symposium, February 12, 2005. Stillwater, OK.
16. J. M. Roman,^c J. M. Wilson,^b and M. R. Kessler, "Flame Testing of Intumescent Coatings Applied to Composite Repair Systems" 25th Oklahoma AIAA/ASME Symposium, February 12, 2005. Stillwater, OK.
15. M. R. Kessler, "A Material Fix: Self-healing Polymer Composites" Invited Departmental Seminar, Department of Materials Science and Engineering, Iowa State University. November 15, 2004. Ames, IA.
14. M. R. Kessler, "Multifunctional Composite Materials" Invited Lecture for NSF-EPSCoR Nanomaterials Workshop for High-School Science Teachers. July 13, 2004. Tulsa, OK.
13. M. R. Kessler, "Self-healing of Polymers and Composites" Invited Lecture for the Tulsa Welding Society. March 23, 2004. Tulsa, OK.
12. J. M. Duell^b and M. R. Kessler, "Finite Element Analysis of a Steel Pipe with an Axi-Symmetric Defect Repaired with a Carbon Composite Wrap" 24th Oklahoma AIAA/ASME Symposium, February 28, 2004. Oklahoma City, OK.
11. J. M. Wilson^b and M.R. Kessler, "Cure Kinetics and Viscosity Characterization of an Epoxy Resin for Pipe Repair Applications" 24th Oklahoma AIAA/ASME Symposium, February 28, 2004. Oklahoma City, OK.
10. V. Kumar^b and M. R. Kessler, "Fracture Analysis of Width-Tapered Double-Cantilever Beam Using Finite Element Method" 24th Oklahoma AIAA/ASME Symposium, February 28, 2004. Oklahoma City, OK.
9. W. K. Goertzen^b and M. R. Kessler, "Coefficient of Thermal Expansion Testing of Carbon Fiber Composite Overwrap Used in Pipe Repair System" 24th Oklahoma AIAA/ASME Symposium, February 28, 2004. Oklahoma City, OK.

8. M. R. Kessler, "On the Mend: Polymers Get Smarter and Smarter" Chemistry Seminar. The University of Tulsa. October 20, 2003. Tulsa, OK.
7. M. R. Kessler, "Composite, Heal Thyself!" 78th Annual Meeting of the Southwestern and Rocky Mountain Division of the American Association for the Advancement of Science (AAAS-SWARM), April 9, 2003. Tulsa, OK.
6. M. R. Kessler, "New Paradigms in Damage Repair of Composite Materials: Autonomic Healing" 23rd Oklahoma AIAA/ASME Symposium, March 8, 2003. Norman, OK.
5. M. R. Kessler, "Self-healing Polymers" Mechanical Engineering Professional Society (MEPS) Seminar. The University of Tulsa. March 5, 2003. Tulsa, OK.
4. # S. R. White, E. N. Brown, M. R. Kessler, and S. R. Sriram, "Self-healing Polymer Composites" 10th International Conference on Fracture 5.2.4, December 3, 2001. Honolulu, Oahu, HI. (Abstract reviewed).
3. # M. R. Kessler, "Self-healing of Woven Composites Using Embedded Microcapsules" Department of Theoretical and Applied Mechanics Seminar, UIUC. October 4, 2001. Champaign-Urbana, IL.
2. # S. R. White, N. R. Sottos, J. S. Moore, P. H. Geubelle, E. Brown, M. Kessler, and S. Sriram, "Autonomic Healing in Polymer Composites" SEM Annual Conference and Exposition, June 6, 2001. Portland, OR. (Abstract reviewed).
1. # M. R. Kessler and S. R. White, "Self-healing of Delamination in Woven Glass/Epoxy Composites using Embedded Microcapsules" Proceedings of the 37th Annual Technical Meeting of the Society of Engineering Science, October 2000. Columbia, SC (2nd Place in the Society of Engineering Science Student Paper Competition). (Abstract reviewed).

K. Book and Paper Reviews (in print or accepted)

None

L. Patents, Disclosures and Technology Transfer Activities

21. Y. Li,^b M. R. Kessler, O. Rios, "Multifunctional Liquid Crystalline Networks" Invention Disclosure, Washington State University Office of Commercialization, Case No. 1619, November 4, 2015. Provisional application filed on January 19, 2016, and assigned serial number 62/280,189.
20. C. Zhang,^b M. R. Kessler "Methacrylated Vanillyl Alcohol as a Monomer and Reactive Diluent for Thermoset Polymers". Invention Disclosure, Washington State University Office of Commercialization, Case No. 1577, July 6, 2015. Provisional application filed on July 7, 2015, and assigned serial number 62/189,625.
19. Y. Li,^b M. R. Kessler, O. Rios, A. Johs "Controlled shape memory behaviors of a smectic main-chain liquid crystalline elastomer" Invention Disclosure, Washington State University Office of Commercialization, Case No. 1538, March 10, 2015. Provisional application filed on April 6, 2015, and assigned serial number 62/143,691.
18. R. Chen,^b J. Chen, C. Zhang,^b M. R. Kessler "Soybean oil-based multiaziridine-containing compound was subject to rapid room-temperature, catalyst-free polymerization with bio-based diacids" Invention Disclosure, Iowa State University Research Foundation (ISURF), ISURF #04279, August 24, 2014. Provisional application filed on April 6, 2015, with the updated title "Aziridinated Triglycerides and Polymers Formed Therefrom" and assigned serial number 62/143,497.
17. C. Zhang,^b M. R. Kessler, Y. Xia,^b R. Chen,^b "Soy-Castor Oil Based Polyols Prepared Using a Solvent-free and Catalyst Free Method and Polyurethane Therefrom" Invention Disclosure, Iowa State University Research Foundation (ISURF).
16. S. Madbouly, Y. Xia, K. Bratlie, M. R. Kessler "Biorenewable Multifunctional Polyurethane-lignin Nanocomposites for Improved Drug Delivery Systems" Invention Disclosure, Iowa State University Research Foundation (ISURF) #04172, October 14, 2013.
15. M. R. Kessler, D. Vennerberg,^b "Anisotropic Buckypaper Fabrication through Shear Alignment" Invention Disclosure, Iowa State University Research Foundation (ISURF), ISURF # 04169,

September 29, 2013. Patent application filed July 18, 2014 with updated title “Method, Apparatus, and System for Producing Buckypaper or Similar Sheet of Layer of Elongated Nanostructures with a Degree of Nanostructure Alignment”

14. M. R. Kessler, Y. Xia,^b B. Caes, M. Rivas, J. Bergman,^b “Nitrated Lignin Ester and Process for Making the Same” (Patent) US Patent Office, Patent Application Number 61/898,512. Submitted 11/21/2013, Patent Application Number 14/525,664, Filing Date 10/28/2014, US20150126716A1, 2015.
13. J. Chen, M. R. Kessler, M. Zenner,^b “Tackifier Compounds and Methods of Using the Same” Invention Disclosure, Iowa State University Research Foundation (ISURF), U.S. Provisional Patent Application (Serial No. 61/872,116), August 30, 2013. PCT application filed October 15, 2013 and assigned serial no. PCT/US13/64960. International Publication Number WO 2014/062625 A1. International Publication Date 24 April 2014. US Case Number 14/434,719.
12. M. R. Kessler, D. Vennerberg,^b R. Quirino^b “Metal Refinement and Metal Composite Materials Using Carbon Nanotubes” U.S. Patent Application (Serial No.: 13/828,910), March 14, 2013.
11. M. Thunga,^b K. Chen,^b M. R. Kessler “Compositions Including Esterified Lignin and Poly(lactic acid) and Carbon Fibers Produced Therefrom” United States Patent Application Publication, Pub. No.: US2014/0099505 A1, Published April 10, 2014.
10. M. R. Kessler, R. Quirino,^b D. Vennerberg,^b “Microwave Irradiation of Multi-walled Carbon Nanotubes (MWCNTs) as Energy Efficient Heating Source for High Temperature Reactions” Invention Disclosure, Iowa State University Research Foundation (ISURF), ISURF #4031, May 21, 2012.
9. J. Chen, M. R. Kessler, M. Zenner,^b “Polyisocyanates from Fused Bicyclic Polyols and Polyurethanes Therefrom” Invention Disclosure, Iowa State University Research Foundation (ISURF), U.S. Patent Application, October 15, 2012. U.S. Patent Application No. 61/713,889, International Application No. PCT/US2013/064972, October 15, 2013.
8. M. B. Abney, J. Alleman, M. Kessler, J. M. Mansell, “Bosch-Based Technology for CO₂ Emission Reduction in the Cement Industry,” Invention Disclosure, NASA Technology Transfer System, Marshal Space Flight Center, May 7, 2012, Case Number: MFS-32972-1 (e-NTR#: 1336403536).
7. W. Jeong,^b X. Sheng,^b and M. R. Kessler, “Toughness Enhancement in ROMP Functionalized Carbon Nanotube / Polymer Composites,” Patent Disclosure, Iowa State University Research Foundation (ISURF), ISURF #03660, October 15, 2008. U.S. Patent Application, 2009, Pending.
6. R. C. Larock, P. H. Henna, and M. R. Kessler, “Thermoset Polymers via Ring Opening Metathesis Polymerization of Functionalized Oils,” United States Patent 8,318,876, Issued November 27, 2012.
5. J. M. Wilson,^b M. Kessler, R. Walker, “Intumescent Substrate Coating,” United States Patent 7,601,426, Issued October 13, 2009.
4. J. M. Wilson,^b M. Kessler, and R. Walker, “Composite Plug System and Process for High Pressure Pipeline Leaks” United States Patent 7,740,028, Issued June 22, 2010.
3. S. R. White, N. Sottos, P. Geubelle, J. Moore, S. Sriram, M. Kessler, and E. Brown, “Multifunctional Autonomically Healing Composite Material,” United States Patent 6,858,659 B2, Issued February 22, 2005.
2. M.R. Kessler, S.R. White, and B. Myers, “Catalyzed Reinforced Polymer Composite,” United States Patent 6,750,272, Issued June 15, 2004.
1. S. White, N. Sottos, P. Geubelle, J. Moore, S. Sriram, M. Kessler, and E. Brown, “Multifunctional Autonomically Healing Composite Material,” United States Patent 6,518,330, Issued February 11, 2003.

M. Consulting Activities

- Citadel Technologies, Inc. and Honeywell Aerospace 2004
- Selected several potential adhesives to be used to bond two sections of a water separator in the B1B Bomber

- Evaluated glass transition temperature and bond strength at the proposed operating temperature for candidate adhesive systems
- Made recommendation for the best adhesive

Alquest, Inc. (Minneapolis, MN) 2007

- Evaluation of the static and dynamic properties of carbon reinforced PEEK composite spinal implant to help client obtain FDA clearance
- Input on planned testing for composite samples

Air Logistics Corporation (Azusa, CA) 2007

- Adhesive fracture evaluation of curved steel/composite interfaces for structural overwrap repairs of damaged pipelines and pipework

Society of Industry Leaders Member 2007-2010

- Confidential consultations with Vista Research Inc. clients in the area of polymers, composites, and thermal analysis.

EA Services (Houston, TX) 2008

- Material system performance evaluation to characterize a new composite overwrap pipe repair product.

Overland Conveyor Company, Inc. (Pella, IA) 2008

- Characterization and modeling of the viscoelastic properties of a cured elastomer.

Lake Region Medical (Chaska, MN) 2010

- Evaluation of guide wires for interventional procedures.

TA Instruments (New Castle, DE) 2011-2013

- Confidential consultation with TA Instruments clients about applications for thermal analysis.
- Seminars and lectures about thermal analysis of polymers.

N. Other

- Michael Kessler and Donna Farrior, “Beam Deflection Using Real-time Sensors” Mechanical Engineering-Mathematics Interdisciplinary Lively Application Project (ILAP). For NSF CCLI program, available at <http://www.ilaps.utulsa.edu/>, 2005.
- David Grewell, Michael Kessler, and William Graves, “Protein-based Plastics and Applications” *Bioplastics Magazine*, Issue 02/2007 (June), 34-35.
- David Grewell, Mike Kessler, Maria Vlad, and Gowrishankar Srinivasan, “Enhancing Plastic from Naturally Occurring Proteins,” *Plastics Global*, 2007.
- Michael R. Kessler, Mufit Akinc, Xia Sheng, Katherine Lawler, and Wilber Lio, “Toxicity of Cyanate Ester/Nanocomposite Resins for Composite Repair” White paper for the Strategic Environmental Research and Development Program (SERDP), April 2008, 1-18. **Invited.**

O. Publications and Creative Works Submitted but Not Accepted:

1. C. Zhang, T.F. Garrison, S. Madbouly, M.R. Kessler: *Recent Advances in Renewable Polymers and Composites from Vegetable Oils*, **Progress in Polymer Science**, Submitted November 2015.
2. J. Vaddi, S. D. Holland, M. R. Kessler: *Absorptive Viscoelastic Coatings for Full Field Vibration Coverage Measurement in Vibrothermography*, **NDT & E International**, Submitted January 2016.

3. D. M. Kadam, M. Thunga, G. Srinivasan, S. Wang, M. R. Kessler, D. Grewell, C. Yu, B. L. Lamsal: *Effect of TiO₂ Nanoparticles on the Thermo-Mechanical Properties of Zein Protein Films*, **Food and Bioprocess Technology: An International Journal**, Submitted March 2016.
4. Y. Li, O. Rios, J. K. Keum, J. Chen, M. R. Kessler: *Photo-responsive Liquid Crystalline Epoxy Networks with Shape Memory Behavior and Dynamic Ester Bonds*, **Nature Communications**, Submitted February 2016.

III. INSTRUCTION AND SUPERVISION

A1. Instruction at WSU

Undergraduate Level Courses:

- Senior Thesis, MSE 425, 3 credits
 - Fall 2013, 11 Students, Overall Instructor Rating Score: **4.3** (1: Poor – 5: Excellent)
 - Fall 2014, 5 Students,
- Graduate Seminar, ME 598, 1 credit
 - Fall 2015, 42 Students, Overall Instructor Rating Score: **4.5** (1: Poor – 5: Excellent)

A2. Instruction prior to WSU

Graduate Level Courses:

- Polymer Composites and Processing, MSE 554, 3 credits
 - Fall 2006, 7 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.6** (1: Poor – 5: Excellent)
 - Fall 2007, 5 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.7**
 - Fall 2008, 6 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.8**
 - Spring 2010, 11 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.4**
 - Spring 2011, 13 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.6**
 - Spring 2012, 10 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.6**
 - Spring 2013, 17 Students, Overall Teaching Effectiveness Score (Q.6-15): **4.7**
- Physical and Mechanical Properties of Polymers, MSE 553, 2 credits
 - Spring 2009, 3 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.9**
- Physical and Mechanical Properties of Polymers Lab, MSE 553L, 1 credits
 - Spring 2009, 3 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.9**
- Physical and Mechanical Properties of Polymers, MSE 553, 3 credits
 - Fall 2011, 10 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.7**
- Experimental Characterization of Composite Materials (Spring 2004)
- Mechanical Control Design (Fall 2003)

Undergraduate Level Courses:

- Polymer Composites and Processing, MatE 454, 3 credits
 - Fall 2006, 17 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.2** (1: Poor – 5: Excellent)
 - Fall 2007, 14 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.5**
 - Fall 2008, 16 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.6**
 - Spring 2010, 15 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.4**
 - Spring 2011, 18 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.7**
 - Spring 2012, 22 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.4**
 - Spring 2013, 13 Students, Overall Teaching Effectiveness Score (Q.6-15): **4.7**
- Polymers and Polymer Engineering, MatE 442/ChemE 442, 3 credits
 - Spring 2007, 23 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.4**
- Physical and Mechanical Properties of Polymers, MatE 453, 2 credits
 - Spring 2009, 21 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.7**
- Physical and Mechanical Properties of Polymers Lab, MatE 453L, 1 credits
 - Spring 2009, 21 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.5**
- Physical and Mechanical Properties of Polymers, MatE 453, 3 credits
 - Fall 2011, 16 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.6**
 - Fall 2012, 23 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.7**
- Principles of Materials Science and Engineering, Mat E 392, 3 credits
 - Summer 2012, 16 Students, Taught as study abroad course at Brunel University, UK, no instructor evaluation data available.

- Engineering Problems with Computer Applications Laboratory, Engr 160, 3 credits
 - Spring 2006, 18 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.1**
 - Spring 2008, 28 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.1**
 - Fall 2009, 36 Students, Avg. Instructor Evaluation Score (Q.6-15): **4.0**
- Microcomputer Fundamentals for Mechanical Engineers (Fall 2002, Spring 2004, Fall 2004, Spring 2005)
- Statics (Spring 2005)
- Instrumentation and Measurements (Spring 2003, Fall 2003, Fall 2004)
- Mechanical Control Design (Fall 2003)
- Mechanics of Materials (Summer 1998)
- Behavior of Materials (Fall 1997, Spring 1998)
- Statics and Dynamics (Fall 1996, Spring 1997)

B. Additional Instruction & Professional Development (including Short Courses, Workshops, Training)

- Attendee “Effective Teaching Workshop”, by Rich Felder and Rebecca Brett, August 20-21, 2015, Pullman, WA.
- M. R. Kessler, “Thermal Analysis and Rheology of Thermosetting Polymers” NATAS Short Course on Thermal Analysis of Polymers, August 14-15, 2010, Philadelphia, PA.
- M. R. Kessler, “Thermal Analysis of Thermosetting Polymers” TA Instruments Thermal Analysis Seminars, October 1-2, 2009, New Castle, DE.
- M. R. Kessler, “Thermal Analysis and Rheology of Thermosetting Polymers” NATAS Short Course on Thermal Analysis of Polymers, September 19-20, 2009, Lubbock, TX.
- Instructor for Investigation through the ICN, An Engineering Outreach and Recruitment Event, Lecture Titled “Common Materials in Engineering—Polymers What They Are and How They Work,” October 24, 2005.

C. Curricular Development Activity

- Developed new 3 credit graduate course: Experimental Characterization of Composite Materials (Spring 2004, Univ. of Tulsa)
- Developed five new laboratory experiments for MatE453L/MSE553L-Physical and Mechanical Properties of Polymers courses (Spring 2009).

D. Supervision of Graduate Student Research for Which Candidate is Primary Advisor or Co-Advisor

Current Students:

- Rock, Darman (Mitch), PhD, 2012-Present, work in progress, degree expected 2016.
- Kathryn Mireles, PhD, 2013-Present, work in progress, degree expected 2016.

Former PhD Students:

17. Zenner, Michael D., PhD (J. Chen, co-advisor), 2011-2015,
Dissertation: "Biorenewable materials from isosorbide" (2015). *Doctoral dissertation*.
16. Wu, Hongchao, PhD, 2010-2014,
Dissertation: "Multifunctional polymer composites containing inorganic nanoparticles and novel low-cost carbonaceous fillers" (2014). *Doctoral dissertation*. Paper 13708.
URL: <http://lib.dr.iastate.edu/etd/13708>
15. Chen, Ruqi, PhD, 2011-2014,
Dissertation: "Bio-based polymeric materials from vegetable oils" (2014). *Doctoral dissertation*. Paper 13709.
URL: <http://lib.dr.iastate.edu/etd/13709>
14. Li, Yuzhan, PhD, 2010-2014,

- Dissertation: "Synthesis and characterization of liquid crystalline epoxy resins" (2014).
Doctoral dissertation. Paper 13727.
 URL: <http://lib.dr.iastate.edu/etd/13727>
13. Zhang, Chaoqun, PhD, 2011-2014,
 Dissertation: "Polyurethane films, foams and nanocomposites prepared from vegetable oil-based polyols" (2014). *Doctoral dissertation*. Paper 13742.
 URL: <http://lib.dr.iastate.edu/etd/13742>
 12. Vennerberg, Danny, PhD, 2011-2014,
NSF Graduate Research Fellow; College of Engineering Research Excellence Award 2014.
 Dissertation: "Development of scalable methods for the utilization of multi-walled carbon nanotubes in polymer and metal matrix composites" (2014). *Doctoral dissertation*. Paper 13714.
 URL: <http://lib.dr.iastate.edu/etd/13714>
 11. Garrison, Thomas Frederick, PhD (R. Larock, co-advisor), 2009-2013
NSF GK12 Fellow (2012-2013)
 Dissertation: "Synthesis and characterization of vegetable oil-based polyurethane dispersions" (2013). *Doctoral dissertation*. Paper 13470.
 URL: <http://lib.dr.iastate.edu/etd/13470>
 10. Hondred, Peter Raymond, PhD, 2008-2013
Cowell Graduate Fellow (2008-2009); Schafer 2050 Graduate Fellow (2009-2010); NSF GK12 Fellow (2011-2012)
 Dissertation: "Polymer damage mitigation—predictive lifetime models of polymer insulation degradation and biorenewable thermosets through cationic polymerization for self-healing applications" (2013). *Doctoral dissertation*. Paper 13105.
 URL: <http://lib.dr.iastate.edu/etd/13105>
 9. Hongyu Cui, PhD, 2009-2013.
 Dissertation: "Glass fiber reinforced biorenewable polymer composites and the fabrication with pultrusion process" (2013). *Doctoral dissertation*. Paper 13567.
 URL: <http://lib.dr.iastate.edu/etd/13567>
 8. De León, José Eliseo, PhD, 2009-2013,
 Dissertation "Cyanate ester-nanoparticle composites as multifunctional structural capacitors" (2013). *Doctoral dissertation*. Paper 13353.
 URL: <http://lib.dr.iastate.edu/etd/13353>
 7. Mauldin, Timothy C., PhD (M. Jeffries-EL, co-advisor) 2006-2011,
 Dissertation: "Self-healing polymers - the importance of choosing an adequate healing monomer, and the olefin metathesis polymerization of agricultural oils" (2011). *Doctoral dissertation*. Paper 10299.
 URL: <http://lib.dr.iastate.edu/etd/10299>
 6. Quirino, Rafael Lopes, PhD (R. Larock, co-advisor), 2011.
 Dissertation: "Natural oil-based composites reinforced with natural fillers, and conjugation/isomerization of carbon-carbon double bonds" (2011). *Doctoral dissertation*. Paper 10316.
 URL: <http://lib.dr.iastate.edu/etd/10316>
 5. Xia, Ying, PhD (R. Larock, co-advisor), 2007-2011,
Iowa State University Research Excellence Award, 2011
 Dissertation: "Biorenewable polymeric materials from vegetable oils" (2011). *Doctoral dissertation*. Paper 10307.
 URL: <http://lib.dr.iastate.edu/etd/10307>
 4. Jeong, Wonje, PhD, 2005-2009,
 Dissertation: "ROMP-based polymer composites and biorenewable rubbers" (2009). *Doctoral dissertation*. Paper 10304.
 URL: <http://lib.dr.iastate.edu/etd/10304>
 3. Sheng, Xia, PhD (M. Akinc, co-advisor), 2005-2008,
Iowa State University Research Excellence Award 2008

- Dissertation: "Polymer nanocomposites for high-temperature composite repair" (2008).
Doctoral dissertation. Paper 10282.
 URL: <http://lib.dr.iastate.edu/etd/10282>
2. Goertzen, William, PhD, 2005-2007,
NSF Graduate Research Fellow
 Dissertation: "Thermosetting polymer-matrix composites for structural repair applications" (2007). *Doctoral dissertation*.
 URL: <http://adsabs.harvard.edu/abs/2007PhDT.....95G>
 1. Wilson, Jeffrey, PhD, 2003-2006,
 Dissertation: "Characterization of a Carbon Fiber Reinforced Polymer Repair System for Structurally Deficient Steel Piping" (2006), *Doctoral dissertation*.
 URL: <http://adsabs.harvard.edu/abs/2006PhDT.....138W>

Former MS Students:

21. Yang, Shengzhe (Frank), MS (S. Madbouly co-advisor), 2012-2014,
 Thesis: "Novel bio-based and biodegradable polymer blends" (2014). *Master's thesis*. Paper 13713.
 URL: <http://lib.dr.iastate.edu/etd/13713>
20. Hong Lu, MS, (S. Madbouly co-advisor), 2012-2014,
 Thesis: "Processing and characterization of bio-based composites" (2014). *Master's thesis*. Paper 13726.
 URL: <http://lib.dr.iastate.edu/etd/13726>
19. Liu, Kunwei, MS, (S. Madbouly co-advisor), 2012-2014,
 Thesis: "Novel plant oil-based thermoset and polymer composites" (2014). *Master's thesis*. Paper 14213.
 URL: <http://lib.dr.iastate.edu/etd/14213>
18. Handoko, Harris, MS, (S. Madbouly co-advisor), 2012-2014,
 Thesis "Bio-based thermosetting copolymers of eugenol and tung oil" (2014). *Master's thesis*. Paper 13757.
 URL: <http://lib.dr.iastate.edu/etd/13757>
17. Ramasubramanian, Gauri, MS, 2011-2013,
 Thesis: "Influence of Lignin modification on PAN-Lignin copolymers as potential carbon fiber precursors" (2013). *Master's thesis*. Paper 13438.
 URL: <http://lib.dr.iastate.edu/etd/13438>
16. Bauer, Amy Elizabeth, MS (M. Akinc, co-advisor), 2011-2013,
 Thesis: "Injection repair of advanced aircraft composites with a high temperature cyanate ester resin" (2013). *Master's thesis*. Paper 13041.
 URL: <http://lib.dr.iastate.edu/etd/13041>
15. Hardis, Ricky, MS (F. Peters, co-advisor), 2011-2012,
 Thesis: "Cure kinetics characterization and monitoring of an epoxy resin for thick composite structures" (2012). *Master's thesis*. Paper 12608.
 URL: <http://lib.dr.iastate.edu/etd/12608>
14. Ding, Rui, MS, 2010-2012,
 Thesis: "ROMP-based thermosetting polymers from modified castor oil with various cross-linking agents" (2012). *Master's thesis*. Paper 12934.
 URL: <http://lib.dr.iastate.edu/etd/12934>
13. Chen, Keke, MS, 2010-2012,
 Thesis: "Bio-renewable fibers extracted from lignin/polylactide (PLA) blend" (2012). *Master's thesis*. Paper 12295.
 URL: <http://lib.dr.iastate.edu/etd/12295>
12. Wu, Hongchao, MS, 2010-2012,
 Thesis: "Physical and Thermal Properties of Zirconium Tungstate Nanoparticles with Different Morphologies from Hydrothermal Synthesis" (2012). *Master's thesis*. Paper 12525.
 URL: <http://lib.dr.iastate.edu/etd/12525>

11. Gottschalk, Diana, MS, 2010-2011,
Thesis: "Use of polydicyclopentadiene as a matrix in composite structural capacitors" (2011).
Master's thesis. Paper 10260.
URL: <http://lib.dr.iastate.edu/etd/10260>
10. Lio, Wilber, MS (M. Akinc, co-advisor), 2008-2009,
Thesis: "Evaluation of bisphenol E cyanate ester for the resin-injection repair of advanced composites" (2009). *Master's thesis*. Paper 10933.
URL: <http://lib.dr.iastate.edu/etd/10933>
9. Lawler, Katherine Ann, MS (M. Akinc, co-advisor), 2007-2009,
Thesis: "Viscosity of aqueous and cyanate ester suspensions containing alumina nanoparticles" (2009). *Master's thesis*. Paper 10773.
URL: <http://lib.dr.iastate.edu/etd/10773>
8. Charles, Louis Henry, MS, 2005-2008,
National Defense Science and Engineering Graduate (NDSEG) Fellow
Thesis: "Self-healing of impact-damaged composites" (2008). *Master's thesis*. Paper 11450.
URL: <http://lib.dr.iastate.edu/etd/11450>
7. Goertzen, William, MS, 2003-2005,
Thesis: "The Effect of Temperature and Time on Carbon/Epoxy Composite Pipe Overwrap Repair Systems" (2005), *Master's thesis*.
6. Bernklau, Nathaniel R., MS, 2003-2005,
Thesis: "Development of Resin Transfer Molding Techniques Using Catalyzed Reinforcement" (2005), *Master's thesis*.
5. Vemuri, Shanti Kumar, MS, 2002-2005,
Thesis: "Fracture Analysis of Width-Tapered Double Cantilever Beam Specimen Using Finite Element Analysis" (2005). *Master's thesis*.
4. Larin, Gabriel, MS, 2004-2005,
Topic: "Autonomic Healing of Damage in Polymer Matrix Composites" (2005).
3. Ahmed, Syed, MS, 2002-2004,
Thesis: "Resin Transfer Molding with Dicyclopentadiene and Catalyzed Reinforcement" (2004). *Master's thesis*.
2. Palakodeti, Roja, MS, 2002-2004,
Thesis: "Characterization of Electroactive Polymer Actuators (Artificial Muscles)" (2004).
Master's thesis.
1. Duell, Joshua, MS, 2003-2004,
Thesis: "Characterization and FEA of a Carbon Composite Overwrap Repair System" (2004).
Master's thesis.

E. Service on Thesis Committees Other than Own Advisees

Other than his own advisees, Professor Kessler has served on, or is currently serving on, **37** different Ph.D. Thesis Committees and **27** M.S. Thesis Committees.

At Washington State University:

- Member, M.S. thesis committee of Wangcheng Liu, 2015-present.
- Member, M.S. thesis committee of David Lemme, 2015-present.
- Member, Ph.D. thesis committee of Ran Li, 2015-present.
- Member, Ph.D. thesis committee of Rongrong Sun, 2014-present.
- Member, M.S. thesis committee of Jian Geng, 2014-2016.
- Member, M.S. thesis committee of Preetam Chandan Mohapatra, 2013-2014.
- Member, M.S. thesis committee of Peter Damstedt, 2013-2014.

At Iowa State University:

- Member, Ph.D. Program of Study (POS) committee of Hannah Bygd, 2013.
- Member, Ph.D. POS committee of William Lai, Aerospace Engineering, 2012-2013.
- Member, Ph.D. POS committee of Xiaoming Liu, MSE, 2012-2013.

- Member, M.S. POS committee of Samuel “Eli” Young, MSE, 2012-2013.
- Member, Ph.D. POS committee of Richard Livings, Aerospace Engineering, 2012-2013.
- Member, M.S. POS committee of Wangyujue Hong, Mechanical Engineering, 2012-2013.
- Member, M.S. POS committee of Ajith Subramanian, Aerospace Engineering, April 4, 2013.
- Member, M.S. POS committee of Sara Underwood, Industrial and Agricultural Technology, 2012-2013.
- Member, M.S. POS committee of Wenjun He, Dept. of Civil Engineering, ISU, “Creep and Shrinkage of High Performance Concrete, and Prediction of the Long-Term Camber of Prestressed Bridge Girders” July19, 2013.
- Member, M.S. POS committee of Jessica Riedl, Agricultural and Biosystems Engineering, ISU 2012-2013.
- Member, Ph.D. POS committee of Nacu Hernadez, Dept. of Chemical Engineering, ISU, 2012-2013.
- Member, Ph.D. POS committee of Jyani Vaddi, Dept. of Aerospace Engineering, ISU, 2012-2013.
- Member, Ph.D. POS committee of Lee Trask, Dept. of Chemical Engineering, ISU, 2012-2013.
- Member, M.S. POS committee of Weixing Sun, Materials Science and Engineering, ISU, 2011-2013.
- Member, Ph.D. POS committee of Xinming Zhang, Materials Science and Engineering, ISU, “Improvement of circuit breaker dielectric performance”, 2011-2013.
- Member, Ph.D. POS committee of Ibrahim El-Hedok, Chemical and Biological Engineering, ISU, “RAFT Microemulsion Polymerization with Surface-Active Chain Transfer Agent”, 2011-2013.
- Member, Ph.D. POS committee of James Bergman, Chemical and Biological Engineering, ISU, “Amphiphilic block copolymers in aqueous solutions”, 2011-2013.
- Member, Ph.D. POS committee of Simge Cinar, Dept. of Materials Science, ISU, “Rheological Behavior of Nanosize Oxide Powder Suspensions”, 2011-2013.
- Member, Ph.D. POS committee of Xiaofei Hu, Chemical and Biological Engineering, ISU, 2011-2013.
- Member, Ph.D. POS committee of Xiao Wang, Dept. of Materials Science, ISU, “Modeling of electro-mechanical coupling in electro-active polymer (EAP)” 2014.
- Member, Ph.D. POS committee of Xiaofei Hu, Dept. of Chemical and Biological Engineering, ISU, 2013.
- Member, Ph.D. POS committee of Dana Drochner, Dept. of Chemistry, ISU, 2013.
- Member, M.S. POS committee of Charles Everson, Dept. of Mechanical Engineering, ISU, 2010.
- Member, Ph.D. POS committee of Tianming Chen, Electrical and Computer Engineering Dept., ISU, “Capacitive Sensors for Measuring Complex Permittivity of Planar and Cylindrical Structures” January 30, 2012.
- Member, Ph.D. POS committee of Gowrishankar Srinivasan, Biorenewable Resources and Technology, ISU, “Investigation of Ultrasonics as a Tool for Energy Efficient Recycling of Lactic Acid from Postconsumer PLA Products”, May 31, 2011.
- Member, M.S. POS committee of Gowrishankar Srinivasan, MSE, ISU, “Soy Protein Polymers: Enhancing the Water Stability Property”, April 7, 2010.
- Member, MS POS committee of Guangyuan Sun, Chemical and Biological Engineering, ISU, 2010.
- Member, M.S. POS committee of Joseph Vanstrom, Industrial Technology, ISU, “Mechanical Characterization of Commercial Biodegradable Plastic Films”, April 9, 2012.
- Member, Ph.D. POS committee of Chetan Hazaree, Dept. of Civil Engineering, ISU “An enquiry into the workability and strength aspects of drier concretes with special reference to the effects of various chemical admixtures”, May 12, 2010.
- Member, M.S. POS committee of Nathan Knop, Dept. of Aerospace Engineering, ISU, “Thermal analysis of a fireplace using ANSYS”, January 9, 2009.

- Member, M.S. POS committee of Brandon Franck, Dept. of Chemical and Biological Engineering, ISU, “Functional materials from hierarchically ordered polymer nanocomposites”, July 14, 2011.
- Member, Ph.D. POS committee of Julius Vogel, Dept. of Mechanical Engineering, “Sealing and Cutting of PLA Bio-plastic”, April 11, 2011.
- Member, Ph.D. POS committee of Li Li, Dept. of Materials Science, ISU, “Dielectric Properties of Aged Polymers and Nanocomposites”, March 24, 2011.
- Member, Ph.D. POS committee of Zhiju Zheng, Dept. of Materials Science, ISU, “Course-grained simulation of polymers and biomolecules”, 2011.
- Member, Ph.D. POS committee of Emerald Wilson, Dept. of Chemistry, ISU, “Polythiophene Chemistry”, Expected graduation 2010
- Member, Ph.D. POS committee of Inseok Seo, Dept. of Materials Science, ISU, “Preparation and Characterization of Lithium Thio-germanate Thin Film Electrolytes Grown by RF Sputtering for Solid State Li-ion Batteries”, April 15, 2009.
- Member, Ph.D. POS committee of Yenhsi Lin, MSE, ISU, “Design of nanoscale responsive polymer film for sensor application”, July 11, 2007.
- Member, Ph.D. POS committee of Srikanth Vengasandra, ABE, ISU, “Studies on High Power Ultrasonics and Organic Light Emitting Diodes (OLEDs) for the Creation of Lab-on-CD Devices for Sensor Related Applications”, July 15, 2009.
- Member, Ph.D. POS committee of Scott Broderick, MSE, ISU, “Statistical Learning for Alloy Design from Electronic Structure Calculations”, July 13, 2009.
- Member, MS POS committee for Sarah Haubrich, MSE, ISU, “Experimental Observations and Simulations of the Mechanical Deformation of Amorphous Metallic Foam” January 12, 2009.
- Member, MS POS committee for Baris Denizer, MSE, ISU, “Artificial Neural Network Analysis of the Mechanical Properties of Tungsten Fiber/Bulk Metallic Glass Matrix Composites via Neutron Diffraction and Finite Element Modeling” July 10, 2008.
- Member, Ph.D. POS committee of Suck Won Hong, MSE, ISU, “Evaporation Induced Self-assembly of Ordered Structures from a Capillary-held Solution”, Summer 2008.
- Member, M.S. POS committee of Bola Alabi, Chemical and Biological Engineering Dept., ISU, “High-activity fuel cell catalyst layers via block copolymer nanocomposites”, Nov. 12, 2008.
- Member, Ph.D. POS committee of Ross Behling, Chemical and Biological Engineering Dept. ISU, “Synthesis and characterization of hierarchically structured block copolymer/silicate nanocomposites”, 2010.
- Member, M.S. POS committee of Gowrishankar Srinivasan, ABE, ISU, “Improvement of mechanical properties and water stability of vegetable protein based plastics”, July 9, 2007.
- Member, M.S. POS committee of John Schmitz, Food Science and Human Nutrition Dept, ISU, “Comparison of Soy-flour hydrolysates for use in wood adhesive systems”, Nov. 6, 2007.
- Member, Ph.D. POS committee of John Schmitz, Food Science and Human Nutrition Dept, ISU, “Enzyme Modified Soy Flour Adhesives”, July 17, 2009.
- Member, Ph.D. POS committee of Jun Wang, MSE, ISU, “Nanostructured Solar Cells Based on Vertically Oriented Nanopores and Nanotubes Impregnated with Inorganic and Organic Semiconductors”, 2009.
- Member, Ph.D. POS committee of Jun Xu, MSE, ISU, “Preparation of Nanocrystals and Nanocomposites of Nanocrystal-Conjugated Polymer, and Their Photophysical Properties in Confined Geometries”, 2008.
- Member, M.S. POS committee of Michael Mitchell, Dept of Chemistry, ISU, “Synthetic approaches to novel highly functionalized polythiophenes”, August 15, 2007.
- Member, Ph.D. POS committee of Jared Mike, Dept. of Chemistry, ISU, “Synthesis and Characterization of New Conjugated Materials Based on Benzobisazoles and their Incorporation into Electronic Devices”, Aug. 3, 2011.
- Member, Ph.D. POS committee of Maria Vlad, Industrial Technology, ISU, “Ultrasonic welding of aluminum: a practical study in consistency, part making and control modes”, July 12, 2007.

- Member, M.S. POS committee of Michael McConney, MSE, ISU, “Polymer Based Flow Sensors.” 2006 (left to Georgia Tech).
- Member, Ph.D. POS committee of Melissa Ver Meer, MSE, ISU, “Polymer/Mesoporous Metal Oxide Nanocomposites.” 2009.
- Member, Ph.D. POS committee of Srikanth Singamaneni, “Polymer Nanocomposites for Sensor Applications.” 2008 (left to Georgia Tech).
- Member, Ph.D. POS committee of Jason Saienga, MSE, ISU, “Optimization of Fast Ion Conducting Glasses for Lithium Batteries.” Nov. 18, 2005.

At University of Tulsa:

- Member, M.S. thesis committee of Paige Johnson, Dept. of Chemistry, Univ. of Tulsa, “Formation and Characterization of Nanobaskets: A Novel Three-Dimensional Nanoarchitecture”, Aug. 12, 2005.
- Member, M.S. thesis committee of Kirankumar Kowkuntla, Dept. of Chemistry, Univ. of Tulsa, “Development of Titania Based Catalysts for Photocatalytic Oxidation of 2-Propanol in a Packed-Bed Photoreactor”, Dec. 18, 2003.
- Member, M.S. thesis committee of Praveen Gadad, Dept. of Chemistry, Univ. of Tulsa, “Fabrication and Electrochemical Studies of Micro and Nano Batteries”, Dec. 18, 2003.
- Member, M.S. thesis committee of Raghuram Earni, Dept. of Chemistry, Univ. of Tulsa, “Synthesis of Triethoxy Silyl Diketo Compound for the Fabrication of a Chemical Warfare Agent Sensor”, Dec. 18, 2003.
- Member, M.S. thesis committee of Seshumani Vorrey, Dept. of Chemistry, Univ. of Tulsa, “Ion Conduction of Polymer Electrolytes Confined in Micro and Nanopores”, Nov. 24, 2003.

F. Supervision of Post-Doctoral/Research Associates/Visiting Researchers

Current Members

- Dr. Vijay Kumar, 2013-present
- Dr. Yuzhan Li, 2014-present
- Yuehong Zhang, 2015-present

Former Members

- Dr. Mahendra Thunga, Postdoctoral Scholar (Co-supervised with M. Akinc), “Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites”, 2009-2014.
- Dr. Justin Bergman, 2013-2014
- Dr. Samy Madbouly, 2011-2014
- Dr. Rafael Quirino, 2011-2012
- Dr. Ying Xia, 2011-2012
- Dr. Gary DeBoer, Melinda Hoyt, and Derek Hoyt - Ames Lab Visiting Faculty Program, 2013.
- Dr. Liangfeng (Tom) Sun, “Multifunctional Polymer Composites for Energy Storage Applications” 2011.
- Dr. Prashanth Badrinarayanan, Postdoctoral Scholar (2008-2010) and Adjunct Assistant Professor (2011) “Cyanate Ester Resins Modified with Nano-particles for Inclusion in Continuous Fiber Reinforced Composites” 2008-2011.
- Eli Levine – NSF Engineering Research Center for Biorenewable Chemicals (CBiRC) Young Engineers and Scientists program, Summer 2011.
- Brad Hurst – NSF Engineering Research Center for Biorenewable Chemicals (CBiRC) Research Experiences for High School Teachers, Summer 2011.
- Josh Heyer– NSF Engineering Research Center for Biorenewable Chemicals (CBiRC) Research Experiences for High School Teachers, Summer 2011.

- WonJong Yu, Summer Researcher funded by the Community College Institute (CCI) fellowship program through the Department of Energy's Ames Laboratory, Summer 2011.
- Amir Badshah, visiting scholar funded through the Higher Education Commission of Pakistan, 2011.
- Dr. Eduard Stefanescu, Postdoctoral Scholar, "Multifunctional Polymer Composites for Energy Storage Applications", 2009-2011.
- Dr. Xia Sheng, Postdoctoral Scholar, "Self-healing Polymer Composites Based on 'Click-Chemistry'", 2009-2010.
- Ella Spiegel, Summer 2010, DOE Academics Creating Teacher Scientists (ACTS)
- Kelly Earl, Summer 2010, DOE Academics Creating Teacher Scientists (ACTS)
- Gilhyung Lee, Visiting Ph.D. Student, Kumoh National Institute of Technology, Korea, 2008.
- Jino Oh, Visiting Ph.D. Student, Kumoh National Institute of Technology, Korea, 2008.
- David Fuchs, (Co-supervised with David Grewell), Visiting Student from Hochschule Rosenheim University of Applied Sciences, "Development of a Vacuum (Resin) Infusion Process to Embed Self-healing Microcapsules in a Glass Fiber/Epoxy Composite Part" 2008.—Also Industrial Supervisor for Diploma Thesis.
- Young Eun Hwang, Visiting Ph.D. Student, Kumoh National Institute of Technology, 2008.
- Sungho Yoon, Visiting Professor, Kumoh National Institute of Technology, Korea, "Electromagnetic Nondestructive Evaluation Of Wire Insulation And Models of Insulation Material Properties" 2008.
- Fen Chao, Visiting Scientist, Northwestern Polytechnical University, Xi'an, China, Fellow of the China Scholarship Council (CSC), "Dielectric Properties of Cyanate Ester Based Nanocomposites" 2007-2008.
- Yongshang Lu, Postdoctoral Scholar (Co-supervised with Richard Larock), "Bio-based Polymers for Pultruded Window Frames" 2007.
- Jong Keun Lee, Visiting Professor, Kumoh National Institute of Technology, Korea, "Development of Self-healing Composites" 2005-2006.
- Xing Liu, Visiting Scientist, Kumoh National Institute of Technology, Korea, "Development of Self-healing Composites" 2005-2006.
- Daniel Moran, Research Associate, "Thrust Reverser Structural Certification Sub-Component Testing" 2003-2004.

G. Supervision of Undergraduate Research and Independent Study

At Washington State

- Johnathan Moore, Undergraduate Research Assistant (URA) (2016-present).
- Delaney Ferrell, Senior Thesis Student (2015).
- Jonathan Ward, Senior Thesis Student (2015).
- Charles Carver, Undergraduate Research Assistant (URA) (2014-present).
- Cole Pruitt, Senior Thesis Student (2014).

At Iowa State

- Joe Schneiders, URA (2013).
- Boniface Mkini, URA (2013).
- Carole Autori, URA (2013).
- Ryan Hall, George Washington Carver Scholar, Ronald E. McNair Postbaccalaureate Achievement Program (2012-2013).
- Riley Hanus, Science Undergraduate Laboratory Internships (SULI) program (Summer 2010, 2012), URA (2010-2012).
- Shea Brown, Hua Shu, & Alexzandra Hurns – Summer Research Experience for Undergraduates (REU) Program for Interdisciplinary Research and Education and Emerging Interface Technologies (Summer 2012).

- Ted Angus, NSF REU (Summer 2012).
- Mitch Rock, URA (2009-2012).
- Danielle Carda, URA (2011-2012).
- Zachariah Rueger, NSF REU (2011), URA (2012).
- Leo Salat, URA (2011-2012).
- Kelsey Larson, Iowa State Program for Women in Science and Engineering (PWSE) Intern (Summer 2010), URA (2010-2012).
- Teresa Goeddel, URA (2010-2012).
- Thilina Weerasekera, URA (Spring 2010).
- Mark Rogalski, NSF REU Research Assistant (Summer 2010), SULI program (Summer 2011), URA (2009-2012).
- Kelly Brianna Dowdy, NSF REU Research Assistant (Summer 2009).
- Jonathan Henson, NSF REU Research Assistant (Summer 2009).
- Emily Hoffman, PWSE Intern (Summer 2009).
- Joshua Leonard, Iowa Space Grant Consortium URA (2008-Present).
- Brian A. Richard, Iowa Space Grant Consortium URA (2008-2010).
- Eleese McLaurin, PWSE Intern (summer 2008) and Petroleum Research Fund “Supplement for Underrepresented Minority Research (SUMR) (summer 2008).
- Cory Sents, URA (2007-2009) and NSF REU (summer 2008).
- Dan Putnam, URA (2006-2008).
- Ben Mac Murray, Freshman Honors Research Program (2006), URA 2006-2009.
- Wilber Lio, URA, 2007.
- Brian Banker, Iowa Space Grant Consortium URA (2007).
- Karen Haman, PWSE Intern (summer 2007); SULI Intern (SULI) (summer 2008).
- Serap Aksu (with M. Akinc), (visiting student, Sabanci University, Turkey), (summer 2007).
- Nicholas Martinez, URA (summer 2007).
- Rick Rainy, AerE Senior Research Project (AerE 492) URA (2007).
- Charlotte Mok, PWSE Intern (summer 2006).
- Nathan Marzen, URA (2006-2007).

At Univ. of Tulsa

- Jared Christianson, Tulsa Undergraduate Research Challenge (TURC) and ME 4993 Independent Study (2003).
- Elizabeth Hayes, TURC (2003).
- Stephen Miska, URA (2003-2005).
- Larissa Bilby, URA (2003-2005).
- Daniel Himmerich, ME 4994 Independent Study (2004).
- Blane Rhoads, TURC, 2004 and ME 4992 Independent Study (Spring 2005).
- Scott Heaton, TURC (2004-2005).
- Justin Roman, URA (2004-2005).
- Kelsey McKinney, Senior Thesis Advisor, Department of Physics and Engineering Physics (2004).

H. Other Contributions to Instructional Programs

- Mentor for the DOE Academics Creating Teacher Scientists (ACTS) Program at Ames Laboratory – this is a program where middle school physical science teachers participate in a research project for 4-6 weeks each summer, 2009-2010.
- Mentor for Preparing Future Faculty (with MSE student Goknur Tutuncu), 2008-2009.
- Faculty Mentor, Freshman Honors Mentor Program at ISU (2006- 2008)
- Faculty Mentor, Mat E x13 Materials Engineering Professional Practice, Iowa State University, Fall 2005, Spring 2006, Fall 2006.

- Faculty Mentor, Mat E 414, Materials Design and Professional Practice II, Iowa State University, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012.

IV. SERVICE (PUBLIC, PROFESSIONAL/DISCIPLINARY, AND UNIVERSITY)

A. Public Service

- Participant in Science, Engineering, and Technology Congressional Visits Day 2006. Federation of Materials Societies, Washington D.C., March 28-29, 2006.
- Reviewer for John Wiley & Sons Ltd, Chemical and Materials Sciences program, 2007.
- Reviewer for Elsevier, Chemistry and Chemical Engineering Department, 2007.
- Reviewer for Pearson Education, 2009.
- Reviewer for Cambridge University Press, 2012.
- Reviewer for Elsevier, Plastics Engineering and Polymer Science books, 2013.
- Reviewer for Elsevier, Science and Technology Books, 2015 (2)
- Professor Kessler serves as a frequent reviewer for various journals. These journals are listed in alphabetical order below. The year indicates the year the review was performed and the number in parenthesis indicates the number of multiple papers reviewed in that year.
 - *ACS Applied Materials and Interfaces*, 2008, 2009(2), 2010(3), 2011 (2);
 - *ACS Sustainable Chemistry and Engineering*, 2013, 2014;
 - *Acta Biomaterialia*, 2010;
 - *Acta Materiala*, 2009;
 - *Advanced Functional Materials*, 2007 (2), 2010 (2 papers);
 - *Analytical Chemistry*, 2008;
 - *Applied Physics A: Materials Science and Processing*, 2007;
 - *Biomacromolecules*, 2007;
 - *Carbon*, 2012;
 - *Catalysis Communications*, 2008;
 - *Chemistry of Materials*, 2007;
 - *Composites Part A: applied science and manufacturing*, 2003, 2004, 2005, 2006, 2007, 2008 (3 papers), 2009 (5 papers), 2010;
 - *Composites Part B: engineering*, 2006, 2007, 2008, 2012;
 - *Composites Science and Technology*, 2006, 2008(3), 2009, 2010, 2011, 2012;
 - *European Polymer Journal*, 2008;
 - *Experimental Mechanics*, 2002, 2004, 2007;
 - *High Performance Polymers*, 2008;
 - *International Journal of Materials Engineering Innovation*, 2008;
 - *Journal of Agricultural and Food Chemistry*, 2008;
 - *Journal of the American Chemical Society*, 2012;
 - *Journal of Applied Polymer Science*, 2004, 2008;
 - *Journal of Composite Materials*, 2008, 2009 (3 papers);
 - *Journal of Materials Science and Technology*, 2005;
 - *Journal of Materials Science*, 2004;
 - *Journal of Physics D: Applied Physics*, 2009;
 - *Journal of Physics: Condensed Matter*, 2009;
 - *Journal of Polymer Science Part A: Polymer Chemistry*, 2010 (2 papers); 2011
 - *Journal of the Royal Society Interface*, 2006 (2 papers), 2007, 2009;
 - *Journal of Thermal Analysis and Calorimetry*, 2007;
 - *Macromolecular Rapid Communications*, 2006, 2008;
 - *Macromolecules*, 2008, 2009, 2010(2);
 - *Materials Chemistry and Physics*, 2009;
 - *Materials Science and Engineering: B Adv. Functional Solid-state Materials*, 2009;
 - *Mechanics of Advanced Materials and Structures*, 2005;
 - *Mechanics of Materials*, 2009;
 - *Polymer*, 2011, 2016;
 - *Polymer Chemistry*, 2009, 2010;

- *Polymer Engineering and Science*, 2006 (3 papers), 2007 (2 papers), 2008 (2 papers), 2009;
- *Polymer International*, 2005, 2006;
- *Polymers for Advanced Technologies*, 2010;
- *Polymer Reviews*, 2012;
- *Polymer Testing*, 2015;
- *Smart Materials and Structures*, 2009;
- *Sol-Gel Science and Technology*, 2009;
- *The Journal of Physical Chemistry*, 2010;
- *Thermochimica Acta*, 2007 (2 papers), 2008 (2 papers), 2009.

B. Service to Disciplinary and Professional Societies or Associations

- Session Chair for Session titled “Materials Processing” at the 16th International Congress on Thermal Analysis and Calorimetry (ICTAC 16), August 14-16, 2016, Orlando, FL.
- Session Chair for Session titled “Structural Composites” at Composites at Lake Louise conference, November 8-12, 2015, Alberta, Canada.
- Member of the Local Organizing Committee for the ASME Applied Mechanics and Materials Conference, McMat-2015, June 2015, Seattle, WA.
- Member of the 2015 Organizing Committee for the 2nd Israeli-American Kavli Frontiers of Science symposium, sponsored by the U.S. National Academy of Sciences and the Israel Academy of Sciences and Humanities, held in Jerusalem.
- Session Chair for Session titled “Bio & Green 2” at the 19th International Conference on Composite Materials (ICCM) in Montreal, Canada July 28-Aug. 1, 2013.
- Session Chair for Session titled “Bio & Green 3” at the 19th International Conference on Composite Materials (ICCM) in Montreal, Canada July 28-Aug. 1, 2013.
- Invited Panel Member, “The Future of Sustainable Polymers, Needs and Challenges,” Sustainable Polymers, ACS Division of Polymer Chemistry Conference, May 20-23, Clearwater, FL.
- Session Chairperson, North American Thermal Analysis Society (NATAS) Annual Conference. Thermosets Session, August 12-15, 2012. Orlando, FL.
- Session Chairperson, 2011 SAMPE Fall Technical Conference. Advanced Applications: Sensing and Actuation, Ft. Worth, TX, October 17-20, 2011.
- Session Chairperson, 2011 SAMPE Fall Technical Conference. Adaptive and Multifunctional Structures, Ft. Worth, TX, October 17-20, 2011.
- Organizer and Session Chair for Symposium on “Composite Materials from Biorenewable Resources” at the 18th International Conference on Composite Materials (ICCM) in Jeju Island, Korea August 21-26, 2011.
- Conference Chair for the 39th Annual Conference of the North American Thermal Analysis Society (NATAS), August 7-10, 2011. Des Moines, Iowa.
- Session Moderator, ASEE Annual Conference. Materials Division. June 28, 2011. Vancouver, BC.
- Session Moderator, ASEE Annual Conference. Session M553— Lessons for New Engineering Educators. June 27, 2011. Vancouver, BC.
- Session Moderator, ASEE Annual Conference. Session M653— Assessing Students and Programs. June 27, 2011. Vancouver, BC.
- Session Moderator, ASEE Annual Conference. Session T553— Tricks of the Trade in Teaching II. June 28, 2011. Vancouver, BC.
- Session Moderator and Organizer, ASEE Annual Conference. Session 1675—NEE Division: Work/Life Balance for New Engineering Educators. June 21, 2010. Louisville, KY.
- Invited Panel Member, Session 2275—NEE and Engineering Research Council Divisions: “Advice from the Experts: Grant Proposal Writing,” American Society for Engineering Education Annual Conference, June 22, 2010. Louisville, KY.

- Technical Program Chair for the Mechanics of Materials and Structures Track, 47th Annual Technical Meeting of Society of Engineering Science, October 4-6, 2010. Ames, IA.
- Member of the Local Organizing Committee of the 47th Annual Technical Meeting of Society of Engineering Science, October 4-6, 2010. Ames, IA.
- Organizer and Session Chair for Symposium on Multifunctional Composite Materials, 47th Annual Technical Meeting of Society of Engineering Science, October 4-6, 2010. Ames, IA.
- Member of the Scientific Committee for the 2nd International Conference on Self-Healing Materials (ICSHM), Chicago, IL, June 2009—charged to organize and shape the technical scope of the conference.
- Session Chairperson, North American Thermal Analysis Society (NATAS) Annual Conference. Thermosets Session, September 21-23, 2009. Lubbock, TX.
- Organizer for Symposium on “Self-healing with Internal Liquid Healing Agents” at the 2nd International Conference on Self-Healing Materials (ICSHM), June 2009, Chicago, IL
- Session Chairperson, SAMPE 2008 Fall Technical Conference. Composites from Agricultural Products, Memphis, TN, September 8-11, 2008.
- Session Chairperson, North American Thermal Analysis Society (NATAS) Annual Conference. Thermosets and Composites Session, Bowling Green, KY, August 7-9, 2006.
- Invited Participant in the revision of ASME Post Construction Repair Standards: Non-metallic Composite Repair Systems for Pipelines and Pipework. Aberdeen, Scotland, July 7-9, 2003.
- Invited Participant in the revision of ASME Post Construction Repair Standards: Non-metallic Composite Repair Systems for Pipelines and Pipework. Orlando, FL, December 16-17, 2003.
- Reviewer for Proceeding ASME International Mechanical Engineering Congress, 2008.
- Reviewer for ASEE Annual Conference, 2005, 2006, 2007, 2008, 2009, 2010, 2016.
- Session Moderator, ASEE Annual Conference. Session 2675—Materials Division: Introduction to Materials Courses. June 15, 2009. Austin, TX.
- Session Moderator, ASEE Annual Conference. Session 1564— New Engineering Educators: Been There, Done That: Advice for NEEs. June 16, 2009. Austin, TX.
- Session Moderator, ASEE Annual Conference. Session 1475—New Engineering Educators: Tricks of the Trade. June 23, 2008. Pittsburgh, PA.
- Session Moderator, ASEE Annual Conference. Session 1564—Introductory Materials Science Courses. June 23, 2008. Pittsburgh, PA.
- Session Moderator, ASEE Annual Conference. Session 1475—New Engineering Educators: Tricks of the Trade. June 25, 2007. Honolulu, HI.
- Session Moderator, ASEE Annual Conference. Session 3475—Tricks of the Trade for Teaching I. Sponsored by the New Engineering Educators Division. June 21, 2006. Chicago, IL.
- Session Moderator, ASEE Annual Conference. Session 1175—Tricks of the Trade for Research. Sponsored by the New Engineering Educators Division. June 13, 2005. Portland, OR.
- Symposium Chairperson, North American Thermal Analysis Society (NATAS) Annual Conference. Symposium on Thermosets (Honorary Session for Prof. J. Gillham), Universal City, CA, September 20, 2005.
- Session Chairperson, AIAA-ASME. Materials & Manufacturing Processes Session I. 25th Oklahoma AIAA/ASME Symposium, Stillwater, OK, February 12, 2005.
- Session Chairperson, AIAA-ASME. Session II — Computational Studies I. 24th Oklahoma AIAA/ASME Symposium, Oklahoma City, OK, February 28, 2004.
- Session Chairperson, AIAA-ASME. Session 1-A: Solid Mechanics I. 23rd Oklahoma AIAA/ASME Symposium, Norman, OK, March 8, 2003.
- Session Chairperson, ECCM-10. Session C6: Smart materials & construction components II. Brugge, Belgium, June 4, 2002.

C. University/Campus Service

- Member of WSU Graduate Mentor Academy, 201-2018 – a group of senior faculty who assist the Graduate School in providing support to graduate students. In addition to displaying

outstanding mentoring skills that other faculty can observe and emulate, graduate mentors represent the Graduate School in student examinations and defenses where academic issues may arise. Graduate mentors also provide input to the Graduate School for improvement or modification of current practices and procedures that will lead to the advancement of graduate education at WSU.

- Judge for WSU's Global Case Competition, 2015.
- Strategic Planning Committee, Voiland College of Engineering and Architecture Washington State University, 2014.
- Academic Showcase Committee, Washington State University, 2013, 2014, 2015, 2016.
- Study Abroad Program Director for Brunel University Summer Program, London, UK, 2012.
- Chair of Polymeric Materials Committee, Materials Science and Engineering Department, Iowa State University, 2011-2013.
- Selection committee for the Zaffarano Prize for Graduate Student Research, Iowa State University, 2012, 2013.
- Graduate Council Catalog and Curriculum Committee (GCCC), Representative from College of Engineering, Iowa State University—The GCCC, a working subcommittee for the Graduate Council, reviews proposals for new majors, programs, certificates, as well as proposals for dual listed courses (4XX/5XX or 3XX/5XX level). It also acts as the “College” for interdepartmental programs and approves proposals and requests for those programs, 2012-2013.
- Ad-hoc College of Engineering committee tasked with providing key performance indicators for the College's research strategy, Fall 2012.
- Materials Science and Engineering Graduate Program Committee, Iowa State University, 2012-2013.
- Materials Science and Engineering Department Chair Search Committee Member, Iowa State University, 2012.
- Faculty Leader for SP@ISU – A project funded by the NSF Innovation through Institutional Integration (I³) program with the mission to support faculty as they develop and integrate broader impact activities into their research program., 2011-2013.
- Guest Lecturer, Engr 340X: Wind Energy, System Design and Delivery, Iowa State University, Fall 2011.
- Formal Mentor for Assistant Professor Kaitlin Bratlie, MSE Dept. Iowa State University
- Formal Mentor for Assistant Professor Reza Montazami, ME Dept. Iowa State University
- Search Committee Member for Director of the Center for Nondestructive Evaluation, Iowa State University, 2011-2012.
- Materials Science and Engineering Department, Search Committee Member for BioMaterials Faculty, Iowa State University, 2010-2011.
- Chair of the Economic Development and Industrial Relations Committee for the Materials Science and Engineering Department, 2010-2013.
- Industrial Liaison for the Materials Science and Engineering Department– tasked with coordinating and promoting departmental activities with industry and organizing the Industrial Advisory Committee, 2009-2013.
- Member of Wind Energy Group, College of Engineering, (tasked with coordinating COE research, education, and outreach efforts in Wind Energy), 2008-2013.
- Guest Lecturer, ChemE 442: Polymer Engineering, Iowa State University, Spring 2010.
- Guest Lecturer, TSM 240: Introduction to Manufacturing Process, Iowa State University, Spring 2007, Spring 2008.
- Materials Science and Engineering Department, Search Committee Member for Cluster Higher Candidates (to assess research issues), Iowa State University, 2007.
- Mentor for Women in Science and Engineering Undergraduate Internship Program, Iowa State University, Summer 2006, 2007, 2008, 2009.

- Participating faculty in the Program for Space-borne and Earthbound System Sustainability, a base program of the Iowa Space Grant Consortium.
- Materials Science and Engineering Department Chair Search Committee Member, Iowa State University, 2005-2006.
- Materials Science and Engineering Graduate Program Committee, Iowa State University, 2008-2009.
- Materials Science and Engineering Undergraduate Curriculum Committee, Iowa State University, 2007-2008.
- Materials Science and Engineering Faculty Search Committee (continuous), Iowa State University, 2007-2008.
- Materials Science and Engineering Student Affairs Committee Member, Iowa State University, 2005-2007.
- Ad-hoc Strategic Planning Task Force member, Materials Science and Engineering Department, Summer 2010.
- Ad-hoc Materials Science and Engineering Department Member of Committee to Create a Set of Guidelines for Departmental Requests for Modified Duties, Iowa State University, 2009.
- Ad-hoc Materials Science and Engineering Department Tuition Surcharge Committee Member, Iowa State University, 2006-2007.
- “Laboratory-Specific Integrated Teaching Assistant Program” with R. Napolitano and H. Martin, Differential Tuition Project Proposal FY2007 and FY2008.
- Ad-hoc Design Course Review Committee Member, Materials Science and Engineering, Iowa State University, 2006.
- Ad-hoc Materials Science and Engineering VEISHEA Committee Member, Iowa State University, 2006.
- Polymer Program Committee, Iowa State University, 2005-Present.
- Engineering Physics Curriculum Committee, University of Tulsa, 2004-2005.
- Mechanical Engineering Computer Committee, University of Tulsa, 2002-2005.
- Mechanical Engineering Department Webmaster, University of Tulsa, 2002-2005.
- Judge, University of Tulsa Student Research Colloquium, April 8-11, 2003.
- Coordinator, University of Tulsa Materials Research Group, 2003-2005.
- Sophomore Class Advisor ME Dept., University of Tulsa, 2004-2005.
- Freshman Class Advisor, ME Dept., University of Tulsa, 2003-2004.
- Campus evaluation team member for WebCT Vista 2003-2005.

D. Select Media Appearances

- Self-healing polymers research (scanning electron microscope image showing a ruptured microcapsule contained in a self-healing epoxy) featured on CNN “Heal thyself: The ‘bio-inspired’ materials that self-repair”, 22 February 2013. ([URL](#))
- Research on developing low-cost carbon fibers from lignin was featured in the September-October 2012 issue of *Composites Manufacturing* magazine article titled “Game-Changing Research” as one of “six projects conducted on three continents that could one day affect billions of people.” ([URL](#))
- Research work featured in “R&D/Leverage Helps Iowa State University Bring Largest-Ever Bioplastics Program to Life” July 10, 2012, *Associated Press* –Featured in over 250 news feeds nationwide.
- Interviewed for *Materials Research Bulletin* article by Prachi Patel on “New Polymer Signals Red When Damaged, Then Fixes Itself”, 16 April 2012.
- Extended interview and profile in *Plastics Engineering* article “Plastics in Defense & Safety” by Geoff Giordano, October 2011, pp. 28-31. ([URL](#))
- Featured in “Developing Better Plant Containers” on *WOWT*, Oct. 18, 2011. ([URL](#)) – Also featured in *Plastics News Report*. ([URL](#))

- Research featured in article: “New Process Making Polymers Stronger and Greener” from May 2011 issue of *Builder Magazine*. Also available online ([URL](#))
- Interviewed and featured in *Chemical & Engineering News* for article on “Optically halable supramolecular polymers”, pg. 8 of April 25, 2011 issue. Also available online ([URL](#))
- Featured in “Green Plastic Alternatives: Self-Healing Plastics and Renewable Polymers” on *Inventor Spot*, March 2011. ([URL](#))
- Interviewed by MIT’s *Technology Review*, about recent paper about polymer that can heal itself in the presence of UV light, Jan. 17, 2011.
- Interviewed by *Biopackaging World*, an international magazine looking at biopackaging, bioplastic, Jan. 18, 2011.
- Interviewed by *Radio Iowa* about biorenewable self-healing polymers, Jan. 10, 2011.
- Article in *Ames Tribune*, about biorenewable self-healing polymers Jan. 8, 2011.
- Interviewed by *WHO NewsRadio 1040* about biorenewable self-healing polymers, Jan. 6, 2011.
- Featured in Column: The wondrous world of science, *Dawn.com*, Jan. 30, 2011. ([URL](#))
- Featured in press release by Maney Publishing “Advances in self-healing polymer and composites” June 2011. ([URL](#))
- *Communication Service, Iowa State University*, News Release “Iowa State, Ames Lab researcher developing bio-based polymers that heal cracks,” ([URL](#)) Jan. 6, 2011 Featured in:
 - *R&D Magazine*, “Developing bio-based polymers that heal cracks,” Jan. 6, 2011. ([URL](#))
 - *EurekAlert*, “Iowa State, Ames Lab researcher developing bio-based polymers that heal cracks,” Jan. 6, 2011. ([URL](#))
 - *e! Science News*, “Iowa State, Ames Lab researcher developing bio-based polymers that heal cracks,” Jan. 6, 2011. ([URL](#))
 - *Daily News & Analysis*, “Bio-based polymers that heal cracks on the anvil,” Jan. 9, 2011. ([URL](#))
 - *Thaindian News*, “Bio-based polymers that heal cracks on the anvil,” Jan. 9, 2011. ([URL](#))
 - *The Hindu*, “Bio-based self-healing polymers on the anvil,” Jan. 10, 2011. ([URL](#))
 - *Newswise*, “Researcher Developing Bio-Based Polymers That Heal Cracks,” Jan. 6, 2011. ([URL](#))
 - *Physorg.com*, “Researchers developing bio-based polymers that heal cracks,” Jan. 6, 2011. ([URL](#))
 - *ScienceDaily*, “Researchers developing bio-based polymers that heal cracks,” Jan. 6, 2011. ([URL](#))
 - *Physics News*, “Researchers developing bio-based polymers that heal cracks,” Jan. 6, 2011. ([URL](#))
 - *Redorbit*, “Bio-based Polymers Could Be Used To Heal Cracks,” Jan. 7, 2011. ([URL](#))
 - *ScienceBlog*, “Iowa State, Ames Lab researcher developing bio-based polymers that heal cracks,” Jan. 7, 2011. ([URL](#))
 - *AndhraNews.net*, “Bio-based polymers that heal cracks on the anvil” Jan. 9, 2011. ([URL](#))
 - *PU Daily*, Jan. 10, 2011. ([URL](#))
 - *Iowa Ag Connection*, “Researcher Developing Bio-Based Polymers That Heal Cracks,” Jan. 10, 2011. ([URL](#))
 - *Iowa Higher Education*, “ISU researchers developing crack-healing polymers,” Jan. 6, 2011. ([URL](#))
 - *Southasianews.com*, “Bio-based polymers that heal cracks on the anvil,” Jan. 9, 2011. ([URL](#))
 - *Chemistry Times*, “Researcher developing bio-based polymers that heal cracks,” Jan. 10, 2011. ([URL](#))
 - *Lab Manager Magazine*, “Researcher Developing Bio-Based Polymers That Heal Cracks,” Jan. 7, 2011. ([URL](#))
 - *Laboratory Equipment*, “Self-Healing, Bio-Based Polymers on the Horizon,” Jan. 7, 2011. ([URL](#))

- *Soyatech*, “Bio-Based Polymers That Heal Cracks Being Developed by Iowa State Researcher,” Jan. 10, 2011. ([URL](#))
 - *ASM International*, “Developing bio-based polymers that heal cracks,” Jan. 11, 2011. ([URL](#))
 - *Renewable Chemicals Digest*, “Michael Kessler creates biorenewable polymers that repair themselves”, Jan. 13, 2011. ([URL](#))
 - *Biofuels Digest*, “Michael Kessler creates biorenewable polymers that repair themselves”, Jan. 13, 2011. ([URL](#))
 - *Gizmag* (New and Emerging Technology News), “Scientist developing self-healing biorenewable polymers,” Jan. 11, 2011. ([URL](#))
 - *Infogreenglobal*, “Biorenewable polymers to repair themselves,” Jan. 6, 2011. ([URL](#))
 - *SpecialChem*, “Researchers on their Way to Develop Self-Healing Bio-Renewable Polymers,” Jan. 11, 2011. ([URL](#))
 - *Federal News Radio*, “Bio-based Polymers Heal Themselves,” Jan. 17, 2011. ([URL](#))
 - *Iowa State Daily*, “ISU professors develop self-healing polymers”, Jan. 12, 2011. ([URL](#))
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- *Communication Service, Iowa State University*, News Release “MSE’s Kessler selected to participate in NAE symposium,” June 1, 2010. ([URL](#))
 - *Communication Service, Iowa State University*, News Release “Kessler’s CAREER award combines quests for self-healing, biorenewable polymers,” June 1, 2010. ([URL](#))
 - Interviewed by MIT’s *Technology Review*, about new research on “A Metal Coating that Repairs Itself,” August 4, 2009. ([URL](#))
 - Interviewed by *Radio Iowa News*, by Pat Curtis, “ISU Bioplastics will be on display at Chicago show,” June 12, 2009. ([URL](#))
 - *Communication Service, Iowa State University*, News Release “Iowa State Biopolymers/Biocomposites Researchers to Exhibit at International Plastics Show,” May 26, 2009. ([URL](#))
 - Interviewed by *Science News* magazine on self-repairing polymer networks (April 11, 2009, pg. 10) “Light could heal material wounds: Chitosan-related compound allows coating to repair itself.”
 - Interviewed by *Science News* online magazine on self-repairing polymer networks (March 12, 2009) “Light could heal materials: New material repairs itself when exposed to ultraviolet light.”
 - Interviewed by *New Scientist* magazine on Self-healing polymer coatings (March 12, 2009) “Crab chemical could give cars a self-healing ‘Shell’.”
 - Interviewed for *IEEE Spectrum* magazine article “Self-healing Hulls [Update]”, November 2008 Issue, (DOI: 10.1109/MSPEC.2008.4659376).
 - Paper “Directed Self-Assembly of Gradient Concentric Carbon Nanotube Rings” in *Advanced Functional Materials* was featured by *Materials News*. Materials Research Society, The Materials Gateway, September 22, 2008
 - Paper “Directed Self-Assembly of Gradient Concentric Carbon Nanotube Rings” in *Advanced Functional Materials* was featured by *Nanowerk*. ([URL](#))
 - Featured in “Two Minutes with...” series on Iowa State University College of Engineering Website, March 2008.
 - Research on Bio-based polymers featured in *Ceramics Industry* September, 2007.
 - *News Service, Iowa State University*, News Release “Plant Sciences Institute gives innovative new research a jump start,” linked from main ISU homepage, July 31, 2007. ([URL](#))
 - Center for Crops Utilization Research (CCUR) *Bulletin*, Winter 2007.
 - *News Service, Iowa State University*, News Release “Iowa State researchers improving plastics made from corn and soy proteins,” linked from main ISU homepage, Oct. 27, 2006. ([URL](#))
 - *Iowa State Daily*, “ISU Researchers perfect eco-friendly plastics,” by Beth Dunham, Nov. 6, 2006. ([URL](#))

- *Plastics and Rubber Weekly (PRW.com)*, “Clay could provide backbone for bioplastics,” by Luke Hutson, Nov. 3, 2006. ([URL](#))
- *PhysOrg.com*, “Researchers improving plastics made from corn and soy proteins,” Oct. 2006.
- *ZDNet*, “Biodegradable plastics made from corn,” Oct. 31, 2006. ([URL](#))
- *United Press International*, “Scientists improve plastics made from soy,” Oct. 30, 2006. ([URL](#))
- *AZoM.com*, “Researchers Work to Improve Biorenewable and Biodegradable Plastics Made from Corn and Soy Proteins, Oct. 31, 2006. ([URL](#))
- *Biology News Net*, “Iowa State researchers improving plastics made from corn and soy proteins,” Oct. 30, 2006. ([URL](#))
- *ScienceDaily*, “Scientists improve plastics made from soy,” Oct. 30, 2006. ([URL](#))
- *ScienceDaily*, “Researchers improving plastics made from corn and soy protein,” Nov. 2, 2006. ([URL](#))
- *Nanowerk News*, “Reinforcing plastics with nanoclays,” Oct. 30, 2006. ([URL](#))
- *China Radio International, (CRI)*, “Scientists improve plastics made from soy,” Oct. 31, 2006. ([URL](#))
- *AG Professional*, “Iowa State researchers improving plastics made from corn and soy proteins,” Oct. 31, 2006. ([URL](#))
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E. Affiliations

- American Society of Mechanical Engineers (ASME), 1992–present
- Society for the Advancement of Material and Process Engineering (SAMPE), 1998–present
- American Society for Engineering Education (ASEE), 2001–present
- North American Thermal Analysis Society (NATAS), 2005–present
- American Society for Composites (ASC), 2009–present
- Society of Plastics Engineers (SPE), 2009–present
- ASM International, 2010-present
- Society of Automotive Engineers (SAE), 1996, 2001–2005
- Society for Experimental Mechanics (SEM), 2001–2006
- Society of Chemical Industry (SCI), 2006–2007
- Sigma Xi, The Scientific Research Society, 2006