

Alan J. Lesser

Professor

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Education

- 1988 Ph.D., Civil Engineering, Case Western Reserve University, Cleveland, Ohio.
1985 M.S., Civil Engineering, Case Western Reserve University, Cleveland, Ohio.
1982 B.S., Architectural Engineering, University of Colorado, Boulder, Colorado.

Professional Experience

- 2005 – Pres. University of Massachusetts, Amherst, MA
Professor, Polymer Science and Engineering Department
- 1999 – 2005 University of Massachusetts, Amherst, MA
Associate Professor, Polymer Science and Engineering Department
- 1994 – 1999 University of Massachusetts at Amherst
Assistant Professor, Polymer Science and Engineering Department
- 1991 – 1994 Shell Development Company, Polymeric Materials Department, Houston, Texas,
Research Engineer
- 1988 – 1991 Shell Development Company, Polymeric Materials Department, Houston, Texas,
Associate Research Engineer
- 1985 – 1988 Case Western Reserve University, Cleveland, Ohio.
Research Assistant
- 1983 – 1985 GRL & Assoc. Inc., Cleveland, Ohio.
Project Engineer

Research Interests

Deformation, Fracture, and Adhesion of Polymers and Composites in multi-axial stress states. Fracture mechanics, damage mechanics, and micro-mechanics of multi-phase alloys and blends. Environmental Stress Cracking of polymers and composites. Solid and melt-state processing of polymers and composites in scCO₂ mediated environments.

Honors & Distinctions

Editor – Polymer Composites Journal, Society of Plastics Engineers
Assoc. Editor – Polymer Engineering and Science Journal, Society of Plastics Engineers
Advisory Board- Journal of Applied Polymer Science

Scientific Advisory Board – International Deformation Yield and Fracture of Polymers Conference Committee
Society of Plastics Engineers - ANTEC 2005 Best Paper – Polymer Analysis Division
Society of Plastics Engineers – Fellow 2005
Shell Foundation Award for Young Faculty Investigators 1995-1998
The OMNOVA Solutions Foundation Signature University Award 2001
Society of Plastics Engineers – ANTEC 2002 Best Paper – Engineering Plastics Division

Gordon Conferences 2004- Elected Vice Chair on Composites
Gordon Conferences 2006- Elected Chair on Composites

Society of Plastics Engineers – ANTEC 2008 – Polymer Analysis Division
– *Chair*

Society of Plastics Engineers – ANTEC 2007 – Polymer Analysis Division
– *Technical Program Chair*

Society of Plastics Engineers – ANTEC 2003 – Failure Analysis and Prevention Special Interest Group
– *Chair*

Society of Plastics Engineers – ANTEC 2002 – Failure Analysis and Prevention Special Interest Group
– *Technical Program Chair*

Society of Plastics Engineers – ANTEC 2000 – Failure Analysis and Prevention Special Interest Group
– *Chair*

Society of Plastics Engineers – ANTEC 1999 – Failure Analysis and Prevention Special Interest Group
– *Technical Program Chair*

Polymer Science and Engineering Department, University of Massachusetts, Amherst, MA: 2003 – Present

– *Thermal Analysis and Characterization Lab Director*

- *Composites Laboratory Director*

Professional Societies

- Society of Plastics Engineers
- Society of Rheology
- Materials Research Society
- Society of Experimental Mechanics
- Industrial Fabrics Association International
- Society of Engineering Science
- American Chemical Society

Students Supervised

Students Granted Ph.D.'s (17)

<i>Student</i>	<i>Year Graduated</i>	<i>Dept.</i>	<i>Co-Advisor</i>
Robert S. Kody	Sep-98	PSE	
Kelyn A. Arora	Apr-99	PSE	McCarthy
Emmett Crawford	Apr-99	PSE	
Gregory Schueneman	Jun-99	PSE	Novak
Edward Kung	Aug-99	PSE	McCarthy
Amiel A. Sabbagh	Jun-00	ChemE	
Terry Hobbs	Jun-00	PSE	
Nicole Karttunen	May-01	PSE	
Kathryn J. Wright	Apr-02	PSE	
Adam S. Zerda	Jun-02	PSE	
Terrence C. Caskey	Dec-02	PSE	McCarthy
Ramaswamy Sankar	Dec-03	ChemE	
Gregory Constable	Jun-04	PSE	Coughlin
Manuel Garcia	Jul-04	PSE	
Kishore Indukur	Dec-05	PSE	
Kevin Calzia	Jun-05	PSE	
Peter Walsh	Jan-06	PSE	

Students Granted MS (6)

<i>Student</i>	<i>Year Graduated</i>	<i>Dept.</i>
Christopher Comeaux	1997	PSE
Cheryl Jacks	1998	PSE
Christopher Buck	2000	PSE
Melissa Light	Dec-05	PSE
Paul Miska	Dec-05	PSE
Anne Forcum	Dec-05	PSE

Doctoral Students (8)

Current Students (8)

<i>Student</i>	<i>Status</i>	<i>Years of Participation</i>	<i>Student</i>	<i>Years in Program</i>	<i>Dept.</i>
Nathan Jones	Graduated	1999-2001	Donna Wrublewski	7	PSE
Shuiyuan Luo	Graduated	2001-2002	Mohit Mamodia	5	PSE
Xian bo Hu	Graduated	2004-2006	Scott Eastman	4	PSE
fill in	In Progress	fill in	Joonsung Yang	4	PSE
fill in	In Progress	fill in	Jared Archer	3	PSE
fill in	In Progress	fill in	Andrew Detwiler	3	PSE
fill in	In Progress	fill in	Sinan Oner Yordem	2	PSE
fill in	In Progress	fill in	Kathryn Best	2	PSE

PUBLICATIONS

Peer Reviewed, in Print, or Accepted for Publication

1. Indukuri, K.K., *Continuous processing long range order in SEBS thermoplastic elastomers*. Journal of Applied Polymer Science, submitted.
2. Wrublewski, D., *Annealing effects on the yield and fracture of bisphenol-A polycarbonate and related copolycarbonates*. Journal of Applied Polymer Science, in review.
3. Calzia, K.J., *Correlating yield response with molecular architecture in polymer glasses*. Journal of Materials Science, in press.
4. Calzia, K.J., *Post-yield deformation of glassy networks: effects of molecular architecture*. In preparation.
5. Calzia, K.J., *Molecular-scale reinforcement of nano-clay composites through the use of fortifiers*. In preparation.
6. Walsh, P.J., *Evaluating environmental stress cracking thresholds using contact angle measurements*. Journal of Materials Science, accepted.
7. Walsh, P.J., et al., *Environmental effects on poly-p-phenylenebenzobisoxazole fibers. II. Attempts at stabilization*. Journal of Applied Polymer Science, 2006. **102**(4): p. 3819-3829.
8. Walsh, P.J., et al., *Environmental effects on poly-p-phenylenebenzobisoxazole fibers. I. Mechanisms of degradation*. Journal of Applied Polymer Science, 2006. **102**(4): p. 3517-3525.
9. Ramaswamy, S. and A.J. Lesser, *Generic overlapping cracks in polymers: Modeling of interaction*. International Journal of Fracture, 2006. **142**(3-4): p. 277-287.
10. Hu, X.B. and A.J. Lesser, *Solid-state processing of polymer in the presence of supercritical carbon dioxide*. Journal of Cellular Plastics, 2006. **42**(6): p. 517-527.
11. Calzia, K.J., A. Forcum, and A.J. Lesser, *Comparing reinforcement strategies for epoxy networks using reactive and non-reactive fortifiers*. Journal of Applied Polymer Science, 2006. **102**(5): p. 4606-4615.
12. Light, M.E. and A.J. Lesser, *Effect of test conditions on the essential work of fracture in polyethylene terephthalate film*. Journal of Materials Science, 2005. **40**(11): p. 2861-2866.
13. Indukuri, K.K. and A.J. Lesser, *Comparative deformational characteristics of poly(styrene-b-ethylene-co-butylene-b-styrene) thermoplastic elastomers and cross-linked natural rubber*. Polymer, 2005. **46**(18): p. 7218-7229.

14. Zerda, A.S. and A.J. Lesser, *Characteristics of antiplasticized thermosets: Effects of network architecture and additive chemistry on mechanical fortification*. Polymer Engineering and Science, 2004. **44**(11): p. 2125-2133.
15. Lesser, A.J. and K.J. Calzia, *Molecular parameters governing the yield response of epoxy-based glassy networks*. Journal of Polymer Science Part B-Polymer Physics, 2004. **42**(11): p. 2050-2056.
16. Hu, X.B. and A.J. Lesser, *Enhanced crystallization of bisphenol-A polycarbonate by nano-scale clays in the presence of supercritical carbon dioxide*. Polymer, 2004. **45**(7): p. 2333-2340.
17. Hu, X.B. and A.J. Lesser, *Non-isothermal crystallization of poly (trimethylene terephthalate) (PTT)/ clay nanocomposites*. Macromolecular Chemistry and Physics, 2004. **205**(5): p. 574-580.
18. Hu, X.B. and A.J. Lesser, *Influence of interchain forces and supermolecular structure on the drawing behavior of nylon 66 fibers in the presence of supercritical carbon dioxide*. Journal of Applied Polymer Science, 2004. **93**(5): p. 2282-2288.
19. Garcia-Leiner, M. and A.J. Lesser, *CO₂-assisted polymer processing: A new alternative for intractable polymers*. Journal of Applied Polymer Science, 2004. **93**(4): p. 1501-1511.
20. Constable, G.S., A.J. Lesser, and E.B. Coughlin, *Morphological and mechanical evaluation of hybrid organic-inorganic thermoset copolymers of dicyclopentadiene and mono- or tris(norbornenyl)-substituted polyhedral oligomeric silsesquioxanes*. Macromolecules, 2004. **37**(4): p. 1276-1282.
21. Zerda, A.S., T.C. Caskey, and A.J. Lesser, *Highly concentrated, intercalated silicate nanocomposites: Synthesis and characterization*. Macromolecules, 2003. **36**(5): p. 1603-1608.
22. Wright, K.J., K. Indukuri, and A.J. Lesser, *Microcellular model evaluation for the deformation of dynamically vulcanized EPDM/iPP blends*. Polymer Engineering and Science, 2003. **43**(3): p. 531-542.
23. Ramaswamy, S. and A.J. Lesser, *Generic crack patterns in rubber-modified polymers under biaxial stress states*. Journal of Polymer Science Part B-Polymer Physics, 2003. **41**(19): p. 2248-2256.
24. Raman, A., R.J. Farris, and A.J. Lesser, *Effect of stress state and polymer morphology on environmental stress cracking in polycarbonate*. Journal of Applied Polymer Science, 2003. **88**(2): p. 550-564.
25. Kung, E., *Preparation and studies of polymer/polymer composites prepared using supercritical carbon dioxide*. Green Chemistry Using Liquid and Supercritical Carbon Dioxide, ed. J.M. DeSimone. 2003: Oxford University Press. 164-173.
26. Hu, X.B. and A.J. Lesser, *Effect of a silicate filler on the crystal morphology of poly(trimethylene terephthalate)/ clay nanocomposites*. Journal of Polymer Science Part B-Polymer Physics, 2003. **41**(19): p. 2275-2289.

27. Garcia-Leiner, M., J. Song, and A.J. Lesser, *Drawing of ultrahigh molecular weight polyethylene fibers in the presence of supercritical carbon dioxide*. Journal of Polymer Science Part B-Polymer Physics, 2003. **41**(12): p. 1375-1383.
28. Constable, G.S., A.J. Lesser, and E.B. Coughlin, *Ultrasonic spectroscopic evaluation of the ring-opening metathesis polymerization of dicyclopentadiene*. Journal of Polymer Science Part B-Polymer Physics, 2003. **41**(12): p. 1323-1333.
29. Caskey, T.C., A.J. Lesser, and T.J. McCarthy, *In situ polymerization and nano-templating phenomenon in nylon fiber/PMMA composite laminates*. Journal of Applied Polymer Science, 2003. **88**(6): p. 1600-1607.
30. Caskey, T.C., A.J. Lesser, and T.J. McCarthy, *Evaluating the mechanical performance of supercritical CO₂ fabricated polyamide 6,6/PMMA, fiber reinforced composites*. Polymer Composites, 2003. **24**(4): p. 545-554.
31. Zerda, A.S. and A.J. Lesser, *Organophosphorous additive for fortification, processibility, and flame retardance of epoxy resins*. Journal of Applied Polymer Science, 2002. **84**(2): p. 302-309.
32. Ramaswamy, S. and A.J. Lesser, *Microscopic damage and macroscopic yield in acrylonitrile-butadiene-styrene (ABS) resins tested under multi-axial stress states*. Polymer, 2002. **43**(13): p. 3743-3752.
33. Pelch, J.R., et al., *Fatigue resistance of silane-bonded epoxy/glass interfaces using neat and rubber-toughened epoxies*. Journal of Materials Science, 2002. **37**(15): p. 3269-3276.
34. Karttunen, N.R. and A.J. Lesser, *Effect of processing conditions on the yield and failure response of an aliphatic polyketone terpolymer*. Journal of Applied Polymer Science, 2002. **84**(2): p. 318-334.
35. Zerda, A.S. and A.J. Lesser, *Intercalated clay nanocomposites: Morphology, mechanics, and fracture behavior*. Journal of Polymer Science Part B-Polymer Physics, 2001. **39**(11): p. 1137-1146.
36. Wright, K.J. and A.J. Lesser, *Crystallinity and mechanical behavior evolution in ethylene-propylene random copolymers*. Macromolecules, 2001. **34**(11): p. 3626-3633.
37. Wright, K.J. and A.J. Lesser, *Initial development of structure-property relationships for dynamically vulcanized EPDM/IPP elastomers*. Rubber Chemistry and Technology, 2001. **74**(4): p. 677-687.
38. Sabbagh, A.B. and A.J. Lesser, *Evaluating the energetics of dilatational band growth under biaxial loading conditions*. Polymer, 2001. **42**(6): p. 2627-2636.
39. Hobbs, T. and A.J. Lesser, *Drawing in high pressure CO₂ - A new route to high performance fibers - In memory of the late Roger S. Porter*. Polymer Engineering and Science, 2001. **41**(2): p. 135-144.

40. Caskey, T., A.J. Lesser, and T.J. McCarthy, *Supercritical CO₂ welding of laminated linear low density polyethylene films*. Polymer Engineering and Science, 2001. **41**(12): p. 2259-2265.
41. Sabbagh, A.B., N.A. Jones, and A.J. Lesser, *In situ orientation of linear low density polyethylene films subjected to Mode I fracture load*. Journal of Applied Polymer Science, 2000. **76**(6): p. 771-777.
42. Lesser, A.J. and N.A. Jones, *Fracture behavior of dynamically vulcanized thermoplastic elastomers*. Journal of Applied Polymer Science, 2000. **76**(6): p. 763-770.
43. Kung, E., A.J. Lesser, and T.J. McCarthy, *Composites prepared by the anionic polymerization of ethyl 2-cyanoacrylate within supercritical carbon dioxide-swollen poly(tetrafluoroethylene-co-hexafluoropropylene)*. Macromolecules, 2000. **33**(22): p. 8192-8199.
44. Kody, R.S., *Yield envelopes of micro-voided epoxies*. ACS Symposium Series: Toughening of Plastics, 2000: p. 159-170.
45. Karttunen, N.R. and A.J. Lesser, *Yield behavior and failure response of an aliphatic polyketone terpolymer subjected to multi-axial stress states*. Journal of Materials Science, 2000. **35**(10): p. 2507-2515.
46. Karttunen, N.R. and A.J. Lesser, *Yield modeling of an aliphatic polyketone terpolymer in multiaxial stress states*. Polymer Engineering and Science, 2000. **40**(11): p. 2317-2323.
47. Hobbs, T. and A.J. Lesser, *Preparation of high performance poly(ethylene terephthalate) fibers: two-stage drawing using high pressure CO₂*. Polymer, 2000. **41**(16): p. 6223-6230.
48. Crawford, E. and A.J. Lesser, *Mechanics of rubber particle cavitation in toughened polyvinylchloride (PVC)*. Polymer, 2000. **41**(15): p. 5865-5870.
49. Weiss, R.A. and A.J. Lesser, *In memoriam - Roger S. Porter 1928-1998*. Polymer Engineering and Science, 1999. **39**(1): p. 1-2.
50. Waddon, A.J., N.R. Karttunen, and A.J. Lesser, *On the crystalline structure and morphology of aliphatic ketone terpolymer*. Macromolecules, 1999. **32**(2): p. 423-428.
51. Schueneman, G.T., et al., *Evaluation of short term-high intensity thermal degradation of graphite fiber reinforced laminates via ultrasonic spectroscopy*. Journal of Polymer Science Part B-Polymer Physics, 1999. **37**(18): p. 2601-2610.
52. Sabbagh, A.B. and A.J. Lesser, *On the phenomena of deformation and neck formation in LLDPE films subjected to uniaxial and biaxial loading conditions*. Journal of Polymer Science Part B-Polymer Physics, 1999. **37**(18): p. 2651-2663.

53. McCarthy, T., *Expansion of poly(4-methyl-1pentene) using supercritical carbon dioxide: Foam formation at ~ 100 C below T_m*. *Macromolecules*, 1999: p. 2562.
54. Lesser, A.J. and R.A. Weiss, *In memoriam - Roger S. Porter 1928-1998*. *Polymer Composites*, 1999. **20**(1): p. 1-2.
55. Kody, R.S. and A.J. Lesser, *Yield behavior and energy absorbing characteristics of rubber-modified epoxies subjected to biaxial stress states*. *Polymer Composites*, 1999. **20**(2): p. 250-259.
56. Kody, R.S., *Evaluation of the yield behavior and energy absorbing mechanisms in rubber modified epoxies subjected to multi-axial stress states*. *Polymer Composites*, 1999. **20**(2): p. 250-259.
57. Jones, N.A. and A.J. Lesser, *The use of etching techniques to investigate the morphology of mechanically induced transformations in an aliphatic polyketone*. *Journal of Polymer Science Part B-Polymer Physics*, 1999. **37**(22): p. 3246-3255.
58. Hobbs, T. and A.J. Lesser, *In situ drawing of high molecular weight poly(ethylene terephthalate) in subcritical and supercritical CO₂*. *Journal of Polymer Science Part B-Polymer Physics*, 1999. **37**(15): p. 1881-1891.
59. Crawford, E.D. and A.J. Lesser, *Brittle to ductile: Fracture toughness mapping on controlled epoxy networks*. *Polymer Engineering and Science*, 1999. **39**(2): p. 385-392.
60. Arora, K.A., A.J. Lesser, and T.J. McCarthy, *Synthesis, characterization, and expansion of poly(tetrafluoroethylene-co-hexafluoropropylene)/ polystyrene blends processed in supercritical carbon dioxide*. *Macromolecules*, 1999. **32**(8): p. 2562-2568.
61. Sabbagh, A.B. and A.J. Lesser, *Effect of particle morphology on the emulsion stability and mechanical performance of polyolefin modified asphalts*. *Polymer Engineering and Science*, 1998. **38**(5): p. 707-715.
62. Kung, E., A.J. Lesser, and T.J. McCarthy, *Morphology and mechanical performance of polystyrene/polyethylene composites prepared in supercritical carbon dioxide*. *Macromolecules*, 1998. **31**(13): p. 4160-4169.
63. Jones, N.A. and A.J. Lesser, *Morphological study of fatigue-induced damage in isotactic polypropylene*. *Journal of Polymer Science Part B-Polymer Physics*, 1998. **36**(15): p. 2751-2760.
64. Crawford, E. and A.J. Lesser, *The effect of network architecture on the thermal and mechanical behavior of epoxy resins*. *Journal of Polymer Science Part B-Polymer Physics*, 1998. **36**(8): p. 1371-1382.
65. Arora, K.A., A.J. Lesser, and T.J. McCarthy, *Preparation and characterization of microcellular polystyrene foams processed in supercritical carbon dioxide*. *Macromolecules*, 1998. **31**(14): p. 4614-4620.

66. Arora, K.A., A.J. Lesser, and T.J. McCarthy, *Compressive behavior of microcellular polystyrene foams processed in supercritical carbon dioxide*. Polymer Engineering and Science, 1998. **38**(12): p. 2055-2062.
67. Lesser, A.J. and R.S. Kody, *A generalized model for the yield behavior of epoxy networks in multiaxial stress states*. Journal of Polymer Science Part B-Polymer Physics, 1997. **35**(10): p. 1611-1619.
68. Lesser, A.J. and E. Crawford, *The role of network architecture on the glass transition temperature of epoxy resins*. Journal of Applied Polymer Science, 1997. **66**(2): p. 387-395.
69. Lesser, A.J., *Effect of resin crosslink density on the impact damage resistance of laminated composites*. Polymer Composites, 1997. **18**(1): p. 16-27.
70. Kody, R.S. and A.J. Lesser, *Deformation and yield of epoxy networks in constrained states of stress*. Journal of Materials Science, 1997. **32**(21): p. 5637-5643.
71. Lesser, A.J., *Effective volume changes during fatigue and fracture of polyacetal*. Polymer Engineering and Science, 1996. **36**(18): p. 2366-2374.
72. Lesser, A.J., *Changes in Mechanical-Behavior During Fatigue of Semicrystalline Thermoplastics*. Journal of Applied Polymer Science, 1995. **58**(5): p. 869-879.
73. Filippov, A., *Mechanisms governing the damage resistance of laminated composites subjected to low velocity impacts*. International Journal of Damage Mechanics, 1994. **3**: p. 408-432.
74. Chudnovsky, A., A. Saada, and A.J. Lesser, *Micromechanisms of Deformation in Fracture of Overconsolidated Clays*. Canadian Geotechnical Journal, 1988. **25**(2): p. 213-221.

Conference Proceedings

1. Mamodia, M. and A.J. Lesser, *Effect on morphological transitions in block copolymers and their effect on mechanical behavior*. Abstracts of Papers, 233rd ACS National Meeting, Chicago, IL, United States, March 25-29, 2007, 2007: p. PMSE-066.
2. Lesser, A.J., *Continuous processing and deformation mechanisms of ultra-oriented SEBS triblock elastomers*. Abstracts of Papers, 233rd ACS National Meeting, Chicago, IL, United States, March 25-29, 2007, 2007: p. POLY-218.
3. Walsh, P.J. and A.J. Lesser, *Mechanisms and alleviation of polybenzoxazole fiber degradation*. Annual Technical Conference - Society of Plastics Engineers, 2006. **64th**: p. 577-581.

4. Mamodia, M. and A.J. Lesser, *Characterization of hybrid block copolymer systems developed through blending*. Annual Technical Conference - Society of Plastics Engineers, 2006. **64th**: p. 2057-2061.
5. Lesser, A.J., K. Indukuri, and M. Mamodia, *Hierarchical description of SEBS block copolymer thermoplastic elastomers*. Annual Technical Conference - Society of Plastics Engineers, 2006. **64th**: p. 1630-1634.
6. Calzia, K.J. and A.J. Lesser, *Post-yield deformation of glassy networks: effects of molecular architecture*. Annual Technical Conference - Society of Plastics Engineers, 2006. **64th**: p. 1720-1724.
7. K. Indukuri, E.A. *Structural changes at different length scales caused by mechanical deformation of SEBS Triblock Copolymers*. in *MRS Spring 2005 meeting*. 2005 March 28- April 1 San Francisco, CA.
8. *Deformational characteristics of SEBS thermoplastic elastomers*. in *Gordon Research Conference on Elastomers*. 2005 July 17-22 Colby Sawyer College, NH.
9. Walsh, P.J. and A.J. Lesser, *ESCR thresholds evaluated by observation of interfacial surface energies*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 2327-2331.
10. Walsh, P.J. and A.J. Lesser, *Effect of substrate stress on interfacial energies*. Proceedings of the Annual Meeting of the Adhesion Society, 2005. **28th**: p. 187-189.
11. Walsh, P. *A Refraction Technique for Measuring Three Phase Contact Angle Used to Characterize Liquid-Polymer Interfaces*. in *Peebles Award Final, Extended Abstract*. 2005.
12. Lesser, A.J., X. Hu, and P.J. Walsh, *Degradation mechanisms and environmental effects on poly(p-phenylenebenzobisoxazole) (PBO) fibers*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 3497-3501.
13. Lesser, A.J. and K.J. Calzia, *Yield and post-yield response of glassy networks: effects of network architecture*. Proceedings of the NATAS Annual Conference on Thermal Analysis and Applications, 2005. **33rd**: p. 011 48 496/1-011 48 496/7.
14. Indukuri, K.K. and A.J. Lesser, *Comparative deformational characteristics of SEBS thermoplastic elastomers and vulcanized natural rubber*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 3828-3832.
15. Indukuri, K.K., E.T. Atkins, and A.J. Lesser, *Continuous processing long range order in SEBS block copolymer thermoplastic elastomers*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 3582-3586.
16. Hu, X. and A.J. Lesser, *Solid-state processing of polymer in the presence of supercritical carbon dioxide*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 2632-2636.

17. Calzia, K.J., A.J. Lesser, and A. Forcum, *Molecular-scale reinforcement of glassy networks*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 2355-2359.
18. Calzia, K.J., A. Forcum, and A.J. Lesser, *Molecular reinforced nano-silicate composites*. Annual Technical Conference - Society of Plastics Engineers, 2005. **63rd**: p. 1983-1987.
19. Calzia, K.J., A. Forcum, and A.J. Lesser, *Improved reinforcement of nano-silicate composites with antiplasticizers*. Abstracts of Papers, 230th ACS National Meeting, Washington, DC, United States, Aug. 28-Sept. 1, 2005, 2005: p. PMSE-201.
20. Walsh, P. *Investigating environmental stress cracking with in-situ contact angle measurements*. in ANTEC. 2004 May 16-20. Chicago, Illinois.
21. Light, M. *Cutting and Tear Resistance of PET Films*. in ANTEC. 2004 May 16-20. Chicago, Illinois.
22. Hu, X. *Mechanical properties of bisphenol-A polycarbonate via controlled crystallization and orientation in the presence of supercritical carbon dioxide*. in ANTEC. 2004 May 16-20. Chicago, Illinois.
23. *Yield and fracture of polymers and nanocomposites in multiaxial stress*. in ANTEC. 2004 May 16-20. Chicago, Illinois.
24. Wrublewski, D.T. and A.J. Lesser, *Annealing effects on the yield and fracture of bisphenol A and 4,4'-dihydroxydiphenyl copolycarbonates*. Annual Technical Conference - Society of Plastics Engineers, 2004. **62nd**(Vol. 3): p. 4039-4043.
25. Walsh, P.J. and A.J. Lesser, *Measuring small contact angles of sessile drops on low energy substrates by refraction*. Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004, 2004: p. PMSE-475.
26. Lesser, A.J. and K.J. Calzia, *Modeling the yield behavior of glassy networks using molecular-based parameters*. Annual Technical Conference - Society of Plastics Engineers, 2004. **62nd**(Vol. 2): p. 2263-2266.
27. Indukuri, K.K. and A.J. Lesser, *Comparative deformational response of poly (styrene ethylene-butylene styrene) TPEs and vulcanized elastomers*. Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004, 2004: p. PMSE-514.
28. Hu, X. and A.J. Lesser, *Post-treatment of Poly-p-phenylenebenzobisoxazole (PBO) fibers using supercritical carbon dioxide*. Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004, 2004: p. PMSE-472.
29. Hu, X. and A.J. Lesser, *Drawing of nylon 66 fibers in the presence of supercritical carbon dioxide*. Annual Technical Conference - Society of Plastics Engineers, 2004. **62nd**(Vol. 2): p. 1831-1835.

30. Hu, X. and A.J. Lesser, *Effects of nano-scale clay on the crystallization and mechanical properties of polyesters*. Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004, 2004: p. PMSE-494.
31. Herrera-Alonso, M., et al., *Semicrystalline polymer nanocomposites using chemically designed compatibilizers and supercritical CO₂-assisted polymer processing*. Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004, 2004: p. PMSE-499.
32. Garcia-Leiner, M. and A.J. Lesser, *Polymer nanocomposites prepared by supercritical carbon dioxide-assisted polymer processing*. Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004, 2004: p. POLY-365.
33. Garcia-Leiner, M. and A.J. Lesser, *Polymer-clay nanocomposites prepared in supercritical carbon dioxide*. Annual Technical Conference - Society of Plastics Engineers, 2004. **62nd**(Vol. 2): p. 1528-1532.
34. Calzia, K.J., et al., *Evaluation of a molecular based yield model for glassy networks*. Annual Technical Conference - Society of Plastics Engineers, 2004. **62nd**(Vol. 2): p. 2258-2262.
35. Calzia, K.J. and A.J. Lesser, *Effect of molecular architecture on the yield behavior of glassy networks*. Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004, 2004: p. PMSE-471.
36. *Drawing of high performance fibers in supercritical carbon dioxide*. SEM Conference. Lake Placid, New York, 2003 October 7-11.
37. Ramaswamy, S., *Modeling damage patterns in polymeric materials*. ANTEC. Nashville, TN, 2003 May 4-8.
38. *Deformation, yield, and fracture of polymers*. Institute of Materials International Conference. Churchill College, Cambridge, 2003 April 7-10.
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