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RESEARCH INTERESTS

Electronics Packaging Reliability, Computational Mechanics, Vibration Analysis/Testing

ACADEMIC EXPERIENCE

2013-present	Assistant Provost and Executive Director, Center for Learning and Teaching
2011-2013	SUNY Distinguished Teaching Professor and Chairman
2002-2011	Professor and Chairman
1994-2001	Associate Professor
1988-1993	Assistant Professor

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Thomas J. Watson School of Engineering and Applied Science
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Major Thesis/Dissertation Advisor to over 50 Graduate Students in 25 years:

1/86-1/88 POST-DOCTORAL RESEARCH ASSOCIATE, *National Center for Earthquake Engineering Research, Buffalo, NY*

9/80-6/87 LECTURER / TEACHING ASSISTANT, *Department of Civil Engineering, State University of New York at Buffalo*

EDUCATION

Ph.D.-Structural Mechanics (Civil Engineering), September 1986, State University of New York at Buffalo
Dissertation: "*Temporal Finite Elements in Structural Mechanics*"

M.S.- Structural Mechanics (Civil Engineering), May 1983, State University of New York at Buffalo
Thesis: "*Computer Modeling of a Twisted Composite Girder*"

B.S.- Civil Engineering, May 1981, State University of New York at Buffalo

JOURNAL PUBLICATIONS AND CONFERENCE PROCEEDINGS

Quang, S, Pitarresi, J., Gharaibeh, M., Stewart, A., and Joshi, G., Accelerated "Vibration Reliability Testing using Sine Dwell and Resonance Tracking," Proc. ECTC, Orlando, FL, May, 2014.

Douglas C. Hopkins, Theodore Baltis, James M. Pitarresi, Donald R. Hazelmyer, "Extreme Thermal Transient Stress Analysis with Pre-Stress in a Metal Matrix Composite Power Package," IMAPS Hi-Temp electronics International Conf., Albuquerque, NM, May 8, 2012.

Theodore Baltis, Douglas C Hopkins, James M Pitarresi, Donald R Hazelmyer, "High Thermal-Transient Packaging for a SiC-Based Solid State Circuit Breaker," IMAPS International Symposium on Microelectronics, Long Beach, CA, Oct, 2011.

Guruprasad, P., and Pitarresi, J., "Impact of Board Configuration on Shock Loading Conditions for Board-Level Drop Testing," Proc. ECTC Conference, Orlando, FL, June 2011, pp. 2067-2072

Guruprasad, P., Pitarresi, J., Bob Sykes , "Effect of Temperature on Transition in Failure Modes for High Speed Impact Test of Solder Joint and Comparison with Board- Level Drop Test,"Proc. ECTC Conference, Las Vegas, June 2010, pp. 908 - 915

H. Ouakad, F. A. S., M. I. Younis, T. Levo, and J. Pitarresi, “Response of an Electrostatically Actuated Microbeam to Drop-Table Test,” IEEE Thermal, Mechanical & Multiphysics Simulation and Experiments in Micro/Nano-Electronics and Microsystems Conference, Eurosim 2010, Bordeaux, France, April, 26-, 2010

Younis, M. I, Miles, R. , and Pitarresi, J., “The Effect of PCB Motion and Electrostatic Forces on the Response of MEMS Devices under Shock,” Proceeding of the 2009 NSF CMMI Engineering Research and Innovation Conference, Honolulu, Hawaii, June, 2009.

Al-Yafawi, A., Yu, D., Park, SB, Pitarresi, J., Chung, S., "Reliability Assessment of Electronic Components under Random Vibration Loading," ECTC Conference, San Diego, CA May 27, 2009.

Argawal, A., Levo, T., Pitarresi, J., Roggeman, B., "Board Level Energy Comparison and Interconnect Reliability Modeling under Drop Test," ECTC Conference, San Diego, CA May 27, 2009, pp. 1694-1702.

Guruprasad, P., and Pitarresi, J., "Comparison of Joint Level Impact Fatigue Resistance and Board Level Drop Test," ECTC Conference, San Diego, CA, May 27, 2009, pp. 1708-1713.

S. B. Park, Chirag Shah, Jae B. Kwak, Changsoo Jang, Soonwan Chung, and James M. Pitarresi, Measurement of Transient Dynamic Response of Circuit Boards of a Handheld Device During Drop Using 3D Digital Image Correlation, Journal of Electron. Packag. Vol 130, Issue 4, pp 502-505. Dec 2008.

Athavale, S., Mirza, F., Vishwanathan, K. DiPeitro, M., Pitarresi, J., and Santos, D., "A Comparative Study of Mechanical testing Reliability Techniques for Pb-Free Electronic Assemblies" IMAPS Conference, Boxborough, MA, May, 2007

Younis, M. I., Pitarresi, J., and Jordy, D., “Analyzing microbeams dynamics under mechanical shock,” in Proc. The Third International Conference on Advances in Mechanical Engineering and Mechanics (ICAMEM 2006), Hammamet, Tunisia, December, 2006, MEMS02.

Chaparala, S., Pitarresi, J., Meilunas, M., “Effect of Dwell times and Ramp Rates on the Thermal Cycling Reliability of Pb-free Wafer Level Chip Scale Packages,” Proc. 2006 ASME IMECE'06, November, 2006, Chicago, IL.

Younis, M. I., Jordy, D., and Pitarresi, J., “Computationally efficient approaches to simulate the dynamics of microbeams under mechanical shock,” Proc. 2006 ASME IMECE'06, November, 2006, Chicago, IL.

Gao, J., Pitarresi, J. and S.B. Park, “Wrinkling of Thin Membrane under Thermal Loading,” Proc. 2006 ASME IMECE'06, November, 2006, Chicago, IL

Chaparala, S.,Pitarresi, J., Meilunas, M., “Thermal Cycling and Shock Testing and Modeling of Pb-free Wafer Level Chip Scale Packages”, 39TH International Symposium on Microelectronics, October 2006

Younis, M. I., Jordy, D., and Pitarresi, J., “Dynamics of microbeams under mechanical shock,” Eleventh Conference in Nonlinear Vibrations, Stability, and Dynamic of Structures, Blacksburg, VA, August, 2006

S. Chaparala and J. Pitarresi, “An Experimental and Numerical Investigation of the Reliability of Double-Sided Area Array Assemblies,” at press, ASME J. Electronics Packaging.

S.Chaparala, B.Rogemann, J.Pitarresi, B.Sammakia, J.Jackson, G.Griffin, "Effects of geometry and temperature cycle on the reliability of WLCSP solder joint,” at press, IEEE Journal CPMT.

Qiang Xiao, William D. Armstrong, James M. Pitarresi, Satish C. Chaparala, Brian D. Rogeman, Bahgat G. Sammakia, Luu Nguyen, "Constitutive Relationship Development, Modeling and Measurement of Heat Stressing of Micro-SMD Assembly with Sn3.9Ag0.6Cu SAC Alloy" ASME INTERPACK, July 2005.

J.Pitarresi, S.Chaparala, B.Rogemann "Mechanical shock testing and modeling of PC mother boards" 54th ECTC, Las Vegas, 2004.

Primavera, A., Melinus, M, Pitarresi, J., Parpareli, S. "Measurement and Prediction of Reliability for Double-Sided Area Array Assemblies," #457, ECTC-2003, New Orleans, LA, May 2003.

Pitarresi, J.M., Chaparlla, S, Sammakia, B., Nguyen, L, Patwardhan, V., Zhang, L, and Kelkar, N., "A Parametric Predictive Solder Joint Reliability Model for Wafer Level-Chip Scale Package," ECTC San Diego, CA, May 2002.

Pitarresi, J.M., Geng, P, Beltman, W., and Ling, Y., "Dynamic Modeling and Measurement of Personal Computer Motherboards," ECTC San Diego, CA, May 2002.

Greenfield, P., Pitarresi, J., Lehmann, G., Skinner, D., Lee, J. and Sammakia, B., 'A Lamination Study of a Composite LCD Flat Panel Display', ITherm2002, Eighth Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, San Diego, CA, May 29- June 1, 2002

Constable, J., Butler, W., Huang, C., and Pitarresi, J.," CSP Fatigue Life Predictions Based on Electrical Resistance Change," InterPak 2001, Honolulu, HI, June, 2001.

Pitarresi, J.M., Sethuraman, S., Nandagopal, B., and Primavera, A., "Reliability Modeling of Chip Scale Packages," International Electronics Manufacturing Technology Symposium, Santa Clara, CA, Sept. 2000.

Yunus, M., Primavera, A., Srihari, K, and Pitarresi, J., "Effect of Voids on Solder Joint Reliability," International Electronics Manufacturing Technology Symposium, Santa Clara, CA, Sept. 2000.

Pitarresi, J.M., Terry, J., Seus, M., and Rayner, J., "Moiré Interferometry for Wide-Range CTE Measurement of Electronic Packages," Soc. Exp. Mech., Orlando, FL June, 2000, pp. 766-770.

Fenton, R.H., and Pitarresi, J.M., "Warpage Modeling and Measurement of Chip-Scale Components," Soc. Exp. Mech., Orlando, FL June, 2000, pp. 727-730.

Butler, W., Constable, J., and Pitarresi, J.M., "Resistance Spectroscopy Applied to Accelerated Life Testing of Solder Joints," Soc. Exp. Mech., Orlando, FL June, 2000, pp. 316-319.

Pitarresi, J.M., et al., "Elastically Coupled Beams Loaded by a Point Force," 13th Engineering Mechanics Conf., Baltimore, MD, June 1999, pp397-403.

Rayner, J. and Pitarresi, J.M., "Sample Preparation for Moiré Interferometry," Soc. Exp. Mech., Cincinnati, OH, June, 1999, pp. 11-14.

Rayner, J. and Pitarresi, J.M., "Twyman-Green Interferometry," Soc. Exp. Mech., Cincinnati, OH, June 1999, pp. 16-18.

Pitarresi, J.M. and Snyder, B., "Experimental Validation of Coupled Beam Theory," Soc. Exp. Mech., Cincinnati, OH, June 1999, pp. 411-414.

Riebling, J., Pitarresi, J.M., and Primavera, A., "BGA Reliability Modeling," InterPack 99, Honalulu, HI, June 1999, pp. 415-421.

Fenton, R., Primavera, A., and Pitarresi, J.M., "Warpage Modeling and Measurement," SMTA Inter'l Conf., San Diego, CA, Sept. 1999.

Pitarresi, J.M. and Haller, K.A., "Analysis of Air and Air/Vacuum Bearings," *ASME Journal of Manufacturing Science and Engineering*, Vol 119, No. 3, August 1997, pp. 388-392.

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Iannuzzelli, R., Pitarresi, J.M., and Prakash, V., "Solder Joint Reliability Prediction by the Integrated Matrix Creep Method," *ASME Journal of Electronic Packaging*, Vol. 118, June 1996, pp. 55-61.

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Holub, I.R, Pitarresi, J.M.,and Singler, T.J., "Effect of Solder Joint Geometry on the Predicted Fatigue Life of BGA Joints," *1996 InterSociety Conference on Thermal Phenomena (ITHERM 96)* Orlando, FL, May 29-June 1, 1996, pp.187-194.

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Pitarresi, J.M. and Akanda, A., "Random Vibration Response of a Surface Mounted Lead/Solder Joint," *ASME International Electronics Packaging Conference, Vol 1*, Binghamton, NY, Sept. 1993, pp. 207-217.
Macek, T. and Pitarresi, J.M., "Optimization of an Electrical Spring Connector," *Proc. 43rd Electronic Components and Technology Conference*, Orlando, FL, June 1-4, 1993, pp. 1083-1090.

Pitarresi, J.M. and Di Edwardo, A. V., "A Design Approach for the Systematic Improvement of Support Locations for Vibrating Circuit Cards," *ASME Journal of Electronics Packaging*, Vol 115, March 1993, pp.118-123.

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Prakash, V., Engel, P.A., Pitarresi, J.M., Albert, T. and Westby, G., "Stress Analysis of Component Attachments to Printed Circuit Boards," *Soldering and Surface Mount Technology* (1993).

Pitarresi, J.M. and Kunz, R., "A Rapid Technique for the Estimation of the Optimal Support Locations of Vibrating Plates," *ASME Journal of Vibration and Acoustics*, Vol 114, No. 1, January 1992, pp. 112-118.

Pitarresi, J.M., Celetka, D., Coldwel, R. and Smith, D., "The Smeared Properties Approach to FE Vibration Modeling of Printed Circuit Cards," *ASME Journal of Electronics Packaging*, Vol. 113, September 1991, pp. 250-257.

Pitarresi, J.M. and Manolis, G.D., "The Temporal Finite Element Method for Structural Dynamics," *International Journal of Computers and Structures*, Vol. 41, No. 3, 1991, pp. 647-656.

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Pitarresi, J.M. and Primavera, A., "Comparison of Vibration Modeling Techniques for Printed Circuit Cards," *ASME Winter Conference*, Atlanta, Ga., December 1-6, paper no. 91-WA-EEP-34, 1991.

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Vehemeir, M. and Pitarresi, J.M., "Control and Structural Synthesis - a New Approach", *Mathematical and Computer Modeling*, Vol. 14, 1990, pp. 248-253.

Telban, R., Geer, J., and Pitarresi, J.M., "Nonlinear Dynamics by the Hybrid Perturbation-Galerkin Method", *Mathematical and Computer Modeling*, Vol. 14, 1990, pp. 120-123.

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Kunz, R. and Pitarresi, J.M., "Experimental and Analytical determination of Optimal Support Locations for Vibrating Printed Circuit Cards," *9th International Electronic Packaging Symposium*, San Diego, CA, Sept. 1989, pp. 507-529.

Gellin, S. and Pitarresi, J.M., "Nonlinear Analysis Using Temporal Finite Elements," *Journal of Engineering Analysis*, Vol. 5, No. 3, 1988, pp. 126-132.

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BOOKS AND CHAPTERS

Shames, I.H., and Pitarresi, J.M., Introduction to Solid Mechanics, 3rd ed., Prentice-Hall, 2000.

Pitarresi, J.M., *Modeling of Circuit Cards Subject to Vibration*, chapter in Recent Advances in Electronics Packaging, Vol. 2, J. E. Morris, Ed., Van Nostrand Reinhold, New York, 1991, pp. 103-137.

EXTERNALLY-SPONSORED RESEARCH

Vibration Reliability Measurement and Modeling, Universal Instruments Corp., 9/2012 – 8/2013, $153,000 (Co-PI)

Research on electronics Reliability, Universal Instruments Corp., 1/9/2012 – 5/18/12, $182,740 (Co-PI)

Engineering 2020 eSTEM Program, NSF, 5/10 – 5/15, $600,000 (Co-PI).

Microbeams under Mechanical Shock and Electrostatic Actuation Accounting for the Effects of Circuit Board and Package Motion, NSF, 9/07-8/10, $318,992 (Co-PI).

MEMS micro-switch shock reliability, Office of Naval Research, Surface Warfare Division, 5/1/05 – 12/31/06, $158,150 (Co-PI).

Die Stress measurement and modeling, Analog Devices, Inc., 2/05 – 1/06, $48,481 (Co-PI).

Nano-mechanical prognostics of microelectronic structures, US Army–CERDEC, 11/03 – 10/04, $9,500. (PI)

Reliability Assessment of Wafer Level Chip-Scale Packages, National Semiconductor Corporation, 1/1/2001 – 12/31/2001, $59,871 (PI)

Vibration Analysis of Personal Computer Systems, Intel Corporation, 1/00 – 12/02, $168,252 (PI)

Constitutive Modeling and Characterization of Lead-Free Solder Alloys, Semiconductor Research Corporation, 9/01 – 8/03, $210,000 (Co-PI)

Assembly and Operational Assessment of Tiled Chips for Flat Panel Displays, 11/00 – 10/02, Rainbow Displays Corporation/NIST, $145,951 (Co-PI)

Stress Discontinuity Modeling for Flat Panel Displays, NSF, 1/1/99-12/31/01, $200,000, (Co-PI).

Modeling and Measurement of Displacement and Warpage in Electronic Packages, NSF/NY Tech. Office/IEEC, 6/01-5/02, $58,000 (PI).

Electronic Packaging Characterization and Modeling, Universal Instruments Crop., 1/1/01-12/31/01, $116,698, (PI).

Yield Study of 0201 Passive Surface Mount Components, Universal Instruments Corp., 6/1/00-8/28/00, $6,669. (PI).

Mechanical Performance of a Motion Simulator Platform, Doron Corp. 1/20/00-12/31/00, $42,100 (PI).

Electronic Packaging: Characterization and Modeling, Universal Inst. Corp., 1/00-12/00, $168,989. (PI)

Modeling and Measurement of Warpage in Electronic Packages, NSF/NYS/IEEC, 6/99-5/01, $108,629.

Resistance Spectroscopy Applied to Solder Joint Fatigue Measurement, NSF/NYS/IEEC, 6/99-5/01, $112,445. (PI)

Reliability Modeling of Chip-Scale Packaging Assemblies, Universal Instruments Crop., 5/1/97-12/31/99, $252,869, (PI).

Development of a Micro-Mechanical Solder Constitutive Law, NSF/NYS/IEEC, 9/97-6/98 $22,690. (PI)

Moiré Measurement and Vibration Modeling of Electronic Packages, NASA/JPL, $2,500, 6/97-7/97. (PI)

Warpage Measurement of BGA Packages, Digital Equipment Corp., $3,000, 6/97-7/97. (PI)

Non-Contacting Solder Joint Inspection, NSF/NYS/IEEC, 1/97-6/97 $8,385 (PI)

Investigation of Power Packaging Structures, Brush-Wellman Corp., 8/96-12/96, $9,724. (Co-PI)

Solder Joint Shape Optimization, NSF/NYS/IEEC, 1/95-8/96, $97,762. (Co-PI)

Reliability Analysis of TAB Packaging Technologies, Intel Corporation, 2/95-5/95, $4,815. (PI)

Advanced Vibration/Environmental Control System, NYS/TPAF Equipment Grant, 10/95,$120,000. (PI)

Reliability Analysis of BGA/DCA Packaging Technologies, Universal Instruments Corporation, 8/94-12/95, $35,718. (PI)

Various Aspects of Solder Physics, NSF/NYS/IEEC, 7/93-6/95, $72,792. (Co-PI)

Combined Vibration-Thermal Fatigue of Solder Connections, NSF/NYS/IEEC, 7/93-6/95, $44,744. (PI)

Random Vibration Analysis of Electronic Components, NSF/NYS/IEEC, 1/91-6/95, $233,217. (PI)

Parameter Fatigue Studies of Solder/Lead/Pad Configurations, Universal Instruments Corporation, $21,860, 5/92 - 7/93. (PI)

Solder Joint Integrity Assessment Using Laser Vibrometry Inspection, IEEC, $5,108, 9/92-1/93. (PI)

Direct Updating of Stiffness and Mass Matrices via Modal Testing, IEEC, 1/92-9/92, $16,510. (PI)

Simulation of the Mechanics of Pin Impact Manufacturing Process, IBM Corporation, 1/91 - 1/92, $54,996. (Co-PI)

Optimal Support Locations for Vibrating Printed Circuit Boards-*Renewal*, NSF, $9,750. (PI)

Optimal Support Locations for Vibrating Printed Circuit Boards, NSF, 9/89-9/91, $59,894. (PI)

Scanning Laser Vibrometer Equipment Proposal, GRI/NYS, 9/91, $53,597. (Co-PI)

Computer Workstations for Vibration Research Laboratory, NSF, 9/90-8/91, $36,744. (Co-PI)

Computational Modeling Techniques for Flexible Positioning Mechanisms Using Component Models, IBM Corporation, 3/90-5/91, $44,883. (PI)

Stress Analysis of Printed Circuit Card Manufacturing Process, Universal Instrument Company, 9/90-1/91, $14,477. (Co-PI)

Verification of Computational Modeling Techniques Using Experimental Modal Analysis, IBM Corporation, 6/89-3/90, $24,998. (PI)