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Jeffrey W. Eischen, Ph.D., P.E.

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Research Interests	Solid mechanics, elasticity, fracture mechanics, computational solid mechanics, mechanics of fabrics, mechanics of layered media.
Teaching	Solid mechanics, Strength of Mechanical Components, Analysis for Mechanical Engineering Design, Mechanical Design Engineering, Automotive Engineering, Advanced Solid Mechanics, Fracture Mechanics
Consulting	Mechanical design, failure analysis, fatigue, fracture mechanics, patent analysis.
Education	B.S. Engineering, UCLA, 1978 M.S. Mechanical Engineering, Applied Mechanics Division, Stanford University, 1981. Ph.D. Mechanical Engineering, Applied Mechanics Division, Stanford University, 1986.
Experience	NC State University- Associate Professor, Department of Mechanical and Aerospace Engineering, 1991-Present. NC State University- Assistant Professor, Department of Mechanical and Aerospace Engineering, 1986-1991. Failure Analysis Associates- Mechanical Engineer. Responsible for projects concerning analysis and prevention of industrial equipment failures, 1978-1986.
Honors	Stanford University- Shell Foundation Teaching Fellow, 1982-1985. Stanford University Post-Doctoral Research Affiliate, 1986.

ASME Failure Prevention, Reliability, and Stress Analysis Division-National Steering Committee Member, 1989-1991.

Who's Who in Science and Engineering, Marquis, 5th. Ed, 1999.

North American Co-Chairman, Pan American Congress of Applied Mechanics, Merida, Mexico, January 2006.

American Society of Mechanical Engineers District F Student Section Adviser Award, 2011

George H. Blessis Undergraduate Advisor Award 2012, NC State University College of Engineering

George H. Blessis Undergraduate Advisor Award 2017, NC State University College of Engineering

Publications https://www.mae.ncsu.edu/people/eischen (see for a list of all accessible publications)

Duan, Z. P., Eischen J. W., and Herrmann, G. ,"Wave Propagation in Non-homogeneous Layered Composites," *ASME Journal of Applied Mechanics*, Vol. 53, (1986).

H. Sosa, H., and Eischen, J. W., "Computation of Stress Intensity Factors for Plate Bending via a Path Independent Integral," *Engineering Fracture Mechanics*, Vol. 25, No. 4, (1986).

Eischen, J. W., "An Improved Method for Computing the J_2 Integral," *Engineering Fracture Mechanics*, Vol. 26, No. 5, (1987).

Eischen, J. W., and Herrmann, G., "Energy Release Rates and Related Balance Laws in Linear Elastic Defect Mechanics," *ASME Journal of Applied Mechanics*, Vol. 54, No. 2, (1987).

Eischen, J. W., "Fracture of Non-homogeneous Materials," *International Journal of Fracture*, Vol. 34, No. 3, (1987).

Everett, J. S., and Eischen, J. W., "Deformation and Stress in Thin Bi-Material Elements with an Axial Temperature Variation," ASME Paper 88-WA/EEP-15.

Everett, J. S., and Eischen, J. W., "Thermal Stress Analysis of a Bi-Material Strip Subject to an Axial Temperature Gradient," *ASME Journal of Electronic Packaging*, Vol. 111, No. 4, (1989).

Eischen, J. W., "Geometric Non-linearity in a Bi-Material Strip," Proceedings of the International Congress of Applied Mechanics, Beijing, P.R.C., Aug. 1989.

Eischen, J. W., and Sun, H., "Multi-Rigid-Body Kinematic Analysis with Elastic Finite Elements," Proceedings of the Symposium on Dynamics and Control of Multi-Body/Robotic Systems with Space Applications, ASME Dynamic Systems and Controls, Vol. 15, 1989, ASME Winter Annual Meeting, San Francisco, CA.

Eischen, J. W., Chung, C., and Kim, J., "Realistic Modeling of Edge-Effect Stresses in Bi-Material Elements," *ASME Journal of Electronic Packaging*, Vol. 112, No. 1, (1990).

Clapp, T.G., Ghosh, T., Peng, H., and Eischen, J. W., "Indirect Measurement of the Moment-Curvature Relationship for Fabrics," *Textile Research Journal*, Vol. 60, No. 9, (1990).

Eischen, J. W., Kim, Y. G., Clapp, T. G., and Ghosh, T., "Computer Simulation of the Large Motions of Fabric Structures," Proceedings of the XV Southeastern Conference on Theoretical and Applied Mechanics, Atlanta, GA., (1990).

Eischen, J. W., Sun, H., and Marler, M., "Multi-Rigid-Body Kinematic Analysis with Elastic Finite Elements," Proceedings of the 1990 ASME International Computers in Engineering Conference, ASME Book. No. G0515B, Vol. II, (1990).

Eischen. J. W., and Chung, C., The Singularity at an Interface Between Bilinear Materials," *International Journal of Solids and Structures*, Vol. 28, No. 1, (1991).

Eischen, J. W., and Hisham, H., "Effect of Geometric Nonlinearities on Crack Tip Deformations," Proceedings of the Pan American Congress of Applied Mechanics, Valparaiso, Chile, Jan. 2-5, (1991).

Eischen, J. W., and Wetter, C. H., "Free Edge Stress Singularities in Electronic Bimaterials- Nonlinear Material Response," Proceedings of the Symposium on Structural Analysis in Microelectronics, 1991 ASME Winter Annual Meeting, Atlanta, GA, (1991).

Eischen, J. W., and Kim, J. H., "Fabric Mechanics Analysis Using Large Deformation Shell Theory," Proceeding of the 3rd Annual Academic Apparel Research Conference, Atlanta, GA, Feb. 17-18, (1992).

Ross, B., Eischen, J. W., and Bayan, F., "The Problem of Helicopter and Aircraft Wire Strike Accidents," Proceedings of the 4th International Conference on Structural Failure, Product Liability and Technical Insurance, Vienna, Austria, (1992).

Eischen, J. W., Silverberg, L., and Wang, H., "Slewing Motion Control of a Very Flexible Elastic Beam," *ASME Journal of Applied Mechanics*, Vol. 59, (1992).

Eischen, J. W., and Torquato, S. "Determining Elastic Behavior of Composites by the Boundary Element Method," *Journal of Applied Physics*, Vol. 74, (1993).

Eischen, J. W., and Kim, Y., "Optimization of Fabric Manipulation During Pick/Place Operations," Proceedings of the 4th Annual Academic Apparel Research Conference, Raleigh, NC, (1993).

Eischen, J. W., and McDevitt, T., "Simulation of Fabric Draping and Manipulation with Arbitrary Contact Surfaces and Adaptive Meshing," Proceedings of the 4th Annual Academic Apparel Research Conference, Raleigh, NC, (1993).

Eischen, J. W., and Reagan, S., "Elastic Plastic Analysis of Bimaterial Beams with Strain Hardening-Multiple Yield Sites," Proceedings of the 1993 ASME International Electronic Packaging Conference, Binghampton, NY, (1993).

Eischen, J. W., and Reagan, S., Elastic Plastic Analysis of Bimaterial Beams with Strain Hardening," Proceedings of the 1993 ASME Design Technical Conference, ASME Volume DE-55, Albuquerque, NM, (1993).

Eischen, J. W., and Kim, Y., "Optimization of Fabric Manipulation During Pick/Place Operations," *International Journal of Clothing Science and Technology*, Vol. 4, No. 5, (1993).

Eischen, J. W., and Torquato, S., "Determining Elastic Behavior of Composites by the Boundary Element Method," Proceedings of the Fourth Pan American Congress of Applied Mechanics, Buenos Aires, Argentina, (1995).

McWaters, S. D., Clapp, T. G., and Eischen, J. W., "Computer Simulation of Fabric Deformation for the Design of Equipment," *International Journal of Clothing Science and Technology*, Vol. 6, No. 5, (1994).

Eischen, J. W., and Reagan, S., "Thermal Loading of Bimaterial Beams-Elastic Plastic Response," Proceedings of the XVIII Southeastern Conference on Theoretical and Applied Mechanics, Tuscaloosa, AL, (1996).

Eischen, J. W., Deng, S., and Clapp, T. G., "Finite Element Modeling and Control of Flexible Fabric Parts," *IEEE Computer Graphics and Applications- Modeling and Visualization for Textiles and Apparel- Special Issue*, Vol. 16, No. 5, (1996) (invited).

Eischen, J. W., and Clifton, W., "Optimum Manipulation Strategies for Limp Fabric Materials," Proceedings of the Fifth Pan American Congress of Applied Mechanics Conference, San Juan, Puerto Rico, (1997).

Tierney, J., and Eischen, J. W., "Residual Stress Analysis of Bimaterial Strips Under Multiple Thermal Loading," *ASME Journal of Electronic Packaging*, Vol. 119, No. 4 (1997).

Wang, H., Eischen, J. W., and Silverberg, L., "On Control of Optimization of Elastic Multilink Mechanisms,'' *Computers and Structures*, Vol. 67, No. 6, (1997).

LaMattina, B., Klang, E., and Eischen, J. W., "A Study of Solutions for the Anisotropic Plate Subjected to a Concentrated Force," *ASME Journal of Applied Mechanic,* Vol. 65, No. 1, (1998).

Eischen, J. W., "Drape Modeling of Cloth," Short Course notes for the 1998 SIGGRAPH Computer Graphics Conference, Course 31- Cloth and Clothing in Computer Graphics, (1998).

Eischen, J. W., "Computer Modeling of Fabric Drape," Proceedings of the 35th Annual Society of Engineering Science Conference, Pullman, WA, (1998)(invited).

Ross, B., Lange, C., and Eischen, J. W., "Multidiscipline Analysis of a Fatal LPG Tank Rupture," Proceedings of the 53rd Meeting of the Society for Machinery Failure Prevention Technology, Virginia Beach, VA, April 19-22. (1999) (invited).

Bauer-Kurz, I., and Eischen, J. W., "The Mechanics of Removing Staple Crimp," Gordon Research Conference, New London, NH, July 4, 1999.

Eischen, J. W., and Bigliani, R., "Continuum Versus Particle Representations," chapter in Cloth Modeling and Animation, A. K. Peters, 2000.

Bigliani, R., and Eischen, J. W., "Collision Detection in Cloth Modeling," chapter in Cloth Modeling and Animation, A. K. Peters, 2000.

Lankalapalli, S., and Eischen, J. W., "Optimal Pickup Locations for Fabric Handling," Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Nov. 2000.

Austin, B., Love, B., Dow, T., Eischen, J. W., and Scattergood, R., "Bending Deflections Due to Scribe-Induced Residual Stress," Proceedings of the American Society for Precision Engineering Conference, Scottsdale, AZ, Fall 2000.

Eischen, J. W., Love, B. M., Dow, T.A., Scattergood, R.O., "Laser Scribing for Use as a Precision Shaping Technique," Proceedings of the Seventh Pan American Congress of Applied Mechanics, Temuco, Chile, January, 2002.

Palmer, J., Dessent, B., Mulling, J.F., Usher, T., Grant, E., Eischen, J. W., Kingon, A., Franzon, P., "The Design and Characterization of a Novel Piezoelectric Transducer-Based Linear Motor, in press *IEEE/ASME Transactions on Mechatronics*, 2003.

Lankalapalli, S., and Eischen, J. W., "Optimal Pick-up Locations for Transport and Handling of Limp Materials Part I : One Dimensional Strips," *Textile Research Journal,* Vol. 73, Issue 9, 2003.

Lankalapalli, S., and Eischen, J. W., "Optimal Pick-up Locations for Transport and Handling of Limp Materials Part II : Two Dimensional Parts," *Textile Research Journal,* Vol. 73, Issue 10, 2003.

Palmer, J., Dessent, B., Eischen, J. W., Mulling, J.F., Usher, T., Grant, E., Kingon, A., Franzon, P, "The Design, Fabrication, and Characterization of Millimeter Scale Motors for Miniature Direct Drive Robots," Proceedings of the 2004 International Conference on Robotics and Animation, New Orlean, LA (April 2004).

Morrisey, P, Eischen, J. W., and Dow, T. A., "Design and Analysis of Press and Shrink Fit Joints," Proceedings of the American Society for Precision Engineering Conference, Portland, OR (October 2003).

Eischen, J. W., and Lankalapalli, S., "Optimal Pick-up Locations for Transport and Handling of Limp Materials," Proceedings of the Eighth Pan American Congress of Applied Mechanics, Havana, Cuba (January 2004).

Palmer, J., Dessent, B., Mulling, J.F., Usher, T., Grant, E., Eischen, J. W., Kingon, A., Franzon, P., "The Design and Characterization of a Novel Piezoelectric Transducer-Based Linear Motor, *IEEE/ASME Transactions on Mechatronics*, June 2004.

Eischen, J. W., "A Study of the Relationship Between Buckling and Wrinkling of Membranes," Proceedings of the Ninth Pan American Congress of Applied Mechanics, Merida, Mexico (January 2006).

Jernigan, S. R., Buckner, G. D., Eischen, J. W., Cormier, D. R., "Finite Element Modeling of the Left Atrium to Facilitate the Design of an Endoscopic Atrial Retractor," *ASME Journal of Biomedical Engineering*, Vol. 129 , Issue 6, 2007.

Jernigan, S., Buckner, G., Cormier, D., and Eischen, J. W., "Finite Element Modeling of the Left Atrium to Facilitate the Design of an Endoscopic Atrial Retractor," Proceedings of BIOMED2007 Frontiers in Biomedical Devices Conference, June 7-8, 2006, Irvine, CA, USA

Pandurangan, P., Eischen, J. W., Kenkari, H., and May-Plumlee, T., "Enhancing accuracy of drape simulation. Part I: Investigation of drape variability via 3D scanning, *Journal of the Textile Institute,* Feb 4, 2008.

Pandurangan, P., Eischen, J. W., Kenkari, H., and May-Plumlee, T., "Enhancing accuracy of drape simulation. - Part II: Optimized drape simulation using industry-specific software, *Journal of the Textile Institute,* Feb 4, 2008.

Vinay Rao and Jeffrey Eischen, "Failure analysis of mixed mode crack growth in heavy duty truck frame rails," Case Studies in Engineering Failure Analysis, April 2016, Vol 5-6, pg 66-74, Impact Factor 1.751.

Hsiao-Ying Shadow Huang, Michael Stamps, and Jeffrey Eischen, "Particle- and Crack-Size Dependency of Lithium-ion Battery Materials LiFePO4," AIMS Materials Science, 2016, 3(1): 190-203.

Vinay Rao and Jeffrey Eischen, "Failure analysis of fretting fracture in frame rails of heavy duty trucks – Case study," Engineering Failure Analysis, July 2020, Vol. 113, pp. 1-13.

Larry Silverberg and Jeffrey Eischen, "On a new field theory formulation and a modified Newtonian gravitational law that predict the same precession of Mercury and the same bending of light as general relativity," submitted to Physics Essays, July 23, 2020.

Invited Presentations

Seminar Speaker-Fraunhofer Institute, Freiburg, West Germany, (August 1984)

Seminar Speaker-Zhejiang University, Hangzhou, China, (December 1985)

Seminar Speaker- CALTECH, Pasadena, CA, (January 1986)

Seminar Speaker-Duke University, Durham, NC, (March 1987)

1989 ASME Winter Annual Meeting, San Francisco, CA, symposium on Dynamics and Control of Multi-Body/Robotic Systems with Space Applications, Session Vice-Chair and Speaker , (December 1989)

Pan American Congress of Applied Mechanics, Valparaiso, Chile, Session Chair, (January 1991)

1991 ASME Winter Annual Meeting, Atlanta, GA, symposium on Structural Analysis in Microelectronics, Session Chair and Speaker, (December 1991)

Seminar Speaker- DuPont Company, Wilmington, DE, (April 1993)

ASME Design Technical Conference, Albuquerque, NM, Session Chair and Speaker, (September 1993)

1997 SIGGRAPH Computer Graphics Conference, Los Angeles, CA, Panelist and Speaker, (August 1997)

1998 SIGGRAPH Computer Graphics Conference, Orlando, FL, short course speaker, (July 1998)

1998 Society of Engineering Science Conference, Session Chair and Speaker, Pullman, WA, (September 1998).

Seminar Speaker-Duke University, Durham, NC, (February 1999)

53rd Meeting of the Society for Machinery Failure Prevention Technology, Virginia Beach, VA, (April 1999).

TechTextil North America- International Trade Fair for Technical Textiles and Nonwovens, Atlanta, GA, (March 2000).

Institute of Textile Technology, Technical Advisory Board Meeting, Charlottesville, VA, (November 2000).

Shenzhen Institute of Applied Technology (Chinese University of Hong Kong), Shenzhen, China (June 2012)

Hangzhou Design Methodology Association/Institute of Mechanical Design, Zhejiang University,Hangzhou, China (June 2012)

Conference Presentations

Fourth International Conference on Numerical Methods in Fracture Mechanics, "Fracture of Materials with Continuously Variable Elastic Elastic Moduli," San Antonio, TX, (March 1987).

ASME Applied Mechanics, Biomechanics, and Fluids Engineering Conference, "Energy Release Rates and Related Balance Laws in Linear Elastic Defect Mechanics," Cincinnati, OH, (June 1987).

1988 ASME Winter Annual Meeting, "Deformation and Stress in Thin Bi-Material Elements with an Axial Temperature Variation," Chicago, IL, (November 1988).

1989 ASME Winter Annual Meeting, "Realistic Modeling of Edge-Effect Stresses in Bi-Material Elements," San Francisco, CA, (December 1989).

1989 ASME Winter Annual Meeting, "Multi-Rigid-Body Kinematic Analysis with Elastic Finite Elements,"" San Francisco, CA, (December 1989).

XV Southeastern Conference on Theoretical and Applied Mechanics, "Computer Simulation of the Large Motions of Fabric Structures," Atlanta, GA, (March 1990).

Eleventh U.S. National Congress of Applied Mechanics, "Multi-Rigid-Body Kinematic and Dynamic Analysis with Elastic Finite Elements," Tucson, AZ, (May 1990).

1990 ASME International Computers in Engineering Conference, "Multi-Rigid-Body Kinematic Analysis with Elastic Finite Elements," Boston, MA, (August 1990).

Pan American Congress of Applied Mechanics, “Effect of Geometric Nonlinearities on Crack Tip Deformations,” Valparaiso, Chile, (January 1991).

1991 ASME Winter Annual Meeting, “Free Edge Stress Singularities in Electronic Bimaterials- Nonlinear Material Response,” Atlanta, GA, (December 1991).

3rd Annual Academic Apparel Research Conference, “Fabric Mechanics Analysis Using Large Deformation Shell Theory,” Atlanta, GA, (February 1992).

4th International Conference on Structural Failure, Product Liability and Technical Insurance, “The Problem of Helicopter and Aircraft Wire Strike Accidents,” Vienna, Austria, (July 1992).

29th Annual Technical Meeting of the Society for Engineering Science, “Elastic Plastic Analysis of Free-Edge Stress Singularities in Electronic Bimaterials,” La Jolla, CA, (September 1992).

4th Annual Academic Apparel Research Conference, “Optimization of Fabric Manipulation During Pick/Place Operations,” Raleigh, NC, (February 1993).

1993 ASME International Electronic Packaging Conference, “Elastic Plastic Analysis of Bimaterial Beams with Strain Hardening-Multiple Yield Sites,” Binghampton, NY, (September 1993).

1993 ASME Design Technical Conference, “Elastic Plastic Analysis of Bimaterial Beams with Strain Hardening,” Albuquerque, NM, (September 1993).

Fourth Pan American Congress of Applied Mechanics, “Determining Elastic Behavior of Composites by the Boundary Element Method,” Buenos Aires, Argentina, (January 1995).

Fifth Pan American Congress of Applied Mechanics, “Optimum Manipulation Strategies for Limp Fabric Materials,” with W. Clifton, San Juan, Puerto Rico, (January 1997).

1997 SIGGRAPH Computer Graphics Conference, “Computer Modeling of Fabric Drape During Drape and Manipulation,” Los Angeles, CA, (August 1997).

1998 SIGGRAPH Computer Graphics Conference, “Drape Modeling of Cloth,” Orlando, FL, (July 1998).

35th Annual Society of Engineering Science Conference, “Computer Modeling of Fabric Drape,” Pullman, WA, (September 1998).

1999 National Textile Center Forum, “Automated Three Dimensional Fabric Part Handling,” Myrtle Beach, SC, (January 1999).

53rd Meeting of the Society for Machinery Failure Prevention Technology, “Multidiscipline Analysis of a Fatal LPG Tank Rupture,” with B. Ross and C. Lange, Virginia Beach, VA, (April 1999).

2000 National Textile Center Forum, “Automated Three Dimensional Fabric Part Handling,” Myrtle Beach, SC, (January 2000).

TechTextil North America- International Trade Fair for Technical Textiles and Nonwovens, “Automated 3D Fabric Part Handling,” Atlanta, GA, (March 2000).

International Mechanical Engineering Congress and Exposition “Optimal Pickup Locations for Fabric Handling,” with S. Lankalapalli, Orlando, FL, (November 2000).

Institute of Textile Technology Technical Advisory Board Meeting, “Automated 3D Fabric Part Handling,” Charlottesville, VA (November 2000).

2001 National Textile Center Forum, “Automated Three Dimensional Fabric Part Handling,” Myrtle Beach, SC, (February 2001).

Seventh Pan American Congress of Applied Mechanics Eischen, J. W., "Laser Scribing for Use as a Precision Shaping Technique,", Temuco, Chile, (January, 2002).

2003 National Textile Center Forum, “3D Virtual Draping with Fabric Mechanics and Body Scan Data,” Hilton Head, SC, (February 2003).

2003 IEEE/RSJ International Conference on Intelligent Robotics and Systems (IROS'2003), “The Design, Fabrication, and Characterization of Millimeter Scale Motors For Miniature Direct Drive Robots,” with Palmer, J. A., Mulling, J. F., Dessent, B., Grant, E., Gruverman, A., Kingon, A. I., Franzon, P. D., Las Vegas, NV (October 2003).

2004 International Conference on Robotics and Animation, “The Design, Fabrication, and Characterization of Millimeter Scale Motors for Miniature Direct Drive Robots,” with Palmer, J. A., Mulling, J. F., Dessent, B., Grant,

E., Gruverman, A., Kingon, A. I., Franzon, P. D., New Orleans, LA (April 2004).

American Society for Precision Engineering Conference, "Design and Analysis of Press and Shrink Fit Joints," with Morrisey, P. W., and Dow, T. A., Portland, OR, (October 2003).

Eighth Pan American Congress of Applied Mechanics, "Optimal Pick-up Locations for Transport and Handling of Limp Materials," with Lankalapalli, S., Havana, Cuba (January 2004).

Ninth Pan American Congress of Applied Mechanics, "A Study of the Relationship Between Buckling and Wrinkling of Membranes," Merida, Mexico (January 2006).

23rd Annual ASPE Conference "Fast Long Range Actuator- FLORA II", with Zdanowicz, E., and Dow, T., Portland ORE (Oct 2008).

Proceedings of the 2009 Chemical and Biological Defense Science and Technology Conference, Nov. 16-20, 2009, Dallas, TX, Choi, J.I., Obringer, N., Eischen, J., Edwards, J., "Computational Simulation of Joint Expeditionary Collective Protection (JECP) System Performance Model (SPM) Ingress/Egress Events"

Proceedings of ASME 2010 Fluids Engineering Summer Meeting **(**FEDSM-ICNMM2010-3109**),** August 2010, Montreal, Canada**,** Choi, J.I., Obringer, N., Eischen, J., Edwards, J., Ghosh, S., and Geiseking, D., "An Immersed Boundary Method for General Flow Applications,"

Poster Session ASME 2010 International Mechanical Engineering Conference and Exhibition (IMECE), November 2010, Vancouver, CanadaChoi, J.I., Obringer, N., Eischen, J., Edwards, J., "Human Interaction with Flexible Fabric Structures Including Wake Motions,"

Technical Presentation at ASME 2011 International Mechanical Engineering Conference and Exhibition (IMECE), November 2011, Denver, CO, Eischen, J. W. Lu, J., Moses, J., "Geometric Nonlinearity in a Bimaterial Strip"

Poster Session 2011 Chemical and Biological Defense Science and Technology Conference, Nov. 14-18, 2011, Las Vegas, NV, Bhat, S., Eischen, J., Edwards, J., "Human Interaction with Flexible Fabric Structures"

Battestilli, L, Eischen, J, Silverberg, L, and Thomas, C., CADApps: MATLAB Apps for Core Courses in Aerospace and Mechanical Engineering Curricula, accepted for *2019 ASEE SE Section Annual Conference*, March 10-12, 2019

Editorships

Proceedings of the Ninth Pan American Congress of Applied Mechanics (PACAM IX), with G. Monsivais Galindo, Merida, Yucatan, MexicO, January 2-6, 2006

Editor of a special issue of the *Journal of the Mechanics of Materials and Structures,* a collection of invited papers from the Ninth Pan American Congress of Applied Mechanics, to be published in 2007.

Sponsored Research

NSF Initiation Award, "Realistic Modeling of Residual and Thermal Stress in Electronic Devices," June 1987-June 1989, $60K.

CRAFTM-NCSU Textile Engineering, "Computer Simulation of Flexible Fabric Motion," Sept. 1988-Jan. 1992, $30K/yr.

National Textile Center, "Computer Simulation of Flexible Fabric Motion," Mar. 1993-Mar. 1995, $30K/yr.

National Textile Center, "Computer Aided Engineering and Mechatronics in the Design of Apparel Equipment," Mar. 1995- Mar. 1998, $85K/yr.

National Textile Center, "3D Automated Fabric Handling," April 1998-May 1999, $90K/yr.

National Textile Center, "3D Automated Fabric Handling," May1999-May 2000 $90K/yr.

National Textile Center, "3D Automated Fabric Handling," May 2000-May 2001 $65K/yr.

IBM Corporation, "Al_2O_3- TiC Wafer Distortion, March 1999-March 2000, $35K/yr.

IBM Corporation, "Distortion Due to Mechanical and Laser Scribing," March 2000-December 2001, $26K/yr.

Vistakon Johnson and Johnson, "Characterization of Mechanical Indent Effects on Lens Inserts," April 2002, $2.4K.

Los Alamos National Labs, "Distortion of Thin Composite Cylinders," July 2001-June 2003, $54K/yr.

National Textile Center, "3D Virtual Draping with Fabric Mechanics and Body Scan Data, April 2002-May 2005, $167K/yr.

BP Amoco Fibers, "Analysis and Design of Fabric Bulk Bags," Feb 2003-August 2004, $93.5K.

Los Alamos National Laboratory, Analysis and Design of a Composite Cryogenic Pressure Vessel, NC State Physics Department, June 2007-June 2009.

National Science Foundation, LAT- Live Axis Turning, co-PI T. T. A. Dow, April 1, 2006 to September 30, 2009, $359k.

NSW Dahlgren, Computational Simulation of Ingress/Egress into Transportable ColPro Units, co-PI with J. Edwards, June 24, 2008 to December 31, 2010, $340k

CAD Apps for Core Courses in AE and ME Curricula-Bridge Funding, $10k, submitted 5/29/2015, The Mathworks Inc., co-PI L. Silverberg and L. Battestilli, Aug 2015-May 2016 (on no-cost extension currently)

CAD Apps for Core Courses in AE and ME Curricula: Bridge Funding, PINS #69113, The Mathworks Inc., co-PI L. Silverberg, May 2013-May 2014, $40k, (funded), (1409) (1409) 2016-1951

CAD Apps for Core Courses in AE and ME Curricula, $40k, submitted 11/18/2012, PINS # 50023, The Mathworks Inc., co-PI L. Silverberg, Jan 2016-May 2017, $10k (funded), Project ID 2013-1297

Professional Licenses

Registered Professional Engineer, Mechanical-State of California-M21276

Society Memberships

American Society of Mechanical Engineers- Member
American Academy of Mechanics- Member