

CURRICULUM VITAE

NAME:

Lewis T. Wheeler

BIRTH DATE

September 28, 1940

EDUCATION

Ph.D.	California Institute of Technology	1969	Applied Mechanics
M.S.	University of Houston	1964	Mechanical Engineering
B. S.	University of Houston	1963	Mechanical Engineering

PROFESSIONAL EXPERIENCE

1976-present	Professor, Departments of Mechanical Engineering and Mathematics, University of Houston
1989, Dec.	Visiting Professor, Institute of Construction Sciences, University of Pisa, Italy
1983-84	Shell Foundation Visiting Research Scholar, Department of Mechanical Engineering, University of California, Berkeley, CA.
1972-76	Associate Professor, Departments of Mechanical Engineering and Mathematics, University of Houston
1969-72	Assistant Professor, Departments of Mathematics and Mechanical Engineering, University of Houston
1968-69	Assistant Professor, Department of Mechanical Engineering, University of Houston
1968	Research Assistant, California Institute of Technology
1963	Engineering Intern, NASA, Houston
1960-63	Engineering Trainee, General Foods Corp., Houston

Professional Organizations:

Sigma Xi, Member
American Society of Mechanical Engineers, Member, Fellow
American Academy of Mechanics, Member, Director, Region 1B 1986-91, Fellow, Pres. '03-'04
Society for Natural Philosophy, Member, Treasurer 1982-84
Society of Engineering Science, Member Director (1994-96)

TEACHING:

MECE 5371	Vibration Analysis
MECE 6377	Introduction to Classical Continuum Mechanics
MECE 5397	Selected Topics: Fracture Mechanics (originated)
MECE 6365	Stress Waves in Continuous Media
MECE 6382	Applied Elasticity I (originated)
MECE 6378	Advanced Problems in Mechanics
ENGI 6362-6363	Methods of Applied Mathematics (originated)
MECE 7378	Finite Elasticity Theory (originated)
MECE 2336	Mechanics I
MECE 3336	Mechanics II
MECE 3469	Mechanics of Solids
MATH 3331	Differential Equations (chaired committee to select text and prepare outline)
MATH 3363	Higher Mathematics for Science and Engineering
MATH 4335	Partial Differential Equations
MECE 3445	Materials Science
MECE 7397	Crystal Elasticity
MECE 7397	Wave Propagation in Elastic Solids

SUPERVISION OF RESEARCH

Thesis/Dissertations:

John M. Finn, "Finite Propagation Speeds in a Theory of Linear Isotropic Heat Conduction," 1971, MS MTH.

Shien-Liang Fu, "Stress Bounds for Bars in Torsion," 1972, PhD.

Jerome E. Cunningham, "On the Pipe-flow Torsion Analogy," 1973, MSME.

Simon Sheng, "Crack Path Prediction for Kinked & Forked Cracks in the Neighborhood of a Circular Inclusion in an Infinite Medium," 1979, PhD.

Mohamed G. Abdalah, "Prediction of Component Survival Time by Application of the Asymptotic Theory of Extreme Order Statistics," 1982, PhD.

Kunio Matsui, "Effect of Wave Action on a Pipe Buried in an Elastic Seabed," 1982, PhD.

Bahir H. Eldiwany, "Shape Optimization for Minimal Stress Concentration," 1984, PhD.

Ren-Jieh Shih, "Optimization of Stress Concentration for Two-Dimensional Inhomogeneities," 1984, MSME.

Luc Graux, "Study of Multiple Equilibria for Pressurized Elastic Membranes," 1987, MSME.

Didier Theret, "Application of a Homogeneous Halfspace Model in the Analysis of Micropipette Measurements of Cultured Bovine Aortic Endothelial Cells Which Have Been Exposed to Shear Stress," MS Bioengineering, 1987.

Ren-Jieh Shih, "Finite Cavity Growth and Bifurcation in Elastic and Plastic Media," 1989, PhD.

Chiajui Sheng, "Three Dimensional Bifurcations of Pressurized Rubber-like Spherical Membranes," 1989, MSME.

Chiajui Sheng, "The Evolution and Stability of Bulges in Tubular Elastic Membranes," 1992, PhD.

Sergio R. Turteltaub, "Internal Stress Concentration in Elastic Solids," 1992, MSME.

Robert D. Moser, "Wrinkling of an Elastic Halfspace," 1992, MSME.

Yi Guo, "Stress Functions for the Analysis of Surface Instabilities," 1995, MSME.

Chen Luo, "Interface Strains in 3 Dimensions," 1997, MSME.

Goran Majkic, "Creep of Polycrystalline $\text{SrCo}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$ Mixed Ionic-Electronic Conductor Perovskite Oxide," 1999 MSME, 2002 PhD.

Mai Doan, "Effect of an Elastic Layer in Reducing the Stresses Transmitted to A Brittle Solid," 2000, MSME.

Anil Ganagupati, "First Principles Determination of the Cauchy Deviation in the Elastic Constants of Materials," 2004, MSME.

Yi Guo, "Extreme Poisson's Ratios and Related Elastic Crystal Properties," 2006, PhD.

PROFESSIONAL ACTIVITIES:

University of Houston Institutional Representative to the Southwest Mechanics Lecture Series Committee (1969-72), (1976-79).

Department Correspondent for Mechanical Engineering News Magazine (1968-70).

Member, Board of Directors for the Third Southwestern Graduate Research Conference in Applied Mechanics (held at Oklahoma State University in March, 1972).

Member, ASME Junior Awards Committee, Applied Mechanics Division, 1980-82.

Member of the local arrangements committee, Joint Summer Meeting of the ASME

Applied Mechanics Division, Bio-engineering Division, Fluids Engineering Division, Houston, Texas, June 1983.

Member, Society for Natural Philosophy, 1968-present, Treasurer, 1982-1984.

Member, ASME Technical Committee on Elasticity, Applied Mechanics Division, 1982-present, Chairman, 1986-1991.

Associate Editor, J. Applied Mechanics, 1984-1991.

Technical Editor, J. Applied Mechanics, 1993-2003.

Director, Region 1B, American Academy of Mechanics, 1986-1991

Treasurer, 7th International Congress of Fracture, 1989.

Director, Society of Engineering Science, 1995-97

ABET Visitor for ASME, 1995

Editor-in-Chief, Mathematics and Mechanics of Solids, Sage Science Press, 1996-2006.

Editor, Mathematics and Mechanics of Solids, Sage Science Press, 2007-

AWARDS

Claude Wilson Award for Life Time Achievement as an Engineering Educator, South Texas Section of ASME, 2002

2004 ASME Dedicated Service Award

2006 ASME Applied Mechanics Division Award

PUBLICATIONS:

Wheeler, L.T. and E. Sternberg, "Some Theorems in Classical Elastodynamics," *Archive for Rational Mechanics and Analysis*, 31, 1968, p. 51-90.

Wheeler, L. T., "Some Results in the Linear Dynamical Theory of Anisotropic Elastic Solids," *Quarterly of Applied Mathematics*, 28, No. 4, April 1970, pp. 91-101.

Wheeler, L.T., "On the Integral Representations of Stokes and Love for Elastodynamic Displacement Fields," *SIAM Journal on Applied Mathematics*, 21, No. 2, September 1971, pp. 331-338.

Wheeler, L.T., "On the Uniqueness of Solutions to the Displacement Problem in Linear Elastodynamics," *Journal of Elasticity*, 1, No. 2, December 1971, pp. 121-124.

Wheeler, L.T., "On the Focusing of Stress Waves in an Elastic Sphere," *Journal of the Acoustical Society of America*, 53, No. 2, February 1973, pp. 521-524.

Finn, J.M. and L.T. Wheeler, "Wave Propagation Aspects of the Generalized Theory of Heat Conduction," *ZAMP*, 23, No. 6, 1972, pp. 927-940.

Fu, S.-L. and L.T. Wheeler, "Stress Bounds for Bars in Torsion," *Journal of Elasticity*, 3, No. 1, March 1973, pp. 1-13.

- Wheeler, L.T., "Stress Bounds for the Torsion of Tubes of Uniform Wall Thickness," *Journal of Elasticity*, Vol. 4, No. 4, December 1974, pp. 281-291.
- Nachlinger, R.R. and L.T. Wheeler, "A Uniqueness Theorem for Rigid Heat Conductors with Memory," *Quarterly of Applied Mathematics*, 31, No. 3, October 1973, pp. 267-273.
- Nachlinger, R.R. and L.T. Wheeler, "On Wave Propagation and Uniqueness in One-Dimensional Elastic Bodies," *Journal of Elasticity*, 4, No. 1, May 1973, pp. 141-146.
- Wheeler, L.T. and R.R. Nachlinger, "On the Determinacy of Motions for the Displacement Problem in the Dynamics of Elastic Bodies with Viscosity," *ZAMP*, 24, No. 4, 1973, pp. 601-608.
- Wheeler, L.T. and S.-L. Fu, "Stress Bounds for Twisted Bars of Strip Cross Section," *International Journal of Solids and Structures*, Vol. 10, 1974, pp. 461-468.
- Nachlinger, R.R. and L.T. Wheeler, "Wave Propagation and Uniqueness in One-Dimensional Simple Materials," *Journal of Mathematical Analysis and Applications*, 48, No. 1, October 1974, pp. 294-300.
- Wheeler, L.T. and R. R. Nachlinger, "Uniqueness Theorems for Finite Elastodynamics," *Journal of Elasticity*, Vol. 4, No. 1, 1974, pp. 27-36.
- Wheeler, L.T., "Flowrate Estimates for Rectilinear Pipe Flow," *Journal of Applied Mechanics*, Vol. 41, No. 4, Dec. 1974, pp. 903-906.
- Wheeler, L.T., M. J. Turteltaub, and C.O. Horgan, "A Saint-Venant Principle for the Gradient in the Neumann Problem," *ZAMP*, 26, No. 2, 1975, PP. 141-145.
- Nachlinger, R.R., J.W. Nunziato, and L.T. Wheeler, "Theorems on Wave Propagation and Uniqueness for a Class of Non-Linear Dissipative Materials," *Journal of Mathematical Analysis and Applications*, 51, No. 2, August 1975, pp. 449-460.
- Michalopoulos, C.D. and L.T. Wheeler, "Deflection Analysis of Rectangular Plates Reinforced by Pre-tensioned Stiffeners," *Brief Note, Journal of Applied Mechanics*, Trans. ASME, Vol. 42, December 1975.
- Turteltaub, M.J. and L.T. Wheeler, "Line Integral Representations for the Traction Problem of the Elastic Half Space and Their Application to a Study of the Singular Effects of Load Jumps," *Journal of Elasticity*, 6, No. 2, April 1976, pp. 161-178.
- Wheeler, L.T. and C.O. Horgan, "A Two-Dimensional Saint-Venant Principle for Second-Order Linear Elliptic Equations," *Quarterly of Applied Mathematics*, Vol. 6, No. 4, Oct. 1976, pp. 383-403.
- Horgan, C.O. and L.T. Wheeler, "A Spatial Decay Estimate for Pseudoparabolic Equations," *Letters in Applied Science and Engineering*, 3, 1976, pp. 237-243.
- Horgan, C.O. and L.T. Wheeler, "Isoperimetric Inequalities for the Dirichlet Eigenvalue Problem," *Quarter of Applied Mathematics*, October 1977, pp. 406-409.
- Nunziato, J.W. and L.T. Wheeler, "Wave Propagation in a Chemically Reacting Elastic Sphere," *Journal of Applied Mechanics*, Trans. ASME, 98, March 1976, pp. 43-48.
- Wheeler, L.T. and C.O. Horgan, "Isoperimetric Bounds on the Lowest Nonzero Stekloff Eigenvalue for Plane Strip Domains," *SIAM Journal on Applied Mathematics*, 31, No. 2,

1976, pp. 385-391.

Horgan, C.O. and L.T. Wheeler, "Spatial Decay Estimates for the Heat Equation via the Maximum Principle," *ZAMP*, 27, 3, 1976, pp. 371-376.

Horgan, C.O. and L.T. Wheeler, "Exponential Decay Estimates for Second-Order Quasilinear Elliptic Equations," *Journal of Mathematical Analysis and Applications*, 59, 1977, pp. 267-277.

Wheeler, L.T., "On the Role of Constant Stress Surfaces in the Problem of Minimizing Elastic Stress Concentration," *International Journal of Solids and Structures*, Vol. 12, 1976, pp. 779-789.

Horgan, C.O. and L.T. Wheeler, "Saint-Venant's Principle and the Torsion of Thin Shells of Revolution," *Journal of Applied Mechanics*, Trans. ASME, 43, 1976, pp. 663-667.

Wheeler, L.T., "A Uniqueness Theorem for the Displacement Problem in Finite Elastodynamics," *Archive for Rational Mechanics and Analysis*, 63, No. 2, 1977, pp. 183-189.

Wheeler, L.T., "On Optimum Profiles for the Minimization of Elastic Stress Concentration," *ZAMM*, 58, 1978, pp. T235-T236.

Horgan, C.O. and L.T. Wheeler, "Spatial Decay Estimates for the Navier-Stokes Equations with Application to the Problem of Entry Flow," *SIAM Journal on Applied Mathematics*, 35, 1978, pp. 97-116.

Horgan, C.O. and L.T. Wheeler, "Maximum Principles and Pointwise Error Estimates for Torsion of Shells of Revolution," *Journal of Elasticity*, 7, 1977, pp. 387-410.

Wheeler, L.T. and C.O. Horgan, "Upper and Lower Bounds for the Shear Stress in the Saint-Venant Theory of Flexure," *Journal of Elasticity*, 6, No. 4, October 1976, pp. 383-403.

Sheng, C.-F. and L.T. Wheeler, "Crack Path Prediction for a Kinked Crack in the Neighborhood of a Circular Inclusion in an Infinite Medium," *Journal of Applied Mechanics*, 48, June 1981, pp. 313-319.

Wheeler, L.T. and I.A. Kunin, "Voids of Minimum Stress Concentration," *Int. J. Solids and Structures*, 18 No. 1, 1982, pp. 85-89.

Wheeler, Lewis, "Applications of the Maximum Principle to the Minimization of Stress Concentration in Elastic Solids Subject to Antiplane Shear", in *Partial Differential Equations and Dynamical Systems*, W.E. Fitzgibbon, Ed., Pitman Publishing Co., Boston, 1984.

Payne, L.E. and L.T. Wheeler, "On the Cross Section of Minimum Stress Concentration in the Saint-Venant Theory of Torsion," *J. of Elasticity*, 14, 1984, pp. 15-18.

Horgan, C.O., L.E. Payne, and L.T. Wheeler, "Spatial Decay Estimates in Transient Heat Conduction," *Quarterly of Applied Mathematics*, XLII, No. 1, 1984, pp. 119-127.

Wheeler, Lewis, "The Problem of Minimizing Stress Concentration at a Rigid Inclusion," *Journal of Applied Mechanics*, 52, No. 1, March 1985, 83-86.

Wheeler, L.T., Tezduyar, T.E., and Eldiwany, B.H., "Profiles of Minimum Stress Concentration for Antiplane Deformation of an Elastic Solid," *J. of Elasticity*, 15, 1985,

271-282.

Eldiwany, Bahir H., and Wheeler, Lewis T., "Groove Bottom Contours of Minimum Stress Concentration for Antiplane Shear Deformation," *Journal of Applied Mechanics*, 52, No. 2, June 1985, 379-384.

Wheeler, L.T., "Finite Deformation of a Harmonic Elastic Medium Containing an Ellipsoidal Cavity," *Int. J. Solids and Structures*, 21, 7, 1985, 799-804.

Eldiwany, B.H., and Wheeler, L.T., "A Three-Dimensional Inverse Problem for Inhomogeneities in Elastic Solids," *J. of Elasticity*, 16, 1986, 201-211.

Eldiwany, B.H. and Wheeler, L.T., "On rigid inclusions of minimum stress concentration," *J. of the Mechanics and Physics of Solids*, Vol. 34, No. 1, 1986, 19-28.

Shih, Ren-Jieh and Wheeler, L.T., Two-dimensional inhomogeneities of minimum stress concentration, *Quarterly of Applied Mathematics*, Vol. 44, No. 3, 1986, 567-582.

Tezduyar, T.E., Wheeler, L.T., and Graux, Luc, "Finite deformation of a circular elastic membrane containing a concentric rigid inclusion", *Int. J. Non-linear Mechanics*, Vol. 22, No. 1, 1987, 61-72.

Theret, D. P., Levesque, M. J., Sato, M., Nerem, R. M., and Wheeler, L. T., "The Application of a Homogeneous Half-space Model in the Analysis of Endothelial Cell Micropipette Measurements," *Journal of Biomechanical Engineering*, Vol. 110, August 1988.

Fitzgibbon, W. E., Morgan, J. J., and Wheeler, T., "Spatial Decay Estimates for Reaction Diffusion Systems," *Quarterly of Applied Mathematics*, Vol. 47, No.3, 1989, 529-538.

Sato, M., Theret, D. P., Wheeler, L. T., Oshima, N., and Nerem, R. M., "Application of the Micropipette Technique to the Measurement of Cultured Porcine Aortic Endothelial Cell Viscoelastic Properties," *Journal of Biomechanical Engineering*, Vol. 112, August 1990.

Wheeler, L., "On the derivatives of stretch and rotation with respect to the deformation gradient," *Journal of Elasticity*, Vol 24, 129-133, 1990.

Wheeler, L., "Stress minimum forms for elastic solids," *Feature Article in Applied Mechanics Reviews*, Vol. 45, No. 1, 1-12, 1992.

Chen, Y-C and Wheeler, L. T., "Derivatives of the stretch and rotation tensors," *J. Elasticity*, Vol. 32, 175-182, 1993.

Wheeler, L. T. and Sheng, G., "Loss of symmetry in inflated spherical elastic membranes," *Stability and Applied Analysis of Continuous Media*, Vol. 2, No. 3, 340-366, 1992.

Wheeler, L. T., "Inhomogeneities of minimum stress concentration," in "Anisotropy and Inhomogeneity in Elasticity and Plasticity," *ASME , AMD-VOL 158*, 1993.

Turteltaub, S. and Wheeler, L., "Expressions for the Gradients of the Principal Stresses and their Application to Interior Stress Concentration," *ZAMP*, Vol. 46, Special issue in honor of P. M . Naghdi's 70th birthday, S201-S209, 1995.

Wheeler, L. T., "Maximum Principles in Elasticity," *Mathematical problems in elasticity, Advances in Mathematics for Applied Science Series*, World Scientific Publishing, 1995.

- Markenscoff, X., and Wheeler, L. T. "On the Conditions at an Interface Between Two Materials in Plane Deformation," *J. Elasticity*, Vol. 45, 33-44, 1996.
- Chen, Yi-chao, and Wheeler, L., "Flexure of Inflated elastic membranes," in *Contemporary research in the mechanics and mathematics of materials*, Ed. by R. C. Batra and M. F. Beatty, CIMNE Barcelona, 1996.
- Wheeler, L. T., and Luo, C., "On Conditions at an Interface Between Two Materials in 3-Dimensional Space," *Mathematics and Mechanics of Solids*, Vol. 4, No. 2, 183-200, 1999
- Majkic, G., Wheeler, L., Salama, K., "Creep of Polycrystalline $\text{SrCo}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$," *Acta Materialia*, Vol. 48, 1907-1917, 2000.
- Majkic, G., Wheeler, L. T., and Salama, K., "High Temperature Deformation of $\text{SrCo}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$ Mixed Ionic-Electronic Conductor," *Solid State Ionics*, Vol. 146, 393-404, 2002.
- Steigmann, D. and Wheeler, L., "Uniqueness of the Displacement Field in Classical Linear Elastostatics," *Mathematics and Mechanics of Solids*, **8**, 143-149, 2003.
- G. Majkic, Wheeler, L., and Salama, K., "Stress-Induced Diffusion and Defect Chemistry of $\text{La}_{0.2}\text{Sr}_{0.8}\text{Fe}_{0.8}\text{Cr}_{0.2}\text{O}_{3-\delta}$; Part 1. – Creep in Controlled Oxygen Atmosphere," *Solid State Ionics*, **164**, 137-148, 2003.
- G. Majkic, Wheeler, L., and Salama, K., "Stress-Induced Diffusion and Defect Chemistry of $\text{La}_{0.2}\text{Sr}_{0.8}\text{Fe}_{0.8}\text{Cr}_{0.2}\text{O}_{3-\delta}$; Part 2. – Structural, Elemental and Chemical Analysis," *Solid State Ionics*, **167**, 243-254, 2004.
- Wheeler, L., "Inhomogeneities of Minimum Stress Concentration," *Mathematics and Mechanics of Solids*, **9**, 229-242, 2004.
- Guo, C. Y. and Wheeler, L. T., "Extreme Poisson's ratios and related elastic crystal properties," *JMPS*, **54**, 690-707, 2006.
- Sharma, P. and Wheeler, L.T., "Size-dependent Elastic State of Ellipsoidal Nano-inclusions Incorporating Surface/Interface Tension", *Journal of Applied Mechanics*, 74, 447-454 2007.
- Chen, Y. C., Rajagopal, K. R. and Wheeler, L. T., "Homogenization and global responses of inhomogeneous spherical nonlinear elastic shells," *Journal of Elasticity*, **82**, 193-214 (2006)
- Guo, C. Y., Pettitt, B. Montgomery and Wheeler, L. T., "Force Field Comparison of Heat Capacity of Carbon Nanotubes," *Molecular Simulation*, **32**, No 10-11, 839-848, 2006.
- Marangati, R., Sharma, P. and Wheeler, L.T., "Quantum Notions of Stress," *ASCE Journal of Aerospace Engineering*, **20**, 22-37 (2007).
- Wheeler, L. and Guo, C. Y., "Symmetry analysis of extreme areal Poisson's ratio in anisotropic crystals, *Journal of Mechanics of Materials and Structures*," **2**, No. 8, 1471-1500 (2007).
- Guo, C. Y. and Wheeler, L., "Extreme Lamé compliance in anisotropic crystals," *Mathematics and Mechanics of Solids*, to appear.
- Wheeler, L., "Extreme Lamé compliance in crystals of trigonal symmetry – the case of alpha-quartz," *Mathematics and Mechanics of Solids*, to appear.

RESEARCH PRESENTATIONS AND CONFERENCE PROCEEDINGS

Presentations at Conferences and Publications in Conference Proceedings:

Nachlinger, R.R. and L.T. Wheeler, "Wave Propagation and Uniqueness," Proceedings of the 10th Anniversary Meeting of the Society of Engineering Science, October 1973.

Wheeler, L.T., "Flowrate Estimates for Rectilinear Pipe Flow", presented at the 1975 Applied Mechanics Western Conference, Hawaii, March 1975.

Michaloupoulos, C.D. and L.T. Wheeler, "Deflection Analysis of Rectangular Plates Reinforced by Pre-tensioned Stiffeners," presented at the 14th Midwest Applied Mechanics Conference, Norman, Oklahoma, June 1975.

Horgan, C.O. and L.T. Wheeler, "On Maximum Principles and Spatial Decay Estimates for Heat Conduction," Proceedings of the 12th Annual Meeting of the Society of Engineering Science, Oct. 1975.

Nunziato, J.W. and L.T. Wheeler, "Wave Propagation in a Chemically Reacting Elastic Sphere," presented at the 1976 Applied Mechanics Conference, Salt Lake City, Utah, June 1976.

Horgan, C.O. and L.T. Wheeler, "Exponential Decay Estimates for Second-Order Quasilinear Elliptic Equations," presented at the SIAM-SIGNUM 1975 Fall Meeting, December 1975, San Francisco.

Horgan, C.O. and L.T. Wheeler, "On Maximum Principles and Spatial Decay Estimates for Heat Conduction," Proceedings of the 12th Annual Meeting of the Society of Engineering Science, October, 1975.

Wheeler, L.T., "On the Role of Constant Stress Surfaces in the Problem of Minimizing Elastic Stress Concentration," presented at the Winter Meeting of the American Mathematical Society, San Antonio, Texas, January 1976.

Horgan, C.O. and L.T. Wheeler, "Saint-Venant's Principle and the Torsion of Thin Shells of Revolution," presented at the Winter Meeting of the American Mathematical Society, St. Louis, January 1977.

Wheeler, L.T., "A Uniqueness Theorem for the Displacement Problem in Finite Elastodynamics," presented at the Winter Meeting of the American Mathematical Society, St. Louis, January 1977.

Horgan, C.O. and L.T. Wheeler, "Spatial Decay Estimates for the Navier-Stokes Equations with Application to the Problem of Entry Flow," presented at the 14th Congress of the International Union of Theoretical and Applied Mechanics, Delft, the Netherlands, Aug. 1976.

Horgan, C.O. and L.T. Wheeler, "Maximum Principles and Pointwise Error Estimates for

Torsion of Shells of Revolution," presented at the 6th Canadian Congress of Applied Mechanics, Vancouver, May 1977.

Wheeler, L.T. and C.O. Horgan, "Upper and Lower bounds for the Shear Stress in the Saint-Venant Theory of Flexure," presented at the 16th Midwest Applied Mechanics Conference, Chicago, June 1977.

Wheeler, L.T., "Applications of the Maximum Principle in the Theory of Elasticity," 16th Annual Meeting of the Society of Engineering Science, Evanston, Illinois, 1979.

Sheng, C.-F. and L.T. Wheeler, "Crack Path Prediction for a Kinked Crack in the Neighborhood of a Circular Inclusion in an Infinite Medium" 1981 Joint ASME/ASCE Applied Mechanics, Fluids Engineering, and Bioengineering Conference, Boulder, Colorado, 1981.

Wheeler, L.T. and I.A. Kunin, "Voids of Minimum Stress Concentration," 17th Annual Meeting of the Society of Engineering Science, Atlanta, GA, Dec. 1980.

Wheeler, L.T., "Isoperimetric Inequalities for the Stress in Saint-Venant Torsion Theory and the Determination of the Section of Least Maximum Stress," 11th Southeastern Conference on Theoretical and Applied Mechanics, Huntsville, AL, April, 1982, (joint work with L.E. Payne).

Wheeler, L.T. , "Spatial Evolution of Fully Developed Flows," 798th Meeting of the American Mathematical Society, Baton Rouge, LA, Nov. 1982.

Wheeler, L.T. and Carroll, M.M., "A Linear Theory for the Mechanical Response of Fluid Infiltrated Anisotropic Elastic Solids," Proceedings of the Engineering Foundation Conference on Subsidence, Henniker, New Hampshire, July 29-August 3, 1984.

Tezduyar, T.E. and Wheeler, L.T., Analysis of axisymmetric finite deformation membrane problems on the DEC PRO 350 personal computer, Proceedings of the 1985 Pressure Vessels and Piping Conference. Computer-Aided Engineering, PVP-Vol. 98-5.

Wheeler, L.T., Nerem, R. , and Theret, D. "The Application of a homogeneous halfspace model in the analysis of endothelial cell microbiology." 1987 ASME Summer conference, Cincinnati, Symposium on Microphysiology.

Wheeler, L.T., "Aspherical Bifurcations of Spherical Membranes," SES Meeting in Salt Lake City, September, 1987.

Theret, D., Nerem, R. M., and Wheeler, L. T., "The application of a homogeneous halfspace model in the analysis of endothelial cell micropipette measurements," 5th Annual Conference on Biomedical Engineering Research in Houston, March 1987 (presented by D. Theret. Published as extended abstract in the conference proceedings.).

Wheeler, L. T. "A plate model for the mechanical response of endothelial cells," Society of Engineering Science meeting, Berkeley, 1988.

Byrd, C., Nerem, R. M., and Wheeler, L. T. "A plate model for determining the elastic modulus of shear-exposed endothelial cells," World Congress of Medical Physics, San Antonio, 1988.

Tezduyar, T.E., Wheeler, L.T., and Graux, Luc, "Axisymmetric response of finitely deforming elastic membranes," Proceedings of the Conference on Structural Mechanics in Reactor Technology, Laussane, Switzerland, 1987.

Wheeler, L. T., Tezduyar, T., and Graux, L., "Asymmetric equilibria of naturally spheroidal elastic membranes," Proceedings of the twelfth Canadian Congress of Applied Mechanics, Carleton University, Ottawa, Ontario Canada, (1989) 134-135.

L. T. Wheeler and Chia-Fu Sheng, "Crack branching in the neighborhood of a circular elastic inclusion," proceedings of the International Conference on Fracture and Fracture Mechanics in April, 1987 in Shanghai.

Wheeler, L. T., "Constitutive Inequalities and Elastic Membrane Bifurcation Problems," 1989 ASME Winter Annual Meeting, Symposium on Constitutive Inequalities in Finite Elasticity: Constitutive Inequalities.

O. Vingsbo, M. Odfalk, N. E. Shen, F. Saaf, and L. Wheeler, "Generation of Wear Particles under Mixed Stick-Slip Conditions in Fretting Contacts," Proceedings of the 18th Leeds-Lyons Symposium on Tribology, Lyons, 1991.

L. Wheeler, "Multiple Equilibria of Spherical Elastic Membranes," 1991 Annual meeting of the Society of Engineering Science, Gainesville, Florida.

L. Wheeler, "Derivatives of the Stretch and Rotation," 1992 Annual Meeting of the Society of Engineering Science, San Diego

L. Wheeler, "Inhomogeneities of Minimum Stress Concentration," June 1993 ASME-ASCE-SES Joint Meeting, Charlottesville, VA. Also appears in *Anisotropy and Inhomogeneity in Elasticity and Plasticity*, AMD Vol. 158, Ed. by Y. C. Angel, 1-6.

L. Wheeler, "Surface Instabilities," ASME Winter Annual Meeting, November 1993, New Orleans, Louisiana.

L. Wheeler, "Isoperimetric Inequalities for Elastic Inhomogeneities," 12th U. S. National Congress of Applied Mechanics, Seattle, June 1994.

L. Wheeler and Y. C. Chen, "Surface Instabilities on Elastic Solids," 1994 Annual Meeting of the Society of Engineering Science, College Station, TX

L. Wheeler and X. Markenscoff, "Interface Strains," Annual Meeting of the Society of Engineering Science, New Orleans, October 1995.

L. Wheeler, "Inflation of Spherical Elastic Membranes-the Total Loss of Symmetry," November 1995 ASME International Mechanical Engineering Congress and Exposition (WAM), San Francisco.

G. Majkic, L. Wheeler, K. Salama, "Characterization of Creep Behavior of $\text{SrCo}_{0.8}\text{Fe}_{0.2}\text{O}_{3-x}$," Materials Research Society Spring Meeting 1999, April 1999, San Francisco, CA. Also appears in the Materials Research Society Symposium Proceedings Volume 575, *New Materials for Batteries and Fuel Cells*, 2000.

Doan, M., Hague, A., Wheeler, L., White, K., Ravi-Chandar, K., "Reliability of High Strength – High Toughness Ceramics," 101st American Ceramic Society Meeting, Indianapolis, Indiana, April 1999.

Chen, Y. C., and Wheeler, L. T., "Stability of Elastic Half-Spaces by Energy Method," ASME IMECE 99, Nashville, Tennessee, November 1999, AMD-Vol. 236.

Wheeler, L. T., "Isoperimetric Inequalities for Stress or Strain Concentration at Elastic Inhomogeneities," Annual Meeting of the Society of Engineering Science, Austin, TX, October 1999.

Wheeler, L. T., Mai Doan, K. Ravi-Chandar, and K. W. White, "Stress Mitigating Effects of a Compliant Layer on the Reliability of Ceramics," 102nd American Ceramics Society Meeting, St Louis, Missouri, April 2000

Wheeler, L. T., "Scales and Symmetry," ASME IMECE meeting, Nov. 2002, New Orleans

Wheeler, L. T., "Elasticities of Crystals: Navigating the Cauchy Relations," 8th International Symposium on Fracture of Ceramics, Houston, TX, February, 2003.

Wheeler, L. T. "Crystal Elasticities and Force Constants," 2003 Mechanics and Materials Conference, June, 2003.

Invited Seminars:

University of Texas, March 8, 1968. Some Results in Classical Elastodynamics.

Rice University, Fall 1968. Uniqueness of Solutions in Classical Elastodynamics.

Texas A & M University, November 17, 1972. Stress Bounds for Saint-Venant Torsion.

Tulane University, April 5, 1973. Stress-Bounds for Saint-Venant torsion.

Central University of Venezuela, July 9, 1974. Stress-Bounds for Saint-Venant Torsion.

Sandia Corporation, November 1, 1974. Uniqueness of Solutions in Finite Elastodynamics.

Simon Bolivar University, Caracas, Venezuela, January 1975. Flowrate Estimates for Rectilinear Pipe Flow.

Heriot-Watt University, Edinburgh, U.K., August 1976. Optimum Profiles for Minimizing Stress Concentration.

Illinois Institute of Technology, Chicago, Jan. 27, 1977. Applications of the Maximum Principle in the Theory of Elasticity.

Rice University, April 1977. Uniqueness Theorems for Finite Elastodynamics.

Tulane University, March 1979. Spatial Decay Estimates for the Navier-Stokes Equations With Application to the Problem of Entry Flow.

Shell Development Company (Bellaire), May 1979, Some Results on Fracture Direction in the Presence of an Inclusion.

Bell Laboratories (Norcross, GA), May 1979, Crack Branching in Presence of a Circular Inclusion.

Bell Laboratories (Norcross, GA), Aug. 1979, Thermo-Mechanical Performance of Polymeric Adhesives.

University of Houston, Oct. 1979, Thermo-mechanical Performance of Polymeric Adhesives.

Texas A & M University, December 1979, Thermo-mechanical Performance of Polymeric Adhesives.

Shell Development Company (Westhollow Research Center), March 1980, Crack Branching in the Presence of a Circular Inclusion.

West Coast Mechanics Lecture Series (Caltech, UCLA, UC Berkeley, Stanford), Profiles of Minimum Stress Concentration, Oct., 1981.

California Institute of Technology, April 1984, Isoperimetric Inequalities for Elastic Solids.

Rice University, September 1985, Finite Axisymmetric Membrane Problems.

California Institute of Technology, March 1986, Finite Axisymmetric Membrane Problems.

Georgia Institute of Technology, August 1988. Mathematical Modeling of the Mechanical Properties of Endothelial Cells.

Midwest Mechanics Seminar Series , 1988-89. (Fall 1988: Notre Dame, IIT, U. Illinois at Urbana-Champaign, Purdue) "Mathematical Models for the Mechanical Properties of Endothelial Cells;" (Spring 1989: U. of Michigan, Michigan State U., U. of Wisconsin at Madison, U. of Minnesota.)

Rice University, October, 1989, "Stress Minimum Forms for Elastic Solids."

University of Pisa, Dec. 1989: 1. "Mathematical Modeling of the Mechanical Properties of Endothelial Cells;" 2. "Isoperimetric Inequalities for Elastic Solids;" 3. Stress Minimum Forms for Elastic Solids."

Texas A&M, April, 1990, "Finite Deformation Bifurcation Problems for Elastic Membranes."

Northwestern University, October 1992, "Stress Minimum Forms for Elastic Inhomogeneities"

Texas University, October 1993, "Multiple Equilibria Of Elastic Membranes"

Rice University, November 1993, "Inhomogeneities of Minimum Stress Concentration"

Texas A&M University, September 1995, "Interface Strain Conditions"

Texas University, April 1998, "Inhomogeneities of Minimum Stress or Strain Concentration"

Rice University, October 2000, "Mechanical Properties of Endothelial Cells"

Texas A&M University, April 2003, "Crystal Elasticities and Force Constants"

CHAIRMANSHIP OF TECHNICAL MEETINGS

Conference Chairman, Second Southwestern Graduate Research Conference in Applied Mechanics, University of Houston, March 1971.

Session Chairman, Session on Vibration of Strings, Bars, Plates, and Shells, 80th Meeting of the Acoustical Society of America, Houston, November 1970.

Session Vice Chairman, Session on Elasticity, ASME Winter Annual Meeting, New York, 1972.

Session Chairman, Fifth Southwestern Graduate Research Conference in Applied Mechanics, Texas A & M University, March 1974.

Session Vice Chairman, Session on Elasticity, ASME Winter Annual Meeting, Houston, November 1975.

Session Chairman, Session on Elasticity, ASME Winter Annual Meeting, Atlanta, November 1977.

Session Vice Chairman, Session on Composite Materials, ASME Winter Annual Meeting, New York, December 1979.

Session Chairman, Session on Waves in Solids, Ninth U.S. National Congress of Applied Mechanics, Ithaca, New York, June 1982.

Organizer & Session Chairman, Session on Elasticity, 19th Annual Meeting of the Society

Session Chairman, Session on the Mechanics of Solids, Winter Annual Meeting of the ASME, Phoenix, Arizona, Nov. 1982.

Session Chairman and Organizer Symposium on Load Bearing Applications of Polymeric Materials, Joint Summer Meeting of the ASME Applied Mechanics Division, Bio-engineering Division, Fluids Engineering Division, Houston, Texas, June 1983.

Session Chairman, Symposium on Wave Propagation in Inhomogeneous Media and Ultrasonic NDE, 1984 Summer Meeting of the ASME Applied Mechanics Division, 1984 San Antonio, Texas.

Session Chairman, Session on Computation of Solutions of Partial Differential Equations, SEG/SIAM/SPE Conference on Mathematical and Computational Methods in Seismic Exploration and Reservoir Modeling, Houston, Texas, 1985.

Chairman, Session on Boundary-Value Problems, 10th U.S. National Congress of Applied Mechanics, Austin, Texas, 1986.

SES Meeting in Salt Lake City, September, 1987, organized and chaired a session on finite elasticity.

Chairman, Session on Elasticity, ASME Winter Annual Meeting, Chicago, 1988.

SES 31st Annual Technical Meeting, College Station, TX, Oct. 1994. Organized and chaired 3 session symposium on Finite Elasticity

SES Annual Technical Meeting, Evanston, Illinois, June 1997, co-organized 3 session on Elasticity with Y.-C. Chen.

8th International Symposium on Fracture Mechanics of Ceramics, Houston, February 2003, Co-Chair with K. White.

FUNDED RESEARCH

Grants and Contracts:

NSF Engineering Research Initiation Grant for work on "The Uniqueness Issue in Non-Linear Elasticity Theory," (Principal Investigator), GK 4893 (1969).

NSF Grant for work on the "Uniqueness of Solutions in Non-Linear Solid Mechanics." (Principal Investigator), GK-31070, with R. Nachlinger, 10/71 - 8/74.

NSF Grant for work on "Bounds on the Stress for the Saint-Venant Problem and the Traction Boundary-Value Problem of Plane Elastostatics," (Principal Investigator), ENG 74-01152.

NASA Grant: "Analysis of Problems Associated with Space Shuttle Aerodynamics," (Co-Principal Investigator), NAS 9-14347, 9/74 - 10/75, with C.d. Michalopoulos.

NASA Grant: "Analysis and Problem-Solving of Space Shuttle Aerodynamics and Structures," (Co-Principal Investigator), 11/76 - 10/77, with C.D. Michalopoulos.

Research Enabling Grant, University of Houston, 1985, for research on "Shape Optimization for Minimizing Stress Concentration."

Principal Investigator, Enhanced Oil Recovery Laboratory/Industrial Consortium, Project on "Simulation of Cavity Enlargement in Tar Sands," 1985-1987.

Texas Advanced Technology Research Program, "Research on the Mechanical Properties of Biological Cells, with R. M. Nerem, 1986-1987.

Commercialization of a Self-Reinforced Ceramic Composite for Advanced Chemical and Aerospace Applications, Texas Higher Education Coordinating Board, Technology Development and Transfer, 1998-1999, \$160,000, with K. W. White

PATENT

U. S. National App.:	METHOD OF MANUFACTURING A CERAMIC VALVE BALL
Parent App.:	PCT/US00/10970
Int'l Filing Date:	21 April 2000

SERVICE ACTIVITIES:

University Service:

Interdisciplinary Committee on Acoustics, College of Engineering, 1970-77.

Graduate Affairs Committee, Department of Mechanical Engineering, 1972-73, Chairman, 1989-date.

Ad Hoc Graduate School Committee on Applied Mathematics, 1971.

Curriculum Committee, Mathematics Department, 1972-76.

Orientation Steering Committee, 1972.

Graduate Faculty Membership Committee, College of Engineering, 1972-73.

Graduate Faculty Board, College of Engineering, 1973-74.

Chairman, Graduate Faculty, College of Engineering, 1974-75.

Dean's Advisory Committee on Mathematics, College of Engineering, 1973-74 (chairman).

Governance Committee, College of Engineering, 1973-74

University Graduate Council, 1975-77.

University Academic Committee, 1975-77.

Seminar Coordinator, Mechanical Engineering Department, 1976-79.

Chairman, Governance Committee, College of Engineering, 1978-79.

Library Committee, 1978-81.

Chairman, Committee of Full Professors, College of Engineering, 1982-83

Chairman, Undergraduate Affairs Committee, Dept. of Mechanical Engineering, 1982-83.

Director of Graduate Admissions, M.E. Dept., 1985-1990.

Graduate Affairs Committee, M. E. Dept. 1985-1996.

Member, UHCCE-UHSST Task Force (Cullen College of Engineering-School of Sciences and Technologies, Clear Lake), 1983.

Graduate Standards Committee, Cullen College of Engineering, 1989-1991

Executive Committee, Institute for Theoretical and Engineering Science, 1989-1991

Graduate and Professional Studies Council 1989-1992.

Awards Committee, College of Engineering, 1989-1992.

Bill D. Cook Scholar Award Committee 1997

Flour Daniels Award Committee 1998

Faculty Senate, 1998-2001, President Elect for 1999, President for 2000, Chairman of the Committee on Committees for 2001

Farfel Award Committee, 2001

University Commencement Marshal, 1999, 2000, 2001

Advisory Board Member, Collegium 2001

Interim Chair, Department of Mechanical Engineering, September 2000-2002

University Committee on Promotion and Tenure 2003-4

Chaired Department of Mechanical Engineering Search Committee for new faculty 2003.

