

Mehrdad Negahban

W311 Nebraska Hall
Department of Engineering Mechanics
University of Nebraska-Lincoln
Lincoln, Nebraska, 68588-0526
Phone: 402-472-2397
FAX: 402-472-8292
e-mail: mnegahban@unl.edu

August 18, 2009

AREAS OF RESEARCH SPECIALIZATION

Mechanics of Materials and Manufacturing: Theoretical, computational, and experimental studies to characterize large deformation thermo-mechanical response of materials, in particular polymers. Simulation of the effects of crystallization on the mechanical behavior of polymers under large deformations. The study of the effects of crystallization on failure and the redistribution of stress in polymer matrix composites. Simulation of the manufacturing of thin film extruded polymers. Experimental investigation and theoretical modeling of large plastic forming and shape recovery in amorphous polymers. Rotational Molding.

EDUCATION

Ph. D. (1988): University of Michigan, Applied Mechanics

Dissertation: "Material Symmetry and the Evolution of Anisotropies in First Gradient Theories of Nonlinear Material Behavior; Inelasticity; Polymer Crystallization.

M. S. E. (1984): University of Michigan, Applied Mechanics

B. S. (1982): Iowa State University of Science and Technology, Mechanical Engineering

PROFESSIONAL EMPLOYMENT

1983: Teaching Assistant in the Department of Aerospace Engineering at the University of Michigan.

1983-88: Teaching Assistant and Instructor in the Department of Mechanical Engineering at the University of Michigan.

1988: Visiting Research Associate at Michigan State University, Machinery Elastodynamics and Intelligent Materials and Structures Laboratory.

1989-95: Assistant Professor of Engineering Mechanics, University of Nebraska-Lincoln, Lincoln, NE.

1995-: Associate Professor of Engineering Mechanics, University of Nebraska-Lincoln, Lincoln, NE.

REFEREED PUBLICATIONS

1. A. S. Wineman, K. R. Rajagopal, M. Negahban, "Change in Material Symmetry Associated with Deformation: Uniaxial Extension," *International Journal of Engineering Science*, vol. 26, no. 12, 1988, pages 1307-1318.
2. M. Negahban, A. S. Wineman, "Material Symmetry and the Evolution of Anisotropies in a Simple Material: I. Change of Reference Configuration," *International Journal of Nonlinear Mechanics*, vol. 24, no. 6, 1989, pages 521-536.
3. M. Negahban, A. S. Wineman, "Material Symmetry and the Evolution of Anisotropies in a Simple Material: II. The Evolution of Symmetry," *International Journal of Nonlinear Mechanics*, vol. 24, no. 6, 1989, pages 537-549.
4. M. Negahban, A. S. Wineman, "The Evolution of Anisotropies in the Elastic Response of an Elastic-Plastic Material," *International Journal of Plasticity*, vol. 8, 1992, pages 519-542.
5. M. Negahban, A. S. Wineman "Modeling the Mechanical Response of a Material Undergoing Continuous Isothermal Crystallization," *International Journal of Engineering Science*, vol. 30, no. 7, 1992, pages 953-962.
6. M. Negahban, A. S. Wineman, R. J. Ma, "Simulation of Mechanical Response in Polymer Crystallization," *International Journal of Engineering Science*, vol. 31, no. 1, 1993, pages 93-113.
7. M. Negahban, M. V. Gandhi, "Local and Global Universal Relations for First-Gradient Materials." *Journal of Elasticity*, vol. 33, 1993, pages 67-87.

8. M. Negahban, "Simulation of Mechanical Response in Crystallizing Polymers: Crystallization Under Constant Shearing Deformations," *Mechanics of Materials*, vol. 16, 1993, pages 379-399.
9. M. Negahban, A. S. Wineman, "The Evolution of Material Symmetry in the Elastic Response of a Fully Strain Space Theory of Plasticity," AMD-Vol. 158: Anisotropy and Inhomogeneity in Elasticity and Plasticity, ASME-1993, pages 19-23.
10. J. Nielson, M. Negahban, "Mathematical Modeling and Computational Simulation of Tubular Sheath Extrusion with Post-Extrusion Drawing: Application to Polymer Casing of Electronic Wire and Cable," AMD-Vol. 194: Mechanics in Materials Processing and Manufacturing, ASME-1994, pages 41-55.
11. M. Negahban, "Theoretical Simulation of an Anomalous Response in a Torsional Oscillator," *Journal of Applied Mechanics*, vol. 61, 1994, pages 124-130.
12. R. Ma, M. Negahban, "Simulation of Mechanical Response in Crystallizing Polymers: Crystallization under a Constant Shear Force," *Acta Mechanica*, vol. 112, 1995, pages 59-76.
13. M. Negahban, "A Study of Thermodynamic Restrictions, Constraint Conditions, and Material Symmetry in Fully Strain-Space Theories of Plasticity," *International Journal of Plasticity*, vol. 11, 1995, pages 679-724.
14. R. Ma, M. Negahban, "Simulation of Mechanical Response During Polymer Crystallization Around Rigid Inclusions and Voids: Homogeneous Crystallization," *Mechanics of Materials*, vol. 21, 1995, pages 25-50.
15. R. Ma and M. Negahban, "A preliminary study of the mechanical effects of polymer crystallization around a rigid cylindrical inclusion: homogeneous crystallization under plane strain," AMD-Vol. 203: *Current Research in the Thermo-Mechanics of Polymers in the Rubbery-Glassy Range*, ASME-1995, pages 61-75.
16. M. Negahban, "A thermodynamic theory for characterizing thermo-mechanical response of polymers during crystallization," AMD-Vol. 203: *Current Research in the Thermo-Mechanics of Polymers in the Rubbery-Glassy Range*, ASME-1995, pages 45-60.
17. M. Negahban, "Preliminary results on an effort to characterize the thermo-mechanical response of amorphous polymers in the glass-transition range," MD-Vol. 68/AMD-Vol. 215: *Mechanics of Plastics and Plastic Composites*, ASME-1995, pages 133-152.
18. M. Negahban, "Thermodynamic Modeling of the Thermomechanical Effects of Polymer Crystallization: A General Theoretical Structure," *International Journal of Engineering Science*, vol. 35, 1997, pages 277-298.
19. M. Negahban, "Thermomechanical Effects Associated with Crystallization of Rubber Under Stretch and During Slow Extension," *Journal of Engineering Materials and Technology*, vol. 119, 1997, pages 298-304.
20. M. Negahban, "Modeling the thermomechanical effects of crystallization in natural rubber: I. The theoretical structure," *International Journal of Solids and Structures*, vol. 37, 2000, pages 2777-2789.
21. M. Negahban, "Modeling the thermomechanical effects of crystallization in natural rubber: II. Elementary thermodynamic properties," *International Journal of Solids and Structures*, vol. 37, 2000, pages 2791-2809.
22. M. Negahban, "Modeling the thermomechanical effects of crystallization in natural rubber: III. Mechanical properties," *International Journal of Solids and Structures*, vol. 37, 2000, pages 2811-2824.
23. M. Negahban, "Results of implementing a computer based mechanics readiness program in Statics", *International Journal of Engineering Education*, vol. 16, no. 5, 2000, pages 408-416.
24. B. Eghball, J. S. Schepers, M. Negahban, and M. R. Schlemmer, "Spatial and Temporal Variability of Soil Nitrate and Corn Yield: Multifractal Analysis," *Agronomy Journal*, vol. 95, 2003, pages 339-346.
25. M. Negahban, A. Goel, P. Delabarre, R. Feng, A. Dimick, "Experimentally evaluating the equilibrium stress in shear of glassy polycarbonate," *ASME Journal of Engineering Materials and Technology*, vol. 128, 2006, pages 537-542.
26. M. Negahban, "Single and multiple material constraints in thermoelasticity," *Mathematics and Mechanics of Solids*, vol. 12, 2007, pages 623-664.
27. M. Negahban, K. Strabala, P. Delabarre, A. Goel, R. Feng, J. Grenet, "Temperature dependence of the back-stress in shear for glassy polycarbonate," *Macromolecular Symposia*, vol. 258, 2007, pages 142-151.
28. O. Lima, L. Tan, A. Goel, and M. Negahban, Z. Li, "Creating micro- and nanostructures on tubular and spherical surfaces," *Journal of Vacuum Science and Technology B*, vol. 25, 2412-2418, 2007.
29. J.-M. Saiter, M. Negahban, P. dos Santos Claro, P. Delabare and M.-R. Garda, "Quantitative and Transient DSC Measurements I. Heat Capacity and Glass Transition," *Journal of Materials Education*, vol. 30, 2008, pages 51-95.
30. M. Negahban, A. Goel, L. Zhang, "Evaluating the development of elastic anisotropy with plastic flow," *Acta Mechanica*, (accepted 2008, DOI: 10.1007/s00707-009-0139-6).

31. M. Negahban, A. Goel, P. Marchon, A. Azizinamini, "Geometrically Exact Nonlinear Extended-Reissner/Mindlin Shells: Fundamentals, Finite Element Formulation, Elasticity," *International Journal for Computational Methods in Engineering Science and Mechanics* (in press).
32. L. Delbreilh, M. Negahban, M. Benzohra, C. Lacabanne, J.-M. Saiter, "Glass transition investigated by a combined protocol using thermostimulated depolarization currents and differential scanning calorimetry," *Journal of Thermal Analysis and Calorimetry* (DOI 10.1007/s10973-009-0060-1).
33. A. Goel, K. Strabala, M. Negahban, J. Turner, "Modeling the development of elastic anisotropy with plastic flow for glassy polycarbonate," *Polymer Engineering and Science* (in press, DOI 10.1002/pen.21429).
34. A. Goel, K. Strabala, M. Negahban, R. Feng, "Experimentally evaluating equilibrium stress in uniaxial tests," *Experimental Mechanics* (in press).

PUBLICATIONS IN PREPARATION

1. K. Strabala, N. Mediros-Oliveira, A. Goel, M. Negahban, J. Turner, "Measuring the influence of temperature on the development of elastic anisotropy with compressive plastic flow for glassy polycarbonate," (under review).
2. M. Negahban, A. Goel, M. J. Scheidler, R. Feng "The 1-D analysis of steadily expanding waves in first gradient materials," (in preparation).
3. J. Vogeler, R. Feng, A. Goel, M. Negahban, "Using a torsional Kolsky bar to characterizing the normal stress induced by rapid shear in glassy Polycarbonate," (in preparation).
4. A. Goel, M. Negahban, "Modeling the non-linear thermoelastic response of Polycarbonate using ultrasonic response in compression," (in preparation).
5. A. Goel, K. Strabala, N. Mediros-Oliveira, M. Negahban, "Modeling the plastically induced anisotropic ultrasonic thermoelastic response of Polycarbonate," (in preparation).
6. A. Goel, M. Negahban, "Modeling of the anisotropic nonlinear thermoelastic response of Polycarbonate resulting from plastic flow," (in preparation).

BOOKS

1. M. Negahban, "Current Research in the Thermo-Mechanics of Polymers in the Rubbery-Glassy Range," ASME-Applied Mechanics Division publication, vol. 203, 1995.
2. M. Negahban, "The Mechanical and Thermodynamical Theory of Plasticity," CRC Press (Publication set for April, 2010).

OTHER PUBLICATIONS

1. M. Negahban, A.S. Wineman, "The Many Faces of Isotropy: Characteristics of Describing Material Symmetry," *Proceedings of the Twelfth Canadian Congress of Applied Mechanics*, Ottawa, Ontario, 1989, pages 838-839.
2. M. Negahban, A.S. Wineman, "Following the Mechanical Response in Phase Transitions: Elastic Solid to Elastic Solid Transitions," *Proceedings of the Twelfth Canadian Congress of Applied Mechanics*, Ottawa, Ontario, 1989, pages 840-841.
3. M. Negahban, M. V. Gandhi, "Universal Relations and Solutions for First-Gradient Materials," *28th Annual Meeting of the Society of Engineering Science*, Gainesville, Florida, 1991, 9 pages, ESP28.91003.
4. M. Negahban, "Constitutive Modeling of Phase Transition in Smart Materials," *Proceedings of the ADPA, AIAA, ASME, SPIE international symposia on Active Material and Adaptive Structures*, Alexandria, Virginia, November 4-8, 1991, pages 211-216.
5. M. Negahban, "Thermo-Mechanical Modeling of Plastic Flow and Shape Recovery in Amorphous Polymers," *Proceedings of the International Symposium on Plasticity and Its Current Applications*, Baltimore, MD, July 19-23, 1993 (4 pages, in press).
6. M. Negahban, "Results of implementing a mechanics readiness program in statics," *Workshop on Reform of Undergraduate Mechanics Education*, Penn State, August 16-18, 1998.
7. M. Negahban, "Modeling Fusion And Crystallization In Polyethylene With Application To Rotational Molding," *Fourth International Conference on Constitutive Laws for Engineering Materials*, Rensselaer Polytechnic Institute in Troy, NY from July 27-30, 1999.

CONFERENCE PRESENTATIONS

1. "A Framework for Studying the Mechanical Response in Isothermal Solid Polymer Crystallization," M. Negahban, A.S. Wineman, 60th Annual Meeting of the Society of Rheology, Gainesville, Florida, February 1989.
2. "The Many Faces of Isotropy: Characteristics of Describing Material Symmetry," M. Negahban, A.S. Wineman, Twelfth Canadian Congress of Applied Mechanics, Ottawa, Ontario, May 1989.

3. "Following the Mechanical Response in Phase Transitions: Elastic Solid to Elastic Solid Transitions," M. Negahban, A.S. Wineman, Twelfth Canadian Congress of Applied Mechanics, Ottawa, Ontario, May 1989.
4. "On Fully Strain Space Plasticity and the Evolution of Anisotropies in One Such Theory," M. Negahban, A.S. Wineman, Society of Engineering Science Meeting, Ann Arbor, Michigan, September 1989.
5. "Development of Anisotropy in Isotropic Nonlinear Elastic Solids Due to Deformation Induced Microstructural Changes," A.S. Wineman, M. Negahban, ASME Winter Annual Meeting, San Francisco, California, December 1989.
6. "Evolution of Material Symmetry in Simple Materials," Thirty-fourth Meeting of the Society for Natural Philosophy, Lincoln, Nebraska, April 1990 (**invited**).
7. "The Effect of Continuous Phase Transition on a Torsional Oscillator," M. Negahban, 62nd Annual Meeting of the Society of Rheology, Santa Fe, New Mexico, October 1990.
8. "Universal Relations and Solutions for First-Gradient Materials," M. Negahban, M. V. Gandhi, 28th Annual Meeting of the Society of Engineering Science, Gainesville, Florida, November 1991.
9. "Mechanics of Polymer Crystallization: Theoretical Modeling," M. Negahban, 22nd Midwestern Mechanics Conference, Rolla, Missouri, October 1991 (**invited**).
10. "Constitutive Modeling of Phase Transition in Smart Materials," M. Negahban, ADPA/AIAA/ASME/SPIE Conference on Active Materials and Adaptive Structures, Alexandria, Virginia, November 1991.
11. "Post Yield Shape Recovery in Glassy Polymers," 29th Annual Technical Meeting of the Society of Engineering Science, La Jolla, California, September 1992.
12. "The Evolution of Material Symmetry in the Elastic Response of a Fully Strain Space Theory of Plasticity," M. Negahban, A. S. Wineman, Special Symposium on Anisotropy and Inhomogeneity in Elasticity and Plasticity, MEET'N'93, Joint ASCE-ASME-SES Meeting, Charlottesville, Virginia, June 6-9, 1993.
13. "Mathematical Simulation of the Mechanical Effects of Crystallization Under Shear in Polymers," M. Negahban, R. J. Ma, Special Symposium on the Nonlinear Mechanics of Solid Polymers, MEET'N'93, Joint ASCE-ASME-SES Meeting, Charlottesville, Virginia, June 6-9, 1993 (**invited**).
14. "Thermo-Mechanical Modeling of Plastic Flow and Shape Recovery in Amorphous Polymers," M. Negahban, International Symposium on Plasticity and Its Current Applications, Baltimore, Maryland, July 19-23, 1993 (**invited**).
15. "Shape Recovery in Glassy Polymers," M. Negahban, Twenty-Third Midwestern Mechanics Conference, Lincoln, Nebraska, October 10-13, 1993 (**invited**).
16. "Mechanical Effects of Shear During Crystallization of Polymers," M. Negahban, R.J. Ma, Twenty-Third Midwestern Mechanics Conference, Lincoln, Nebraska, October 10-13, 1993.
17. "A Study of the Influence of Polymer Crystallization on the Distribution of Stress and Mechanical Properties Around Rigid Inclusions and Voids," R.J. Ma, M. Negahban, Twenty-Third Midwestern Mechanics Conference, Lincoln, Nebraska, October 10-13, 1993.
18. "Modeling of Plastic Flow and Shape Recovery in Solid Polymers," M. Negahban, 66th Annual Meeting of the Society of Rheology, Philadelphia, Pennsylvania, October 2-6, 1994.
19. "A Study of the Influence of Polymer Crystallization on the Distribution of Stress and Mechanical Properties Around Rigid Inclusions and Voids," R.J. Ma, M. Negahban, 31st Annual Technical Meeting of the Society of Engineering Science, Texas A&M University, College Station, Texas, October 10-12, 1994.
20. "Mathematical Modeling and Computational Simulation of Tubular Sheath Extrusion with Post-Extrusion Drawing: Application to Polymer Casing of Electronic Wire and Cable," J. Nielson, M. Negahban, the Symposium on Mechanics of Materials Processing and Manufacturing, As part of the 1994 ASME International Mechanical Engineering Congress and Exhibition, Chicago, Illinois, November 6-11, 1994 (**invited**).
21. "Modeling the Mechanical Response of Amorphous Polymers in the Glass- Transition Range Based on the Observed Flow and Recovery," M. Negahban, Society of Experimental Mechanics, Grand Rapids, Michigan, June 12-14, 1995.
22. "A preliminary study of the mechanical effects of polymer crystallization around a rigid cylindrical inclusion: homogeneous crystallization under plane strain," R. Ma and M. Negahban, Symposium on Current Research in the Thermo-Mechanics of Polymers in the Rubbery-Glassy Range, ASME/AMD-MD '95, June 28-30, 1995.
23. "A thermodynamic theory for characterizing thermo-mechanical response of polymers during crystallization," M. Negahban, Symposium on Current Research in the Thermo-Mechanics of Polymers in the Rubbery- Glassy Range, ASME/AMD-MD '95, June 28-30, 1995.

24. M. Negahban, "Preliminary results on an effort to characterize the thermo-mechanical response of amorphous polymers in the glass-transition range," Symposium on the Mechanics of Plastics and Plastic Composites, As part of the 1995 ASME International Mechanical Engineering Congress and Exhibition, San Francisco, California, November 12-17, 1995 (**invited**).
25. M. Negahban, "Modeling the mechanics of amorphous polymers in the glass transition," M. Negahban, International Conferences on Polymer Characterization (POLYCHAR-4), University of Northern Texas, Denton, Texas, January 10-12, 1996.
26. M. Negahban, "A Thermodynamic Model for the Mechanical Response of Natural Rubber During and After Crystallization," ASME Mechanics and Materials Conference, Johns Hopkins University, Baltimore, Maryland, June 12-14, 1996.
27. M. Negahban, "Modeling the behavior of a cross-linked PMMA around its glass-transition," 33rd Annual Technical Meeting, Society of Engineering Science, Arizona State University, Tempe, Arizona, October 20-23, 1996.
28. M. Negahban, "Thermomechanical effects associated with crystallization of rubber under stretch and during slow extension" presented at McNU97, Evanston, Illinois, June 29-July 2, 1997.
29. M. Negahban, "Modeling the Shear Behavior of Cross-Linked PMMA Around its Glass Transition," 25th Midwestern Mechanics Conference, Rapid City, South Dakota, September 21-24, 1997.
30. M. Negahban, "Thermomechanical Modeling of Crystallization in Polyethylene for Use in Simulation of Rotational Molding," 35th Annual Technical Meeting of the Society of Engineering Science, Pullman, Washington, September 27-30, 1998.
31. M. Negahban, " Modeling The Thermomechanical Behavior Of A Cross-Linked PMMA," PLASTICITY'99, Cancun, Mexico, January 5-14, 1999 (**invited**).
32. M. Negahban, " The Bell Constraint As A Possible Yield Function In Plasticity," PLASTICITY'99, Cancun, Mexico, January 5-14, 1999 (**invited lecture**).
33. M. Negahban, " Modeling Fusion And Crystallization In Polyethylene With Application To Rotational Molding," Fourth International Conference on Constitutive Laws for Engineering Materials, Rensselaer Polytechnic Institute in Troy, NY from July 27-30, 1999 (**invited**).
34. M. Negahban, Nicole Denise Buffington, "Thermodynamic Modeling of Crystallization and Fusion in Polyethylene, International Conference on Polymer Characterization," University of North Texas, Denton, Texas, January 11-14, 2000.
35. M. Negahban, "The Anatomy of Plasticity: A Case Study," 14th U.S. National Congress of Theoretical and Applied Mechanics, Virginia Tech, Blacksburg, VA, June 24-28, 2002 (**invited**).
36. M. Negahban, "Using the Formal Structure of Plasticity at Finite Strains to Model the Thermomechanical Behavior of Amorphous Polymers Around Their Glass Transition," 14th U.S. National Congress of Theoretical and Applied Mechanics, Virginia Tech, Blacksburg, VA, June 24-28, 2002 (**invited**).
37. M. Negahban, "Thermomechanical characterization of crystallization in polymers," IMECE2003, American Society of Mechanical Engineers, Washington DC, November 15-21, 2003.
38. M. Negahban, "A study of rate independent and rate dependent thermoplasticity at large strains: Examples," PLASTICITY 2003, Quebec City, July 7-11, 2003.
39. M. Negahban, Jean-Marc Saiter and Philippe Dos Santos Claro, "Thermomechanical characterization of crystallization in PET," SES2003, Society of Engineering Science, Ann Arbor, Michigan, October 12-15 2003.
40. M. Negahban, "The central role of the shape-memory effect and rejuvenation in characterizing the response of amorphous polymers around the glass-transition temperature," SES2004, Society of Engineering Science, Lincoln, Nebraska, October 10-13, 2004.
41. M. Negahban, "Four parameter elastic solid models with applications in characterization of glassy polymers," SES2004, Society of Engineering Science, Lincoln, Nebraska, October 10-13, 2004.
42. M. Negahban, "A study of statistical mechanics of long-chain molecules and its role in the determination of the characteristics of crystallizing polymers," SES2004, Society of Engineering Science, Lincoln, Nebraska, October 10-13, 2004.
43. M. Negahban, R. Feng, P. Delabarre, A. Goel, X. Shen, A. Dimick, A. Waters, "Shape memory as concept in characterizing the monotonic and non-monotonic thermomechanical response of glassy polycarbonate at small and large deformations, IMECE2005, ASME Congress International Congress, Orlando, November 9-11, 2005.
44. M. Negahban, "Universal Relations and Solutions for First-Gradient Materials," Symposium in memory of Ronald S. Rivlin, 43rd Technical Meeting of the Society of Engineering Science, Penn State University, University Park, Pennsylvania, August 13-16, 2006.
45. M. Negahban, P. DelaBarre, A. Goel, R. Feng, J. Grenet, "Mapping Equilibrium Stress and Plastic Strain Rate in Glassy Polymers," 43rd Technical Meeting of the Society of Engineering Science, Penn State University, University Park, Pennsylvania, August 13-16, 2006.

46. X. Shen, P. DelaBarre, R. Feng, M. Negahban, "Dynamic shear response of polycarbonate," IMECE2006, ASME International Mechanical Engineering Congress and Exposition, Chicago, Illinois, November 5-10, 2006.
47. M. Negahban, A. Goel, P. DelaBarre, R. Feng, J. Grenet, "Characterizing the nonlinear elastic response of polycarbonate," IMECE2006, ASME International Mechanical Engineering Congress and Exposition, Chicago, Illinois, November 5-10, 2006.
48. M. Negahban, A. Goel, K. Strabala, J. Vogeler, R. Feng, P. Delabarre, J. Grenet, "Characterizing polycarbonate under large strains and rapid loading," 15th World Forum on Advanced Materials (PolyChar 15), Bozios, Brazil, April 16-20, 2007.
49. M. Negahban, A. Goel, K. Strabala, R. Feng, "Characterizing the development of anisotropy in Polycarbonate," 17th US Army Symposium on Solid Mechanics (Theme: Blast Mitigation), Baltimore, MD, April 2-5, 2007.
50. M. Negahban, A. Goel, K. Strabala, J. Vogeler, R. Feng, J. Grenet, "Modeling polycarbonate under large strains and rapid loads," Applied Mechanics and Materials Conference ASME Applied Mechanics and Materials Conference (McMat 2007), University of Texas at Austin, Austin, Texas 3-7, 2007.
51. J. G. Vogeler, X. Shen, R. Feng, and M. Negahban, "Dynamic compression and shear testing of polycarbonate," Applied Mechanics and Materials Conference ASME Applied Mechanics and Materials Conference (McMat 2007), University of Texas at Austin, Austin, Texas, June 3-7, 2007.
52. M. Negahban, A. Goel, J. Vogeler, K. Strabala, R. Feng, P. Delabarre, J. Grenet, "Normal Stress, Back Stress, and Plastic Flow in Shear for Polycarbonate," Shear-07, Nancy, France, September 4-7, 2007.
53. M. Negahban, A. Goel, K. Strabala, J. Vogeler, R. Feng, "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," Mechanics of Time-Dependent Materials Conference of 2008 (MTDM 2008), in Monterey, California, March 30-April 4, 2008.
54. M. Negahban, A. Goel, K. Strabala, J. Vogeler, R. Feng, "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," Third International Conference on Polymer Behavior, Marrakech, Morocco, November 3-7, 2008.
55. A. Goel, K. Strabala, N. Medeiros, J. Hein, M. Negahban, R. Feng, "Large deformation constitutive model for back stress of glassy polycarbonate," 45th Annual Technical Meeting of the Society of Engineering Science, University of Illinois, Urbana-Champaign, Illinois, October 12-15, 2008.
56. M. Negahban, A. Goel, K. Strabala, J. Vogeler, R. Feng, "Experimental characterization and constitutive modeling of polycarbonate under change of temperature, strain and strain rate," 17th World Forum on Advanced Materials (PolyChar 17), Rouen, France, April 20-24, 2009.
57. K. Strabala, L. Delbreilh, J.-M. Saiter, M. Negahban "Effects of compression and aging on the fracture, mechanical, and thermal properties of glassy polycarbonate," 17th World Forum on Advanced Materials (PolyChar 17), Rouen, France, April 20-24, 2009.

OTHER INVITED PRESENTATIONS

1. "Mechanical Modeling of Isothermal Solid Polymer Crystallization," M. Negahban, Department of Mechanical Engineering, Cornell University, Ithaca, New York, May 1988.
2. "Mechanical Modeling of Isothermal Solid Polymer Crystallization," M. Negahban, Department of Engineering Mechanics, University of Kentucky, Lexington, Kentucky, July 1988.
3. "Mechanical Modeling of Isothermal Solid Polymer Crystallization," M. Negahban, Department of Engineering Mechanics, University of Nebraska, Lincoln, Nebraska, November 1988.
4. "Mechanical Modeling of Isothermal Solid Polymer Crystallization," M. Negahban, Department of Mechanical Engineering, Florida State University, Tallahassee, Florida, March 1989.
5. "Mechanics of Polymers in the Glassy-Rubbery Range: Crystallization and Shape Recovery," M. Negahban, Dow Chemical Company, Freeport, Texas, September 1994.
6. "A Thermodynamic Theory for Characterizing Thermo-Mechanical Response of Polymers During Crystallization," M. Negahban, Ford Motor Company, June 7, 1995.
7. "Using the formal structure of plasticity at finite strains to model the thermomechanical behavior of amorphous polymers around their glass transition," University of Maryland Baltimore County, May 2, 1997.
8. "Shape memory in polymers: Using the formal structure of plasticity at finite strains to model the thermomechanical behavior of amorphous polymers around their glass transition," University of Iowa, October 30th, 2003.
9. "Shape memory in polymers: Using the formal structure of plasticity at finite strains to model the thermomechanical behavior of amorphous polymers around their glass transition," M. Negahban, University of Rouen, France, February 6, 2004.
10. "Thermomechanical Characterization of Crystallization in Solid Polymers," M. Negahban, Georgia Tech, Atlanta, December 5, 2005.

11. "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," M. Negahban, Peking University, Beijing, China, May 22, 2008.
12. "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," M. Negahban, Xi'an Jiaotong University, Xi'an, China, May 25, 2008.
13. "Direct development of linear and nonlinear finite elements of shells," M. Negahban, Zhejiang University, Hangzhou, China, May 30, 2008.
14. "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," M. Negahban, University of Science and Technology, Beijing, China, June 2, 2008.
15. "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," M. Negahban, Beijing Jiaotong University, Beijing, China, June 4, 2008.
16. "Experimental characterization and constitutive modeling of polycarbonate under large strains and rapid loads," M. Negahban, Georgia Tech, Atlanta, March 3, 2009.
17. "A life with endless starts riding upon your changing dreams," M. Negahban, Graduate Commencement Speaker, University of Nebraska-Lincoln, Lincoln, Nebraska, August 14, 2009.

TEACHING EXPERIENCE

University of Michigan: Teaching Assistant for Strength of Materials (Mechanical Engineering) and Intermediate Strength of Materials (Aerospace Engineering), and Instructor for Dynamics (Mechanical Engineering).

University of Nebraska: Courses taught are Statics, Dynamics, Strength of Materials, Advanced Dynamics, Numerical Methods, Introduction to the Finite Element Method, Fundamentals of Finite Element Analysis, Continuum Mechanics, Nonlinear Continuum Mechanics, Viscoelasticity, Theory of Plasticity, Large Deformation Plasticity.

PROFESSIONAL ACTIVITIES

- Co-organizer with Alan S. Wineman of "Symposium on nonlinear mechanics of polymers," 23rd Midwestern Mechanics Conference, Lincoln, Nebraska, October 10-13, 1993.
- Editor of an Applied Mechanics Division of ASME volume containing the full length papers of the presentations in the symposium on Current Research in the Thermo-Mechanics of Polymers in the Rubbery-Glassy Range to be held as part of the Joint Applied Mechanics and Materials Summer Meeting of the ASME, Los Angeles, California, June 28-30, 1995.
- Organizer of a symposium on Current Research in the Thermo-Mechanics of Polymers in the Rubbery-Glassy Range for the Joint Applied Mechanics and Materials Summer Meeting of the American Society of Mechanical Engineers, Los Angeles, California, June 28-30, 1995.
- Organized a symposium on the Thermo-Mechanics of Solid Polymers for the 1996 Mechanics & Materials Conference of the American Society of Mechanical Engineers, The Johns Hopkins University, Baltimore, MD, June 12-14, 1996.
- Member of the International Scientific Advisory Committee for the INTERNATIONAL WORKSHOP ON NEW APPROACHES TO HI-TECH MATERIALS 97, Nondestructive Testing and Computer Simulations in Materials Science and Engineering, 9-12 June 1997, St. Petersburg, Russia.
- Co-Organized with Said Ahzi a symposium titled Mechanics and Materials Issues for Polymers to be held during 35th Annual Technical Meeting of the Society of Engineering Science, Pullman, Washington, September 27-30, 1998.
- Member of the International Scientific Committee for the 35th Annual Technical Meeting of the Society of Engineering Science, Pullman, Washington, September 27-30, 1998.
- Co-Organizer with J.-M. Saiter of a symposium on polymers at the 2004 SES meeting, Lincoln, Nebraska.
- Co-Organizer with G. McKenna of a symposium in honor of Alan Winemans at the 2004 SES meeting, Lincoln, Nebraska.
- Co-Organizer with A. Segall Thermoelasticity and Thermal Shock at the 2004 SES meeting, Lincoln, Nebraska.
- Member of Scientific Committee of PolyChar World Forum on Advanced Materials (2007-).
- Member of Scientific Committee of International Conference on Polymer Behavior (2007-).
- Member of Editorial Board of the The Mechanics of Time-Dependent Materials Journal (2008-).
- Co-Organizer with Zheng Li and Jean Grenet of a symposium on mechanical effect in polymers at PolyChar 17, Rouen, France, April 20-24, 2009.
- Present or previous member of: American Academy of Mechanics; American Society of Mechanical Engineers; Elasticity Committee of the Applied Mechanics Division of ASME; Society of Engineering Science; Society for Natural Philosophy; Society of Plastics Engineers; Society of Rheology;

- Reviewer for: Applied Mechanics Reviews, Journal of Elasticity, Experimental Mechanics, International Journal of Solids and Structures, Mathematics and Mechanics of Solids, ASME Journal of Engineering Materials and Technology, International Journal of Plasticity, ASME Journal of Biomechanical Engineering, Polymer Engineering and Science, ASME Journal of Applied Mechanics, Continuum Mechanics and Thermodynamics, IRWIN.

AWARDS AND HONORS

- UNL Parents Association and Teaching Council Recognition Award, January 1990.
- UNL Parents Association and Teaching Council Recognition Award, January 1992.
- Department of Engineering Mechanics Teaching Award, 1998.
- Department of Engineering Mechanics Teaching Award, 1999.
- UNL Parents Association and Teaching Council Recognition Award, January 2000.
- Department of Engineering Mechanics Teaching Award, 2001.
- Holling Family Distinguished Senior Faculty Teaching Award, College of Engineering and Technology, April 2003.
- Holling Family Distinguished Senior Faculty Teaching Award, College of Engineering and Technology, April 2009.