MORTEZA MONTE MEHRABADI

Department of Mechanical Engineering

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EDUCATION

- Post Doctoral Fellow (Theoretical and Applied Mechanics), Northwestern University, 1979-82
- Ph.D. (Mechanical Engineering), Tulane University, 1979
- M.S. (Mechanical Engineering), Tulane University, 1973
- B.S. (Mechanical Engineering), Tehran University, 1969

CURRENT POSITION

• Professor and Chair (6/2007 – Present), Department of Mechanical Engineering, San Diego State University, San Diego, CA

PREVIOUS POSITIONS

- Professor and Chair (10/1998 6/2007), Department of Mechanical Engineering, Tulane University, New Orleans, LA
- Professor (7/1992 to 10/1998), Department of Mechanical Engineering, Tulane University, New Orleans, LA
- Associate Professor (7/1985 to 6/1992), Department of Mechanical Engineering, Tulane University, New Orleans, LA
- Assistant Professor (7/1982 to 6/1985), Department of Mechanical Engineering, Tulane University, New Orleans, LA

VISITING AND OTHER POSITIONS HELD

- Faculty Fellow, U.S. Department of Energy, National Energy Technology Laboratory, Pittsburgh, July 2001, July-August 2002
- Faculty Fellow, Naval Research Laboratory, Washington, D.C. (on sabbatical leave from Tulane), Summer 1996, Spring 1997, and Summer 1997
- Visiting Professor, Tohoku University, Sendai, Japan (on sabbatical leave from Tulane), Fall 1996
- NASA/ASEE Faculty Fellow, NASA Marshall Space Flight Center, Huntsville, Alabama, June 1989 August 1989
- Visiting Associate Professor, Laboratoire de Mecanique des Solides, Ecole Polytechnique, Palaiseau, France, Fall 1988
- Visiting Faculty, University of California at San Diego, La Jolla, California, Summer 1987, January 1988.
- Research Assistant, Department of Mechanical Engineering, Tulane University, August 1972 May 1979

- Engineer, Lavan Petroleum Company, Persian Gulf, March 1971 August 1972
- Engineer, Military Service, August 1969 March 1971

TEACHING EXPERIENCE

- Statics, Dynamics, Engineering Physics, Mechanics of Materials, Machine Component Design, Mechanical Engineering Freshman Seminar, Continuum Mechanics, Solid Mechanics, Elasticity, Anisotropic Elasticity, Advanced Mechanics of Materials, Experimental Stress Analysis, and Advanced Dynamics.
- *Independent studies supervised*: Mechanics of Fluid Infiltrated Solids; Plasticity; Flow through Porous Media, Mechanics of Composite Materials, Particle Deposition and Aggregation, Simulation of Particle Packing.

RESEARCH INTERESTS

- Mechanical behavior of materials:
 - Micromechanical aspects of deformation and failure of materials
 - o Strength and failure of granular materials
 - Anisotropic elasticity and plasticity
 - Poroelasticity
 - Tissue mechanics
 - Density-gradient-dependent viscous fluids
 - Kinematics of Continuua
 - o Modeling of the initial rearrangement stage of particles in liquid phase sintering

RECOGNITIONS, HONORS, AND AWARDS

- Member, National Engineering Honor Society, Tau Beta Pi
- Member, National Mechanical Engineering Honor Society, Pi Tau Sigma
- Newton and Mary Ebaugh Faculty Fellow, 1982-1983
- Pi Tau Sigma ASME Award for Teaching Excellence, 1983
- Ralph R. Teetor Educational Award, 1984
- Harold A. Levey Award for significant achievement within ten years after graduation from Tulane University, 1985
- Mentioned in " Who is Who in Frontier Science and Technology", 1st and 2nd eds., 1986 and 1987, Marquis Who's Who
- The Society of Tulane Engineers and Lee H. Johnson Award for Teaching Excellence, 1992
- Pi Tau Sigma ASME Award for Teaching Excellence, 1999
- Pi Tau Sigma ASME Award for Teaching Excellence, 2006
- Mortar Board, The 2011-12 Outstanding Faculty and Staff Award, SDSU
- 2011 Outstanding Faculty Award, College of Engineering, SDSU

PROFESSIONAL ASSOCIATIONS

- American Society of Mechanical Engineers Fellow
- Society of Engineering Science (past member)
- American Academy of Mechanics (past member)
- American Society for Engineering Education (past member)

MEMBERSHIP IN NATIONAL PROFESSIONAL COMMITTEES

- ASME, joint Applied Mechanics Materials Divisions Committee on Constitutive Equations (past member)
- ASME-AMD Committee on Elasticity (past member)
- ASME-AMD Committee on Geomechanics (past member)
- Organizing Committee of U.S.- Japan Seminars on the Mechanics of Granular Materials (1992-1996)

ACTIVITIES AND SERVICE

<u>External</u>

- Editorial Board Member, Journal *Mechanics of Materials* (1999-present)
- Reviewer: National Science Foundation, Journal of Applied Mechanics, International Journal of Solids and Structures, Journal of the Mechanics and Physics of Solids, Proceedings of the Royal Society of London (Series A), Journal of Elasticity, Mechanics of Materials, International Journal of Plasticity, ASCE Engineering Mechanics Division Transactions, European Journal of Mechanics, Journal of the Mechanics of Materials and Structures, McGraw- Hill Publishers, City University of New York Research Awards, U.S. Civilian Research and Development Foundation
- Chairman and/or Organizer of conference sessions for ASME, SES, ASEE, and International Plasticity Conference
- Southwest Mechanics Lecture Series Tulane Representative (1991-2005)
- Southwest Mechanics Lecture Series Secretary (1993-95)
- External Examiner for Ph.D. Dissertation, University of Waterloo (June 1993)
- External Examiner for Ph.D. Dissertation, City College of the City University of New York (June 1997)
- Chairman of the ASME Region X ME Department Heads (2004-06)
- ASME Department Heads Executive Committee Member (2004-07)
- ASME Scholarship Committee Member (2005-06)
- Editorial Advisory Board Member, International Journal of Plasticity (2006-07)

<u>University</u>

- Tulane University Senate Committee on Student Affairs (1992 2000)
- Tulane University Senate, Member (2005)
- SDSU AVP for Faculty Affairs Search Committee, Member (Spring 2010)

Tulane School of Engineering (unless specified)

- School of Engineering Committee on Faculty-Student Relations (1985-87)
- Engineering Committee on Honors and Awards, Chairman (1989-90), (1991-92)
- School of Engineering Newsletter Editorial Board Member (1990)
- Theoretical and Applied Mechanics Committee (1991-92)
- Engineering Committee on Effective Teaching (1992-93)
- School of Engineering Graduate Advisory Committee (1992-1998)
- School of Engineering Tenure & Promotion Committee (Chairman, 1993-95)
- SDSU Associate Dean of Engineering Search Committee, Chair (2007)

<u>Department</u>

• Freshman Faculty Advisor (1983-86), (1998-2007)

- Faculty Search Committees (1987, 1992, 1994, 1999, 2000, 2002, 2003-2004, 2012)
- Departmental Book Chairman (1983-1993)
- ASME Faculty Advisor (1984-85), (1986-88)
- Graduate Advisor (1986-1990), (1992-98)
- Mechanical Engineering Seminars Organizer (1991-1993, 2002-04)
- Undergraduate Curriculum Committee (1998-2007)
- Graduate Committee Member (1998-2007)
- Department Chair (1998-present)

POSTDOCTORAL FELLOWS AND STUDENTS

Postdoctoral Fellows

- Wolfgang K. Heidug (Ph.D., Brown, 1985)
- Kang Xu (Ph.D., Tulane, 1993)

Ph.D. Students

- Mark Warren Biegler, An Energy-Based Constitutive Model for Elastoplastic Solids Subject to Damage, December, 1991.
- Kang Xu, Modeling the Initial Stage of Sintering of Powders in the Presence of a Liquid Phase, May, 1993.
- Norma Jean Mattei, A Continuum Damage Model for the Mechanical Behavior of Concrete, August, 1994.
- Pedro Egui, Modeling of Densification in Liquid Phase Sintering, May 1998.
- Huaning Zhu, A Dilatant Double Shearing Model for Granular Materials Including the Effects of Fabric, May 2005.

M.S. Students

- Andrew E. Boeck, A Review of Theories for Flow through Porous Media, May 1985.
- David E. Mouton, *Random Particle Generation, Compaction and Shearing Utilizing Linear Programming*, December, 1991.
- Deepak Chichili, Simulation of the Mechanical Behavior of Two-Dimensional Granular Assemblies Utilizing Linear Programming, August, 1993.
- Hung-Cheng Lu, *Six-Dimensional Spectral Representation of the Three Dimensional Rotation and Reflection Tensors*, May 1994.
- David W. Martin, An Energy-Based Model for Predicting the Elastic-Plastic Response and Failure of Anisotropic Materials, December 1994.
- Kevin P. Larsen, Simulation of Capillary Effects in Powders using the Granular Element Method, August 1998.
- Qinghui Chen, Simulation of Particle Surface Charge and Viscous Effects in Ceramic Slurries by the Discrete Element Method, June 1999.

B.S. Honors Theses

- Michael C. Larson, A Model for the Use of Premonitory Changes in Physical Phenomena in Earthquake Prediction, May 1984.
- Brad J. Sissom, A Stability Parameter for the Design of Bicycles, May 1986.
- David W. Martin, *Experimental Verification of an Orthotropic Yield Criterion*, May 1991.
- Kevin P. Larsen, On Failure of Anisotropic Materials, May 1996.
- Michael Funari, *Powder Compaction Simulation*, May 1999.

PUBLICATIONS

Citations to my publications (as of June 7, 2013)



Books Edited

1. Mehrabadi, M. M., ed., *Mechanics of Granular Materials and Powder Systems*, MD-Vol. 37, ASME Publications, 1992.

2. Shen, H., Satake, M., Mehrabadi, M. M., Chang, C.S., and Campbell, C. S., eds., *Advances in Micromechanics of Granular Materials*, Elsevier Science Publishers, Amsterdam, 1992.

Special Journal Issues Co-edited

1. Shen, H., Satake, M., Campbell, C. S., Mehrabadi, M. M., and Chang, C. S., Guest eds., a Special Issue on Micromechanics of Granular Materials, *Mechanics of Materials*, Vol. 16, Nos. 1&2, August 1993.

2. Loret, B., and Mehrabadi, M. M., Guest eds., a Special Issue on the Localization and Instability in Materials, *Mechanics of Materials*, Vol. 18, No. 2, July 1994.

3. Loret, B., and Mehrabadi, M. M., Guest eds., a Special Issue on the Evolving Microstructures and Anisotropies in Engineering Materials and Biological Tissues, *Mechanics of Materials*, Vol. 44, No. 1, January 2012.

Papers in Refereed Journals

1. Mehrabadi, M. M. and Cowin, S.C., "Initial Planar Deformation of Dilatant Granular Materials," *J. Mech. Phys. Solids*, Vol. 26, 1978, 269-284.

2. Mehrabadi, M. M. and Cowin, S.C., "Prefailure and Post-failure Soil Plasticity Models," J. Eng. Mech. Div., Trans. ASCE, Vol. 106, No. EM5, 1980, 991-1003.

3. Mehrabadi, M. M. and Cowin, S.C., "On the Double Sliding, Free Rotating Model for Granular Material Deformation," *J. Mech. Phys. Solids*, Vol. 29, No. 4, 1981, 269-282.

4. Christoffersen, J., Mehrabadi, M. M., and Nemat-Nasser, S., "A Micromechanical Description of Granular Material Behavior," *J. Appl. Mech.*, Vol. 48, No. 2, 1981, 339-344.

5. Oda, M., Nemat-Nasser, S., Mehrabadi, M. M., "A Statistical Study of Fabric in a Random Assembly of Spherical Granules," *Int'l J. for Numerical and Anal. Methods in Geomech.*, Vol. 6, 1982, 77-94.

6. Mehrabadi, M. M., Nemat-Nasser, S. and Oda, M., "On Statistical Description of Stress and Fabric in Granular Materials," *Int'l J. for Numerical and Anal. Methods in Geomech.*, Vol. 6, 1982, 95-108.

7. Mehrabadi, M. M. and Nemat-Nasser, S., "Stress, Dilatancy, and Fabric in Granular Materials," *Mechanics of Materials*, Vol. 2, 1983, 155-161. (Errata and Addendum, *Ibid*, 1987).

8. Cowin, S. C. and Mehrabadi, M. M., "On the Identification of Material Symmetry for Anisotropic Elastic Materials," *Quarterly J. of Mech. and Appl. Math.*, Vol. 40, Pt. 4, 1987, 451-476.

9. Mehrabadi, M. M. and Nemat-Nasser, S., "Some Basic Kinematical Relations for Finite Deformations of Continua," *Mechanics of Materials*, Vol.6, 1987, 127-138.

10. Cowin, S. C. and Mehrabadi, M. M., "Identification of the Elastic Symmetry of Bone and Other Materials," *J. of Biomechanics*, 22, 1989, 503-516.

11. Mehrabadi, M. M. and Cowin, S. C., "Eigentensors of Linear Anisotropic Elastic Materials," *Quarterly J. of Mech. and Appl. Math.*, Vol. 43, 1990, 15-41.

12. Subhash, G., Nemat-Nasser, S., Mehrabadi, M.M., and Shodja, H., "Experimental Investigation of Fabric-Stress Relations in Granular Materials," *Mechanics of Materials*, Vol. 11, 1991, 87-106.

13. Cowin, S.C. and Mehrabadi, M.M., "On the Structure of the Linear Anisotropic Elastic Symmetries," *J. Mech. Phys. Solids*, Vol. 40, No. 7, pp. 1459-1471, 1992.

14. Mehrabadi, M. M., Cowin, S.C., and Horgan, C.O., "Strain Energy Bounds for Linear Anisotropic Materials," *J. of Elasticity*, Vol. 30, pp. 191-196, 1993.

15. Mehrabadi, M. M., Loret, B. and Nemat-Nasser, S., "Incremental Constitutive Relations for Granular Materials Based on Micromechanics," *Proc. Roy. Soc. of London*, Series A., Vol. A441, pp. 433-463, 1993.

16. Biegler, M. W. and Mehrabadi, M. M., "An Energy-Based Constitutive Model for Anisotropic Solids Subject to Damage," *Mechanics of Materials*, Vol. 19, Nos. 2 & 3, pp. 151-164, 1995.

17. Mehrabadi, M. M., Cowin, S. C., and Jaric, J., "Six-Dimensional Orthogonal Tensor Representation of the Rotation about an Axis in Three Dimensions," *International J. Solids and Structures*, Vol. 32, No. 3/4, pp. 439 - 449, 1995.

18. Cowin, S. C., Mehrabadi, M. M., "The Anisotropic Symmetries of Linear Elasticity," *Appl. Mech. Rev.*, Vol. 48, No. 5, pp. 247-285, 1995.

19. Xu, K. and Mehrabadi, M. M., "A Micromechanical Model for the Initial Rearrangement Stage of Liquid Phase Sintering," *Mechanics of Materials*, Vol. 25, pp. 137-157, 1997.

20. Mehrabadi, M. M. and Xu, K., "Mechanics of Powders in the Initial Rearrangement Stage of Liquid Phase Sintering," *Mechanics of Materials*, Vol. 26, pp. 237-245, 1998.

21. Cowin, S. C., Yang, G. Y., Mehrabadi, M. M., "Bounds on the Effective Anisotropic Elastic Constants," *Journal of Elasticity*, Vol. 57, pp. 1-24, 1999.

22. Arramon, Y. P., Mehrabadi, M. M., Martin, D., and Cowin, S. C., "A Multidimensional Anisotropic Strength Criterion Based on Kelvin Modes," *International J. Solids and Structures*, Vol. 37, pp 2915-2935, 2000.

23. Massoudi, M. and Mehrabadi, M. M., "A Continuum Model for Granular Materials: Considering Dilatancy and the Mohr-Coulomb Criterion," *Acta Mechanica*, Vol. 152, pp 121-138, 2001.

24. Mehrabadi, M. M., S. C. Cowin, and M. Massoudi "Conservation Laws and Constitutive Relations for Density-Gradient Dependent Viscous Fluids," *Continuum Mechanics and Thermodynamics*, Vol. 17, pp 183-200, 2005.

25. Zhu, H., Mehrabadi, M. M., and Massoudi, M., "Incorporating the Effects of Fabric in the Dilatant Double Shearing Model for Planar Deformation of Granular Materials," *Int'l J. of Plasticity*, Vol. 22, Issue 4, pp 628-653, 2006.

26. Zhu, H., Mehrabadi, M. M., and Massoudi, M., "Three-Dimensional Constitutive Relations for Granular Materials Based on the Dilatant Double Shearing Mechanism and the Concept of Fabric," *Int'l J. of Plasticity*, Vol. 22, Issue 5, pp 826-857, 2006.

27. Zhu, H., Mehrabadi, M. M., and Massoudi, M., "The Frictional Flow of a Dense Granular Material Based on the Dilatant Double Shearing Model," *Computers and Mathematics with Applications*, Vol.53, Issue 2, pp.244-259, 2007.

28. Zhu, H., Mehrabadi, M. M., and Massoudi, M., "A Comparative Study of Hypoplasticy and the Fabic-Dependent Dilatant Double Shearing Model for Granular Materials," *International Journal for Numerical and Analytical Methods in Geomechanics*, Vol. 31, Issue 5, pp.735-756, 2007.

29. Mattei, N. J., Mehrabadi, M. M., and H. Zhu, "A Micromechanical Constitutive Model for the Behavior of Concrete," *Mechanics of Materials*, Vol. 39, Issue 4, pp 357-379, 2007.

30. Cowin, S. C. and Mehrabadi, M. M., "Compressible and Incompressible Constituents in Anisotropic Poroelasticity: The problem of unconfined compression of a disk," *Journal of the Mechanics and Physics of Solids*, Vol. 55, Issue 1, pp 161-193, 2007.

31. Massoudi, M. and Mehrabadi, M. M., "Implicit Continuum Mechanics Approach to Heat Conduction in Granular Materials," *Ind. Eng. Chem. Res.*, Vol. 49, pp 5215-5221, 2010.

32. Massoudi, M. and Mehrabadi, M. M. "Implicit Constitutive Relations in Thermoelasticity," *International Journal of Non-Linear Mechanics*, Vol. 46, pp 286-290, 2011.

Papers in Books and Refereed Proceedings

1. Mehrabadi, M. M. and Cowin, S.C., "Granular Material Flow Rules Derived from Rate-Independent Constitutive Equations," in *Proceedings of the Int'l Union of Theoretical and Applied Mechanics (IUTAM) Symposium on Deformation and Flow of Granular Materials*, held at Delft, 31 August- 3 September, 1982, 139-144. 2. Nemat-Nasser, S., Mehrabadi, M. M. and Iwakuma, T., "On Certain Macroscopic and Microscopic Aspects of Plastic Flow of Ductile Materials," in *Proceedings of the International Union of Theoretical and Applied Mechanics (IUTAM) Symposium on Three-Dimensional Constitutive Relations and Ductile Fracture*, held at Dourdan, France, June 2-5, 1980, 157-171.

3. Nemat-Nasser, S. and Mehrabadi, M. M., "Stress and Fabric in Granular Masses," in *Mechanics of Granular Materials: New Models and Constitutive Relations*, eds., Jenkins, J. T. and Satake, M., Elsevier, Amsterdam, 1983.

4. Nemat-Nasser, S. and Mehrabadi, M. M., " A Micromechanically Based Rate Constitutive Description of Granular Materials," in *Mechanics of Engineering Materials*, eds., Desai, C.S. and Gallagher, R.H., 1984, 451-463.

5. Mehrabadi, M. M., Nemat-Nasser, S., Shodja, H. M., Subhash, G., "Some Basic Theoretical and Experimental Results on Micromechanics of Granular Flow," *Micromechanics of Granular Materials*, eds., Jenkins, J. T. and Satake, M., Elsevier, Amsterdam, 1988.

6. Mehrabadi, M. M., "Modeling of Rate Independent Flow of Granular Materials," in the *Proceedings of the 10th U.S. National Congress of Applied Mechanics*, J.P. Lamb, Ed., ASME, 1987, 321-326.

7. Cowin, S.C., Mehrabadi, M.M., and Sadegh, A.M., "Kelvin's Formulation of the Anisotropic Hooke's Law," *Modern Theory of Anisotropic Elasticity and Applications*, eds., Wu, J. J. Ting, T. C. T., Barnett, D. M., SIAM, 1991, 340-356.

8. Mehrabadi, M. M., Loret, B. and Nemat-Nasser, S., "A Constitutive Model for Granular Materials Based on Micromechanics," in *Advances in Micromechanics of Granular Materials*, the Proceedings of the Second U.S./Japan Seminar on Micromechanics of Granular Materials, Potsdam, New York, August 5-9, 1991, Shen, H.H., Satake, M., Mehrabadi, M.M., Chang, C.S., Campbell, C. S. (eds.), Elsevier Science Publishers, Amsterdam, 1992, 81-91.

9. Xu, K. and Mehrabadi, M. M., "On the Liquid Bridge Profile and Capillary Forces in the Initial Stage of Sintering," in *Mechanics of Granular Materials and Powder Systems*, MD Vol. 37, ASME Publications, 1992.

10. Biegler, M. W. and Mehrabadi, M. M., "An Energy-Based Failure Criterion for Anisotropic Solids Subject to Damage," *Studies in Applied Mechanics*, Vol. 34, pp. 23-34, 1993.

11. Chichili, D. R., Mouton, D. E., and Mehrabadi, M. M., "Simulation of Mechanical Behavior of Two Dimensional Granular Assemblies Utilizing Linear Programming," in the *Mechanics in Materials Processing and Manufacturing*, AMD-Vol. 194, pp. 261-279, ASME Publications, 1994.

12. Mattei, N. J. and Mehrabadi, M. M., "A Micromechanical Constitutive Model for Rigid Particles Embedded in an Elastic Matrix," *Studies in Applied Mechanics*, Vol. 41, pp. 261-272, 1994.

13. Cowin, S. C., and Mehrabadi, M. M., "The Mirror Symmetries of Anisotropic Elasticity," in *Proc. IUTAM Symposium on Anisotropy, Inhomogeneity and Nonlinearity in Solid Mechanics*, D. F. Parker and A. E. England (eds.), pp. 31-36, 1995.

14. Zhu, H., Mehrabadi, M. M., and Massoudi, M., "Comparative Study of the Response of Double Shearing and Hypoplastic Models," in *Proceedings of the 2002 IMECE*, ASME Publications, 2002.

15. Kishino, Y., Larsen, K. and Mehrabadi, M. M., "Simulation of Capillary Effects in Powders using the Granular Element Model," in *Proceedings of the 2002 IMECE*, ASME Publications, 2002.

16. Cowin, S. C. and Mehrabadi, M. M., "Anisotropic Poroelastic Disks with Compressible or Incompressible Fluid and Solid Components," in *Bioengineering Modeling and Computer Simulations*, (Gonzalez Y., Cerrolaza M., eds), CIMN, Barcelona, 2007.

Selected Conference Abstracts and Keynote/Invited Lectures

Zhu, H., Mehrabadi, M. M., and Massoudi, M., "Comparative Study of the Response of Double Shearing and Hypoplastic Models," 2002 ASME International Mechanical Engineering Congress and Exposition, New Orleans, LA, November 17–22, 2002.

Zhu, H., Mehrabadi, M. M., and Massoudi, M., "A Dilatant Double Shearing model for granular materials by including the effects of Fabric," 40th Annual SES Meeting, University of Michigan, Ann Arbor, MI, October 12-15, 2003.

Zhu, H., Mills, K. T., Mehrabadi, M. M., and Massoudi, M., "A 2D Discrete Element Method Simulation Of Liquid-Induced Capillary Forces In Granular Materials," University/NETL Student Partnership Program 6th Annual Meeting, University of Pittsburgh, Pittsburgh, PA, Nov. 7, 2003.

Zhu, H., Mehrabadi, M. M., and Massoudi, M., "Incorporating The Effect Of Microstructure In The Dilatant Double Shearing Model For Granular Materials," University/NETL Student Partnership Program 6th Annual meeting, University of Pittsburgh, Pittsburgh, PA, Nov. 7, 2003.

Zhu, H., Mehrabadi, M. M., and Massoudi, M., "Dense, Frictional Granular Flow By Using The Dilatant Double Shearing Model," 41th Annual SES Meeting, University of Nebraska, Lincoln, NE, October 10-13, 2004,

Mehrabadi, M. M., Zhu, H., and Massoudi, M., "A 3D Constitutive Model For Granular Materials" 2005 International Plasticity Conference, Hawaii, January 3-9, 2005 (keynote lecture).

Mehrabadi, M. M., Zhu, H., and Massoudi, M., "Constitutive Relations For The Mechanical Behavior Of Granular Materials," 5th Louisiana Conference on Advanced Materials and Emerging Technologies, Tulane University, New Orleans, LA, January 21-22, 2005.

Zhu, H., Mehrabadi, M. M., and Massoudi, M., "A Three-Dimesional Dilatant Double Shearing Model For Granular Materials Including The Effect Of Fabric," McMAT, The 2005 Joint ASME/ASCE/SES Mechanics and Materials Conference, Louisiana State University, Baton Rouge, LA, June 1-3, 2005.

Mattei, N. J., Mehrabadi, M. M., and Zhu, H. "A Micromechanical Constitutive Model For The Behavior Of Concrete," McMAT, The 2005 Joint ASME/ASCE/SES Mechanics and Materials conference, Louisiana State University, Baton Rouge, LA, June 1-3, 2005.

Mehrabadi, M. M., "Modeling the Mechanical Behavior of Materials including the Effects of Microstructure," University of California, San Diego, February 4, 2008 and Department of Mathematics and Statistics, SDSU, October 14, 2009.

GRANTS AND CONTRACTS

- Faculty Summer Research Grant, Department of Mechanical Engineering, Tulane University, 1983, \$3,000.
- National Science Foundation, Solid Mechanics Division: Development of a Micromechanically Based Model for Granular Material Behavior, 1984-87, \$89,972.
- University of California, San Diego: Experimental Investigation of Fabric-Stress Relations in Granular Materials, 1987, \$10,000.
- Ecole Polytechnique, Palaiseau, France: Incremental Constitutive Relations for Granular Materials Based on Micromechanics, 1988, \$7,000.
- National Science Foundation, Solid Mechanics Division: Modeling the Initial Stage of Sintering of Powders in the Presence of a Liquid Phase, 1991-94, \$195,000.
- Institute of Mechanics and Materials (UC San Diego)/National Science Foundation: Workshop on Mechanics of Granular Materials and Sintering of Powder Systems, 1993-94, \$12,425.
- National Science Foundation, Division of International Programs: NSF-CGP Fellowship: Mechanics of Granular Materials, 1996-99, \$59,891.
- Naval Research Laboratory, Washington, DC: Solid Freeform Fabrication of Piezoelectric Ceramics, 1996-97, \$48,000.
- Office of Naval Research/Naval Research Laboratory, Washington, DC: Solid Freeform Fabrication of Piezoelectric Ceramics, 1997-99, \$97,151.
- Lockheed-Martin Corp., Identification of a Thermal Protection System for Reusable Launch Vehicles, 2000, \$9,950.
- Department of Energy, NETL/University Partnership: Conservation Laws and Constitutive Relations for Density-Gradient Dependent Viscous Fluids, 2001-02, \$30,000.
- Louisiana Board of Regents; John L. and Mary Wright Ebaugh Chair in Mechanical Engineering, 2003, \$400,000.
- Department of Energy, NETL/University Partnership: Constitutive Relations for Granular Materials Based on the Dilatant Double Shearing Mechanism and the Concept of Fabric, 2001-03, \$140,000.
- National Aeronautics and Space Administration: Tulane Institute for Macromolecular Engineering and Science, (one of 16 investigators, leader of the Theory and Simulation Group; PI: Daniel De Kee), 2002-2003, \$2,500,000.
- National Aeronautics and Space Administration: Tulane Institute for Macromolecular Engineering and Science, (one of 16 investigators, leader of the Theory and Simulation Group; PI: Daniel De Kee), 2003-2004, \$1,800,000.
- National Aeronautics and Space Administration: Polymer-Based Nanocomposites for Aerospace Applications, (one of 16 investigators, leader of the Theory and Simulation Group; PI: Daniel De Kee), 2004-2005, \$935,000.
- National Aeronautics and Space Administration: Polymer-Based Nanocomposites, (one of 16 investigators, leader of the Theory and Simulation Group; PI: Daniel De Kee), 2005-2006, \$990,000.