

# YI-CHAO CHEN

## Professor

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## EDUCATION

Ph.D., University of Minnesota, 1986.  
M.S.E., Johns Hopkins University, 1982.

## EMPLOYMENT AND EXPERIENCE

**2006-Present** Professor, Department of Mechanical Engineering, University of Houston, Houston, Texas.

**1996-2006** Associate Professor, Department of Mechanical Engineering, University of Houston, Houston, Texas.

**1990-1996** Assistant Professor, Department of Mechanical Engineering, University of Houston, Houston, Texas.

**1987-1990** Postdoctoral Associate and Visiting Assistant Professor, Department of Theoretical and Applied Mechanics, Cornell University, Ithaca, New York.

## TEACHING AWARDS

**1995** Outstanding Teacher Award, Cullen College of Engineering, University of Houston.

**1990** Teacher of the Year, Department of Mechanical Engineering, University of Houston, presented by Pi Tau Sigma Chapter of ASME.

## PROFESSIONAL SOCIETY SERVICES

2008-2010, Chairman, Society for Natural Philosophy.

2005-Present, Board of Directors, Treasurer, Society of Engineering Science.

1991-Present, Elasticity Committee, American Society of Mechanical Engineers.

2000-Present, Treasurer, Southwest Mechanics Lecture Series.

## PROFESSIONAL CONFERENCE ACTIVITIES

- Session Chairman, Symposium on Recent Development of Finite Elasticity, The 112th ASME Winter Annual Meeting, Atlanta, Georgia, 1991.
- Session Chairman, Symposium on Nonlinear Elasticity, The Twenty-Third Midwestern Mechanics Conference, Lincoln, Nebraska, 1993.
- Session Chairman, Symposium on Finite Elasticity, The 31st Annual Technical Meeting of the Society of Engineering Science, College Station, Texas, 1994.
- Session Chairman, Symposium on Material Instabilities, 1994 ASME International Mechanical Engineering Congress and Exposition, Chicago, Illinois, 1994.
- Organizer, Symposium on Finite Elasticity, The 32nd Annual Technical Meeting of the Society of Engineering Science, New Orleans, Louisiana, 1995.
- Organizer, Symposium on Advances in Mechanics of Elastic and Bioelastic Membranes, 1995 ASME International Mechanical Engineering Congress and Exposition, San Francisco, California, 1995.
- Organizer, Symposium on Elasticity, 1997 Joint ASME/ASCE/SES Summer Meeting, Evanston, Illinois, 1997.
- Member of the SES98 Advisory and International Scientific Committees.
- Organizer, Symposium on Topics in Theoretical and Applied Elasticity, SES 35th Annual Technical Meeting, Pullman, Washington, 1998.
- Organizer, Symposium on Advances in the Continuum Mechanics and Thermodynamics of Material Behavior, 1999 ASME Applied Mechanics and Materials Conference, Blacksburg, Virginia 1999.
- Organizer, Symposium on Time Dependent Failure Processes in Polymer Matrix Composites, 15th Annual Technical Conference of American Society for Composites, College Station, Texas, September 24-27, 2000.
- Organizer, Symposium on Mechanics of Cellular and Porous Materials, ASME Winter Annual Meeting, New York, New York, November 11-16, 2001.
- Organizer, Symposium on Prospects for Mathematics and Mechanics, Minneapolis, Minnesota, November 5-6, 2004.
- Organizer, Symposium In Memory of Ronald S. Rivlin, the 43rd Annual Technical Meeting of the Society of Engineering Science, University Park, Pennsylvania, August 13-16, 2006.
- Organizer, Symposium on Nonlinear Continuum Mechanics, the 44th Annual Technical Meeting of the Society of Engineering Science, College Station, Texas, October 21-24, 2007.
- Organizer, Meeting of the Society for Natural Philosophy "The Interface between Atomistic and Continuum Theories", University of Houston, October 26-28, 2007.

Organizer, Symposium in Honor of Roger Fosdick, the 47th Annual Technical Meeting of the Society of Engineering Science, Ames Iowa, October 4-6, 2010.

## **JOURNAL/BOOK EDITORSHIP**

Editorial Board, *International Journal of Applied Mechanics and Engineering*.

Editorial Board, *Journal of Advanced Research in Mechanical Engineering*.

Editorial Board, *Journal of Elasticity*.

Editorial Board, *Mathematics and Mechanics of Solids*.

Guest Editor, *Journal of Elasticity* (for the Special Volume in Recognition of the Sixties Birthday of Roger L. Fosdick).

Guest Editor, *Mechanics of Materials* (for the Special Issue on Mechanics of Cellular and Porous Materials) 2004.

## **ACADEMIC REVIEW ACTIVITIES**

AIAA Technical Journals.

ASME Journal of Applied Mechanics.

ASME Journal of Biomechanical Engineering.

Biomechanics and Modeling in Mechanobiology.

European Journal of Mechanics.

IMA Journal of Applied Mathematics.

International Journal of Fracture.

International Journal of Non-Linear Mechanics.

International Journal of Solids and Structures.

Journal of Elasticity.

Journal of Intelligent Systems and Structures.

Journal of the Mechanics and Physics of Solids.

Mathematics and Mechanics of Solids.

Mechanics of Materials.

Mechanics Research Communications

Quarterly Journal of Mechanics and Applied Mathematics.

Zeitschrift für Angewandte Mathematik und Physik (Journal of Applied Mathematics and Physics).

### **COMMITTEE SERVICE**

Scholarship Committee, College of Engineering, University of Houston, 1992-1994.

Undergraduate Study Committee, Department of Mechanical Engineering, University of Houston, 1992-1996.

College of Engineering Library Liaison, University of Houston, 1994-Present.

Graduate Study Committee, Department of Mechanical Engineering, University of Houston, 1998-Present.

Director, Graduate Admissions, Department of Mechanical Engineering, University of Houston, 1998-2004.

University Library Committee, University of Houston, 2000-Present.

Director, Graduate Admissions, Department of Mechanical Engineering, University of Houston, 2010-Present.

### **INVITED LECTURES**

“Instability and bifurcation of a spherical balloon”, Eleventh U.S. National Congress of Applied Mechanics, Tucson, Arizona, 1990.

“Non-axisymmetric necking”, The Twenty-Second Midwestern Mechanics Conference, Rolla, Missouri, 1991.

“Toward an interface theory”, Symposium on Recent Development of Finite Elasticity, 112th ASME Winter Annual Meeting, Atlanta, Georgia, 1991.

“Nonlinear elastic properties of composites with imperfect interface,” Symposium on Strengths and Damages of Composite Materials, Beijing University of Aeronautics and Astronautics, China, 1993.

“Nonlinear elastic properties of particulate composites”, The Twenty-Third Midwestern Mechanics Conference, Lincoln, Nebraska, 1993.

“Nonlinear elastic properties of composite materials with imperfect interfaces”, Aerospace Engineering Department, Texas A&M University, College Station, Texas, 1993.

“Bifurcation and stability of inflated cylindrical membranes”, Symposium on Bifurcation Problems in Nonlinear Elasticity, 114th ASME Winter Annual Meeting, New Orleans, Louisiana, 1993.

- “A contact problem of elastic membranes”, Symposium on Elasticity, 31st Society of Engineering Science Conference, Texas A&M University, 1994.
- “Instabilities of uniaxial extension and simple shear deformations”, 1994 ASME International Mechanical Engineering Congress and Exposition, Chicago, Illinois, 1994.
- “Flexure of inflated elastic membranes”, Symposium on Recent Developments in Elasticity, Baltimore, Maryland, 1996.
- “Dynamic behavior of heterogeneous materials”, 33rd Annual Technical Meeting of the Society of Engineering Science, Tempe, Arizona, 1996.
- “Stability and bifurcation of homogeneous deformations of an elastic body under pressure load”, Institute for Theoretical and Engineering Science, University of Houston, Houston, Texas, 1996.
- “Nonlinear elastic properties of composite materials with imperfect interface”, California Institute of Technology, Pasadena, California, 1997.
- “Stability and bifurcation of homogeneous deformations of an elastic body under pressure loads”, University of Glasgow, Glasgow, Scotland, 1997.
- “A nonsimple viscoelastic constitutive model for dynamic response of elastic composites”, Texas A&M University, College Station, Texas, 1998.
- “Impact induced phase transformation in shape memory alloys”, University of California at Berkeley, Berkeley, California, 1998.
- “Nonlinear elastic properties of composite materials with imperfect interface,” India Institute of Technology, Madras, India, 1998.
- “Dynamic response of elastic composite materials,” India Institute of Technology, Madras, India, 1998.
- “Impact induced phase transformation in shape memory alloys,” India Institute of Technology, Madras, India, 1998.
- “Impact induced phase transformation in shape memory alloys,” India Institute of Science, Bangalore, India, December 21, 1998.
- “Nonlinear elastic properties of composite materials with imperfect interface,” India Institute of Technology, New Delhi, India, December, 1998.
- “Dynamic behavior of shape memory alloys under impact loads”, The 36th Annual Technical Meeting of the Society of Engineering Science, Austin, Texas, 1999.
- “Stability of elastic half-spaces by an energy method”, 1999 International Mechanical Engineering Congress and Exposition, Nashville, Tennessee, 1999.
- “Mechanics of growth and remodel of soft biological tissues”, Workshop on Nonlinear Elasticity, Hong Kong, China, 2000.

- “Dynamic behavior of shape memory alloys under impact loads”, University of Science and Technology, Hefei, China, April 10, 2000.
- “Dynamic behavior of shape memory alloys under impact loads”, Peking University, Beijing, China, April 13, 2000.
- “Dynamic behavior of shape memory alloys under impact loads”, University College Dublin, Ireland, 2000.
- “Stability and bifurcation of deformations of an elastic body under pressure loads”, Keele University, England, 2000.
- “Dynamic solutions of thermoelastic rods under impact loads”, Meeting of the Society for Natural Philosophy, University of California-Berkeley, California, September 28-October 1, 2000.
- “Stability of finite deformations of elastic cylinders”, The 37th Annual Meeting of the Society of Engineering Science, University of South Carolina, Columbia, South Carolina, October 23-25, 2000.
- “A constitutive theory of porous shape memory alloys”, The 38th Annual Technical Meeting of the Society of Engineering Science, San Diego, California, 2001.
- “A continuum theory for materials with microstructures”, Symposium on Recent Advances and New Directions in Mechanics, Thermodynamics, and Kinetic Theory, The 14th US National Congress of Theoretical and Applied Mechanics, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, June 23-28, 2002.
- “Stability and Bifurcation of Inflation of Elastic Cylinders,” Symposium on Contemporary Issues in Mechanics, The 14th US National Congress of Theoretical and Applied Mechanics, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, June 23-28, 2002.
- “Deformation of a double bonded beam under three-point bending,” Symposium on Analysis and Durability of Adhesive Bonds, The 14th US National Congress of Theoretical and Applied Mechanics, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, June 23-28, 2002.
- “Dynamic Behavior of Shape Memory Alloys under Impact Loads,” Rice University, Houston, Texas, October 25, 2002.
- “Mechanics of Growth and Remodel of Soft Biological Tissues,” University of Rochester, Rochester, New York, February 13, 2003.
- “Dynamic Behavior of Shape Memory Alloys under Impact Loads,” Cornell University, Ithaca, New York, February 14, 2003.
- “Homogenization and Global Response of Inhomogeneous Spherical Nonlinear Elastic Shells,” Symposium on Nonlinear Elasticity and Coupled Field, The 41st Annual Technical Meeting of the Society of Engineering Science, Lincoln, Nebraska, October 10-13, 2004.

- “Dynamic Solution of a Nonlinear Viscoelastic Spherical Membrane,” Eringen Symposium in Honor of K. R. Rajagopal, The 41st Annual Technical Meeting of the Society of Engineering Science, Lincoln, Nebraska, October 10-13, 2004.
- “Stability and Bifurcation Theories in Nonlinear Elasticity,” Symposium on Nonlinear Mechanics, The 41st Annual Technical Meeting of the Society of Engineering Science, Lincoln, Nebraska, October 10-13, 2004.
- “Growth Mechanics and Growth of Mechanics,” Texas A&M University, College Station, Texas, November 17, 2004.
- “Growth Mechanics and Growth of Mechanics,” Symposium in Honor of Professor Cornelius O. Horgan, 2005 Erigen Medalist, The 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials, Baton Rouge, Louisiana, June 1-3, 2005.
- “Growth Theory for Biological Soft Tissues,” Washington University in St. Louis, St. Louis, Missouri, November 3, 2005.
- “Processing of Light-Weight Shape Memory Alloys Using Spark Plasma Sintering,” 47th AIAA/ASME/ASCE Structures, Structural Dynamics, and Materials Conference, Newport, Rhode Island, May 1-4, 2006.
- “Dynamic Behavior of Ferromagnetic Shape Memory Alloys,” 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Newport, Rhode Island, May 1-4, 2006.
- “Growth Mechanics and Growth of Mechanics,” University of Torina, Torina, Italy, July 5, 2006.
- “A constitutive theory for shape memory polymers”, The 43rd Technical Meeting of the Society of Engineering Science, State College, Pennsylvania, August 13-16, 2006.
- “Constitutive equations of nematic elastomers and an application”, The 43rd Technical Meeting of the Society of Engineering Science, State College, Pennsylvania, August 13-16, 2006.
- “A Constitutive Theory for Shape Memory Polymers”, Washington University in St. Louis, St. Louis, Missouri, April 12, 2007.
- “Stability of elastic films in proximity to a rigid plate”, ASME Applied Mechanics and Materials Conference, Austin, Texas, June 3-7, 2007.
- “A Constitutive Theory for Shape Memory Polymers”, Composite Technology Development, Inc., Lafayette, Colorado, August 15, 2007.
- “A Constitutive Theory Using the Current Configuration as Reference”, the 44th Annual Technical Meeting of the Society of Engineering Science, College Station, Texas, October 21-24, 2007.
- “A constitutive theory for shape memory polymers”, The 6th International Congress of Mechanics Engineering, Monterrey, Mexico, April 9-12, 2008.

- “A unified theory for surface and volumetric growths of biological tissues”, International Conference on Applied Mathematics: Modeling, Analysis and Computation, City University of Hong Kong, June 1-5, 2008.
- “A constitutive theory for shape memory polymers”, Institute of Applied Mechanics at National Taiwan University, June 10, 2008.
- “A constitutive theory for shape memory polymers”, Xiamen University, June 12, 2008.
- “A unified theory for surface and volumetric growths of biological tissues”, Xiamen University, June 12, 2008.
- “Mechanics of shape memory polymers”, Beijing Jiaotong University, July 3, 2008.
- “Growth mechanics and growth of mechanics”, California Institute of Technology, July 10, 2008.
- “Mechanics of shape memory polymers”, Eglin Air Force Base, Florida, June 30, 2009.
- “A continuum theory for materials with microstructures”, 11th Pan-American Congress of Applied Mechanics, Foz do Iguacu, Brazil, January 7, 2010.
- “Stability and bifurcation theories in mechanics”, McGill University, Canada, February 1, 2010.
- “Growth Mechanics and Growth of Mechanics”, AMS Sectional Meeting, University of Kentucky, Lexington, Kentucky, March 27-29, 2010.
- “Energy release rate of dielectric materials with evolving defects under electric fields”, Symposium in honor of Robert Sierakowski, 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Orlando, Florida, April 12-15, 2010.
- “A new formulation of elasticity theory”, Symposium on Nonlinear Mechanics in Celebration of the 60th Birthday of K. R. Rajagopal, October 4, 2010.
- “Energy release rate of dielectric materials with evolving defects under electric fields”, Symposium in Honor of Roger Fosdick, Ames, Iowa, October 5, 2010.
- “Opening angle, residual stress, and optimal operation of blood vessels”, Symposium in Honor of Ray Ogden, Ames, Iowa, October 6, 2010.
- “A new formulation of elasticity”. Perambulation of Continuum Mechanics, Meeting in Celebration of the Sixtieth Birthday of K. R. Rajagopal. November 11, 2010.

## **TECHNICAL PRESENTATIONS**

- “Non-axisymmetric necking”, The Sixth Conference on Waves and Stability in Continuous Media, Acireale, Italy, 1991.
- “Nonlinear elastic properties of particulate composites”, Second International Conference on Nonlinear Mechanics, Beijing, China, 1993.

- “Stability of inflated cylindrical membranes”, The Second International Conference on Nonlinear Mechanics, Beijing, China, 1993.
- “Nonlinear elastic Properties of composite materials with imperfect interfaces”, 12th U.S. National Congress of Applied Mechanics, Seattle, Washington, 1994.
- “Stability and bifurcation of inflated cylindrical elastic membranes”, Fourth Pan-American Congress of Applied Mechanics, Buenos Aires, Argentina, 1995.
- “Stability of elastic half-spaces by energy method”, 32nd Annual Technical Meeting of the Society of Engineering Science, New Orleans, Louisiana, 1995.
- “Inflation of cylindrical elastic membranes”, Symposium on Advances in Mechanics of Elastic and Bioelastic Membranes, 1995 ASME International Mechanical Engineering Congress and Exposition, San Francisco, California, 1995.
- “Determination of extrusion direction using ultrasonic measurements”, Second Conference on NDE Applied to Process Control of Composite Fabrication, St. Louis, Missouri, 1996.
- “Ultrasonic characterization of the elastic anisotropy in metal matrix composites”, 1997 Spring Conference of the American Society for Nondestructive Testing, Houston, Texas, 1997.
- “Stability and bifurcation of deformations of an elastic body under pressure load”, 1977 Joint ASME, ASCE, SES Summer meeting, Evanston, Illinois, 1997.
- “A nonsimple viscoelastic constitutive model for dynamic response of elastic composites”, 1977 Joint ASME, ASCE, SES Summer meeting, Evanston, Illinois, 1997.
- “Powder densification mechanism of metal matrix composite materials”, Fifth International Conference on Composites Engineering, Las Vegas, Nevada, 1998.
- “Harmonic waves in solid with a layer of spherical inclusions”, Fifth International Conference on Composites Engineering, Las Vegas, Nevada, 1998.
- “Ultrasonic velocity measurements applied to process control of metal matrix composites densification”, Review of Progress in Quantitative NDE, Snowbird, Utah, 1998.
- “Relationship between elastic constants and particle deformation in metal matrix composites”, Review of Progress in Quantitative NDE, Snowbird, Utah, 1998.
- “Boundary layer solutions in elastic solids”, 35th Annual Technical Meeting of Society of Engineering Science, Puallman, Washington, 1998.
- “Impact induced phase transformation in shape memory alloys”, 35th Annual Technical Meeting of Society of Engineering Science, Puallman, Washington, 1998.
- “Constitutive function of elastic materials in finite growth and deformation”, 1999 ASME Mechanics and Materials Conference, Blacksburg, Virginia, 1999.

- “Dynamic behavior and shock absorption properties of porous shape memory alloys”, SPIE’s 7th Annual International Symposium on Smart Structures and Materials, Newport Beach, California, 2000.
- “Dynamic solutions of thermoelastic rods under impact loads”, The 20th International Congress of the International Union of Theoretical and Applied Mechanics, Chicago, Illinois, August 27-September 2, 2000.
- “Fabrication of porous NiTi shape memory alloy by elemental powder sintering”, Adaptive Structures and Materials Systems Symposium, The 2000 ASME International Mechanical Engineering Congress and Exposition, Orlando, Florida, November 5-10, 2000.
- “A constitutive theory of porous shape memory alloys”, The 2001 ASME International Engineering Congress and Exposition, New York, 2001.
- “Homogenization and global responses of nonlinear elastic composites”, III European Conference on Computational Mechanics, Lisbon, Portugal, June 5-9, 2006.
- “Constitutive equations of nematic elastomers and an application”, International Symposium on Trends in Applications of Mathematics to Mechanics, Vienna, Austria, July 10-14, 2006.
- “Stability of elastic films in proximity to a rigid plate”, The 43rd Technical Meeting of the Society of Engineering Science, State College, Pennsylvania, August 13-16, 2006.
- “A growth mechanics theory for biological materials”, The 43rd Technical Meeting of the Society of Engineering Science, State College, Pennsylvania, August 13-16, 2006.
- “A constitutive theory for shape memory polymers”, ASME Applied Mechanics and Materials Conference, Austin, Texas, June 3-7, 2007.
- “A viscoelastic constitutive model for shape memory polymers”, The 44th Technical Meeting of the Society of Engineering Science, College Station, Texas, October 21-24, 2007.
- “A growth theory for biological tissues”, The 44th Technical Meeting of the Society of Engineering Science, College Station, Texas, October 21-24, 2007.

## **PUBLICATIONS**

### **Book Chapters**

1. Singularity Theory and Nonlinear Bifurcation Analysis. In *Nonlinear Elasticity: Theory and Applications*, 305-344, edited by Y. B. Fu and R. W. Ogden. Cambridge University Press 2001.

### **Journal Articles**

1. Y. C. Chen, Stability of homogeneous deformations of an incompressible elastic body under dead-load surface tractions. *Journal of Elasticity* **17**, 223-248 (1987).
2. Y. C. Chen, Stability of pure homogeneous deformations of an elastic plate with fixed edges. *Quarterly Journal of Mechanics and Applied Mathematics* **41**, 249-264 (1988).

3. Y. C. Chen, Stability of deformation of an elastic layer (with K. R. Rajagopal). *Archive for Rational Mechanics and Analysis* **108**, 1-9 (1989).
4. Y. C. Chen and C. Y. Hui, Load transfer in a composite containing a broken fiber with imperfect bonding. *Mechanics of Materials* **10**, 161-172 (1990).
5. Y. C. Chen and T. J. Healey, Bifurcation to pear-shaped equilibria of pressurized spherical membranes. *International Journal of Non-Linear Mechanics* **26**, 279-291 (1991).
6. Y. C. Chen, On strong ellipticity and the Legendre-Hadamard condition. *Archive for Rational Mechanics and Analysis* **113**, 165-175 (1991).
7. Y. C. Chen, Bifurcation and stability of homogeneous deformations of an elastic body under dead load tractions with  $Z_2$  symmetry. *Journal of Elasticity* **25**, 117-136 (1991).
8. Y. C. Chen, Non-axisymmetric necking. *Le Matematiche* **46**, 493-502 (1991).
9. G. P. MacSithigh and Y. C. Chen, Bifurcation and stability of an incompressible elastic body under homogeneous dead loads with symmetry, Part I: General isotropic materials. *Quarterly Journal of Mechanics and Applied Mathematics* **45**, 277-291 (1992).
10. G. P. MacSithigh and Y. C. Chen, Bifurcation and stability of an incompressible elastic body under homogeneous dead loads with symmetry, Part II: Mooney-Rivlin materials. *Quarterly Journal of Mechanics and Applied Mathematics* **45**, 293-313 (1992).
11. Y. C. Chen and C. Y. Hui, Evaluation of complex stress intensity factor of interface cracks - A perturbation approach. *Journal of Applied Mechanics* **60**, 221-222 (1993).
12. Y. C. Chen and L. Wheeler, Derivatives of the stretch and rotation tensors. *Journal of Elasticity* **32**, 175-182 (1993).
13. Y. C. Chen and X. Jiang, Nonlinear elastic properties of particulate composites. *Journal of the Mechanics and Physics of Solids* **41**, 1177-1190 (1993).
14. Y. C. Chen, Stability of homogeneous deformations in nonlinear elasticity. *Journal of Elasticity* **40**, 75-94 (1995).
15. Y. C. Chen, Stability and bifurcation of homogeneous deformations of a compressible elastic body under pressure load. *Mathematics and Mechanics of Solids* **1**, 57-72 (1996).
16. Y. C. Chen, Stability and bifurcation of finite deformations of elastic cylindrical membranes-I. Stability analysis. *International Journal of Solids and Structures* **34**, 1735-1749 (1997).
17. Y. C. Chen and D. M. Haughton, Existence of exact solutions for the eversion of elastic cylinders. *Journal of Elasticity* **49**, 79-88 (1997).
18. N. Mourik, Y. C. Chen, and K. Salama, Nondestructive determination of the elastic anisotropy in Aluminum-SiC and  $-Al_2O_3$  metal matrix composites. *Research in Nondestructive Evaluation* **11**, 1-13 (1999).

19. D. M. Haughton and Y. C. Chen, On the eversion of incompressible elastic spherical shells. *Zeitschrift für angewandte Mathematik und Physik* **50**, 312-326 (1999).
20. Y. C. and D. C. Lagoudas, Impact induced phase transformation in shape memory alloys. *Journal of the Mechanics and Physics of Solids* **48**, 275-300 (2000).
21. Y. C. Chen and A. Hoger, Constitutive functions of elastic materials in finite growth and deformation. *Journal of Elasticity* **59**, 175-193 (2000).
22. Y. C. Chen and K. R. Rajagopal, Boundary layer solutions in elastic solids. *Journal of Elasticity* **62**, 203-216 (2001).
23. Y. C. Chen and D. M. Haughton, Stability and bifurcation of inflation of elastic cylinders, *Proceedings of the Royal Society London* **459**, 137-156 (2003).
24. D. M. Haughton and Y. C. Chen, Asymptotic bifurcation results for the eversion of elastic shells. *Zeitschrift für angewandte Mathematik und Physik* **54**, 191-211 (2003).
25. Y. C. Chen, Second variation condition and quadratic integral inequalities with higher order derivatives. *Journal of Elasticity* **70**, 111-127 (2003).
26. Y. C. Chen and Guansuo Dui, The derivative of isotropic tensor functions, elasticity tensor and stress rate. Part I. Eigenvalue formulation. *Mathematics and Mechanics of Solids* **9**, 493-511 (2004).
27. Guansuo Dui and Y. C. Chen, A note on Rivlin's identities and their extensions. *Journal of Elasticity* **76**, 107-112 (2004).
28. Guansuo Dui and Y. C. Chen, Basis-free representations for the stress rate of isotropic materials. *International Journal of Solids and Structures* **41**, 4845-4860 (2004).
29. Y. C. Chen and D. C. Lagoudas, Wave propagation in shape memory alloy rods under impulsive loads. *Proceedings of the Royal Society London* **461**, 3871-3892 (2005).
30. Y. C. Chen, K. R. Rajagopal and L. Wheeler, Homogenization and global responses of inhomogeneous spherical nonlinear elastic shells. *Journal of Elasticity* **82**, 193-214 (2006).
31. Y. C. Chen and E. Fried, Uniaxial nematic elastomers: constitutive framework and a simple application. *Proceedings of the Royal Society London* **462**, 1295-1314 (2006).
32. G. Majkic, N. Chennoufi, Y. C. Chen, K. Salama, Synthesis of NiTi by low electro-thermal loss spark plasma sintering. *Metallurgical Transactions A*. **38A**, 2523-2530 (2007).
33. Y. C. Chen and D. C. Lagoudas, A constitutive theory for shape memory polymers. Part I. Large deformations. *Journal of the Mechanics and Physics of Solids*, **56**, 1752-1765 (2008).
34. Y. C. Chen and D. C. Lagoudas, A constitutive theory for shape memory polymers. Part II. A linearized model for small deformations. *Journal of the Mechanics and Physics of Solids*, **56**, 1766-1778 (2008).

35. N. Chennoufi, G. Majkic, Y. C. Chen and K. Salama, Temperature, current, and heat loss distributions in reduced electrothermal loss spark plasma sintering. *Metallurgical and Materials Transactions A*, **40**, 2401-2409 (2009).
36. M. I. Varela-Jimenez, J. A. Cortes-Ramirez and Y. C. Chen, Constitutive model for glassy-active phase transformation on shape memory polymers considering small deformations. *Journal of Materials Science and Engineering*, **4**, 14-22 (2010).
37. L. V. Brent, D. C. Lagoudas, Y. C. Chen and K. S. Whitley. Analysis of the finite deformation response of shape memory polymers: I. Thermomechanical characterization. *Smart Materials and Structures* **29**, Online at [stacks.iop.org/SMS/19/075005](http://stacks.iop.org/SMS/19/075005) (2010).
38. L. V. Brent, D. C. Lagoudas and Y. C. Chen. Analysis of the finite deformation response of shape memory polymers: II. 1D calibration and numerical implementation of a finite deformation, thermoelastic model. *Smart Materials and Structures* **29**, Online at [stacks.iop.org/SMS/19/075006](http://stacks.iop.org/SMS/19/075006), (2010).
39. Y. C. Chen. Elasticity theory with response function for deformation gradient in terms of stress. *International Journal of Engineering Science* **48**, 1083-1091 (2010).
40. Y. C. Chen. On the dynamic behavior of a class of Cauchy elastic materials. *Mathematics and Mechanics of Solids*, in press.
41. Y. C. Chen and J. F. Eberth, Constitutive function, residual stress, and state of uniform stress in arteries. *Journal of the Mechanics and Physics of Solids*, submitted.

### Conference Proceedings

1. Instability and bifurcation of a spherical balloon. Proceedings of the Eleventh U.S. National Congress of Applied Mechanics, 4CA5 (1990).
2. Non-axisymmetric necking. Proceedings of the Twenty-Second Midwestern Mechanics Conference, MM3 (1991).
3. Toward an interface theory. In "Recent Developments in Elasticity" (ed. by R. C. Batra and G. P. MacSithigh), **AMD 124**, 61-65 (1991).
4. Nonlinear elastic properties of composites with imperfect interface. Proceedings of Symposium on Strengths and Damages of Composite Materials (ed. by Songnian Li), (1993).
5. Nonlinear elastic properties of particulate composites. Proceedings of the Second International Conference on Nonlinear Mechanics, 475 (1993).
6. Stability of inflated cylindrical membranes. Proceedings of the Second International Conference on Nonlinear Mechanics, 479 (1993).
7. Nonlinear elastic properties of particulate composites. Proceedings of the Twenty-Third Midwestern Mechanics Conference, 19 (1993).

8. Nonlinear elastic properties of composite materials with imperfect interfaces. Proceedings of the twelfth U.S. National Congress of Applied Mechanics, 4Cb10 (1994).
9. A contact problem of elastic membranes. Proceedings of the 31st Annual Technical Meeting of the Society of Engineering Science, 140 (1994).
10. Instabilities of uniaxial extension and simple shear deformations. In "Material Instabilities" (ed. by R. C. Batra and H. M. Zbib) (1994).
11. Stability and bifurcation of inflated cylindrical elastic membranes. In "Applied Mechanics in the Americas" (ed. by L. A. Godoy, S. R. Idelsohn, P. A. A. Laura and D. T. Mook) **1**, 404-409 (1995).
12. Stability of elastic half-spaces by energy method. Proceedings of the 32nd Annual Technical Meeting of the Society of Engineering Science, 101 (1995).
13. Flexure of inflated elastic membranes (with L. Wheeler). In "Contemporary Research in the Mechanics and Mathematics of Materials" (ed. by R. C. Batra and M. F. Beatty) 151-163. International Center for Numerical Methods in Engineering, Barcelona, Spain (1996).
14. Ultrasonic characterization of the elastic anisotropy in Aluminum-SiC and  $-Al_2O_3$  metal matrix composites (with N. Mourik and K. Salama). In "Review of Progress in Quantitative Nondestructive Evaluation" (ed. by D. O. Thompson and D. E. Chimenti) **16B** 1143-1150, (1996).
15. Determination of extrusion direction using ultrasonic measurements (with K. Salama). Proceedings of the Second Conference on NDE Applied to Process Control of Composite Fabrication 153-161 (1996).
16. Harmonic waves in solid with a layer of spherical inclusions. Proceedings of the Fifth International Conference on Composites Engineering 175-176 (1998).
17. Powder densification mechanism of metal matrix composite materials (with A. El-Sayed, H. Rahman and K. Salama). Proceedings of the Fifth International Conference on Composites Engineering 791-792 (1998).
18. Harmonic waves in solid with a layer of spherical inclusions. Proceedings of the Fifth International Conference on Composites Engineering 175-176 (1998).
19. M. H. Rahman, A. T. El-Sayed, Y. C. Chen, and K. Salama, Ultrasonic velocity measurements applied to process control of metal matrix composites densification. In "Review of Progress in Quantitative Nondestructive Evaluation" (ed. by D. O. Thompson and D. E. Chimenti) **18** 1281-1288, (1999).
20. Y. C. Chen and A. Hoger, Constitutive function of elastic materials in finite growth and deformation, Proceedings of 1999 ASME Mechanics and Materials Conference 360 (1999).

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22. Y. C. Chen and L. T. Wheeler, Stability of elastic half-spaces by an energy method, in "Finite Thermoelasticity" (ed. by J. Casey and A. Abeyaratne), AMD-Vol **236** 117-129, ASME (1999).
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