

# RAMULU MAMIDALA

(“M. Ramulu”, Boeing Pennell Professor of Engineering)

## *Curriculum Vitae*

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## EDUCATION

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University of Washington, Seattle, WA  
PhD in Mechanical Engineering  
Date of Graduation: March 1982  
Dissertation: *Dynamic Crack Curving and Branching*

Indian Institute of Technology, New Delhi, India  
Master of Technology (MTech) in Production Engineering  
Date of Graduation: June 1976  
Thesis: *Identification and Optimization of Cutting Process*

Osmania University, Hyderabad, India  
Bachelor of Engineering (BE) in Mechanical Engineering with Distinction  
Date of Graduation: June 1974

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## EMPLOYMENT

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1994 Sept-present	Professor, Department of Mechanical Engineering, University of Washington, Seattle WA.
2013 April- present	Boeing Pennell Professor of Engineering, UW
2007 Dec –2008Feb	Visiting Scientist, Defense Metallurgical Research Laboratories, Kanchanbagh, Hyderabad, India.
2012-present	Adjunct Professor, Materials Science & Engineering, UW
1998 Sept-present	Adjunct Professor, Industrial Engineering Program, UW
1997 June-1997Sept.	Boeing’s The Ed Wells Summer Faculty Fellow
1995 Sept-1996 March	Visiting Scientist, Defense Metallurgical Research Laboratories, Kanchanbagh, Hyderabad, India.
1990 Sept-1994 Aug	Associate Professor, Dept. of Mechanical Engineering, UW
1985 Sept-1990 Aug	Assistant Professor, Dept. of Mechanical Engineering, UW
1982 Sept-1985 Aug	Research Asst Professor, Dept. of Mechanical Engineering, UW
1982 March-1982 Aug	Post Doctoral Research Technologist II, Dept. of Mechanical Engineering, UW
1981 Jan-1982 March	Pre-Doctoral Research Associate II, Dept. of Mechanical Engineering, UW
1978 Sept-1980 June	Teaching Assistant, Dept. of Mechanical Engineering, UW
1976 Jan-1977 Dec	Research Scholar, Indian Institute of Technology, New Delhi
1972 Jan-1974 April	Part-Time Lecturer in Math and Physics, Rao's College, India

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## AWARDS AND HONORS

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- 2013 Isadore T. Davis Award for Excellence in Collaboration of Engineering Education and Industry from American Society for Engineering Education (ASEE) June 2013
- 2013 Boeing Pennel Endowed Professor in Engineering
- 2012 *Distinguished Contributions to Life Long Learning Award, University of Washington*
- 2011 "Friction Stir Welding of Ti-6Al-4V Sheet and Plate for Aerospace Structures"  
Dissertation of Paul Edwards was selected as *one of three finalists* in the 2010-2011 *WAGS/UMI Innovation in Technology Award*
- 2010 *Best Research Paper Award*, "Alpha Case Removal on SPFd Titanium Alloy by Waterjets" by A Chillman, M.Hashish and M. Ramulu, at 20<sup>th</sup> International Conference on Water Jetting held at Graz, Austria, 20 - 22 October 2010
- 2010 *Honorable Mention of a Student (Alex Chillman) Research Paper Award*, "A Novel Approach To Energy Based Evaluations of Ultra High-Pressure Waterjets" ASME 2010 Pressure Vessel Conference, held at Bellevue, WA, July 18-22, 2010
- 2010 Nominee UW Distinguished Graduate Mentor Award (2001, 2004, 2006)
- 2010 Nominee for Community of Innovators *Award for Research and Teaching*, COE, University of Washington (2009)
- 2007 *Distinguished Alumina in Academics Award*, Osmania University Alumni Association (OUAA), Dec 29,2007, India
- 2007 *Fellow*, Society of Manufacturing Engineers (SME)
- 2007 *Technology Award*, Waterjet Technology Association
- 2006 *Faculty of the Year Award*, Department of Mechanical Engineering, UW
- 2005 Nominee for the University Brotman Award for Instructional Excellence
- 2004 *R<sup>1</sup>edu Award*, which recognizes excellence in online teaching and innovation. R<sup>1</sup>edu is a consortium of 34 of the leading American universities coordinated by the University of Washington
- 2003 Nominee for the University Distinguished Teacher award (1986, 1990, 2000, 2001, 2006)
- 2001 *Honorable mention of a Research Paper Award*, American Waterjet Technology Association
- 2001 Ranked in the top Ten Nominees over 100 nominations for UW Distinguished Graduate Mentor Award in 2000 and also nominee in 2001
- 2000 *Professional Service Recognition*, Knowledge Management Group, Boeing Company
- 1999 *Professional Achievement Award*, Sheared Services Group, Boeing Company
- 1999 *Fellow*, ASM International
- 1999 *Best Research Paper Award*, American Waterjet Technology Association
- 1998 *Distinguished Lecture* Honoree, Department of Mechanical Engineering's *Distinguished Lecture Series*, Texas A&M University (October)
- 1998 *Fellow*, Society for Experimental Mechanics (SEM)
- 1997 *The Ed Wells Summer Faculty Fellow*, Boeing Company, Seattle
- 1997 *Honor's Lecture*, University of Rhode Island's *Honor's Committee Lecturer*, Rhode Island
- 1996 *ASME Manufacturing Engineering Division's Service Award* for contributions to "Machining and Finishing Processes of Advanced Materials: Current and Future," at the 1996 International Mechanical Engineering Congress and Exhibition
- 1996 *Chief Guest and Keynote Speaker*, " Workshop on Need Analysis in Mechanical Engineering" Organized by the All India Council for Technical Education, held in Osmania University, February 10, 1996
- 1995 *Fellow*, American Society of Mechanical Engineers (ASME)

- 1994 *Academic Engineer of the Year*, Puget Sound Engineering Council, Washington  
1993 *Elected member* to North American Manufacturing Institute of SME  
1991 *Faculty Excellence Award*, Minority Science and Engineering Program, University of Washington, Jan. 25, 1991  
1989 *Presidential Young Investigator Award*, National Science Foundation  
1989 *AT&T Foundation Award*, American Society for Engineering Education  
1987 *Ralph R. Teetor Award*, Society of Automotive Engineers  
1986 *Ranked in the Top Ten Professors at UW* by Graduating Students in all campus yearbook, *TYEE*  
1986 *IIM-ASM Lectureship Award*  
1985-1986 First recipient of "*Outstanding Teacher Award*," College of Engineering, UW  
1978-1981 Government of India *National Merit Scholarship*

*Listed in the "Who is who in America", "American Men & Women of Science" and "Who's Who Among the Asian Americans"*

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### AFFILIATIONS AND ADMINISTRATIVE APPOINTMENTS

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- 2012 Sept-present *Adjunct Professor* of Materials Science and Engineering, UW  
1998Sept-present *Adjunct Professor* of Industrial & Systems Engineering, UW  
1999 - 2009 *Director*, MSE Program in Manufacturing Engineering, UW  
1997 March -1999 *Associate Director and Advisor*, MSE Program in Manufacturing Engineering, UW  
1997 - 2005 *Co-Director*, Program in Engineering and Manufacturing Management (PEMM), UW  
1996-2003 *Initiator, Fund Raiser* and Co-Administrator of Albert S. Kobayashi Endowed Fund in Mechanical Engineering, University of Washington  
1986 -2001 *Founder* of Society of Manufacturing Engineers Student Chapter and *Advisor* at University of Washington  
1984 -present *Chief Advisor*, Tau Beta Pi an Engineering Honors Society Student Chapter, University of Washington

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### PUBLICATIONS

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#### **Refereed archival journal publications**

- 1 J.Davis and M. Ramulu, "A Semi-Analytical Model of Time Dependent Plastic Strains Induced During Shot Peening" *International Journal of Applied Mechanics* (in print)
- 2 E.D.Eneyew and M. Ramulu, " Effect of Surface Ply on the Quality of the Hole when Drilling Multi-Directional CFRP Composites", *Applied Mechanics and Materials*, Vol. 330, 2013, pp. 117-122
- 3 E.D.Eneyew and M. Ramulu,"Tool Wear Monitoring Using Microphone Signals and Recurrence Quantification Analysis when Drilling Composites", *Advanced Materials Research*, Vol.711, 2013, pp. 239-244
- 4 J. Miller, Eshetu D. Eneyew, M. Ramulu, " Machining and Drilling of CFRP Composites, *SAMPE Journal*, Vol.49, March/Apr 2013, pp.36-46

- 5 A.O'Connor, J. Miller and M. Ramulu, "Evaluation of Substrates for Rapid Tooling Applications" SAMPE Journal, Vol.49, Jan/Feb 2013, pp.34-39
- 6 Daniel G.Sanders and M. Ramulu, " Friction Stir Welding Combined With Superplastic Forming For Monolithic Titanium Aircraft Structure: Influence Of Post Welding Thermal Treatments On Weld Nugget Residual Stress", Materials Science Forum, Vol.735, 2013, pp.395-402
- 7 S. Gururaja, M. Ramulu and W. Pedersen, "Machining of MMCs: A Review,"Machining Science and Technology, Vol.17, No. 1, 2013, pp 41-73
- 8 D.Kim, C.Sturtvant and M. Ramulu,"Usage of PCD Tool in Drilling of Titanium/Graphite Hybrid Composite Laminate" International Journal of Machining and Machinability of Materials, Vol.13, No. 2/3, 2013, pp.276-288
- 9 M. Ramulu, M.Spaulding,and P.Laxminarayana,"Cutting Characteristics of Titanium Graphite Composite by Wire Electrical Discharge Machining" Advanced Materials Research, Vol.630, 2012, pp114-120
- 10 A.Chillman, M. Hashish and M. Ramulu,"Energy Based Modeling Of Ultra High-Pressure Waterjet Surface Preparation Processes" ASME Journal of Pressure Vessel Technology, Vol.133, No.6, 2011, pp.061205-1-6
- 11 M. Ramulu, and M. Beck, " Investigation of Wear Behavior of Laser Cladded Low Carbon Steel Using Inconel 625 Nanopowder", Journal of Materials Science and Engineering, Vol. 5, No.3, 2011, pp.323-331
- 12 D. Kim, Y.H.Kim, S. Gururaja,and M. Ramulu., " Processing and Fiber Content Effects on the Machinability of Compression Moulded Random Direction Short GFRP Composites", International Journal of Automotive Technology, Vol.11, No.6, 2010, pp. 849-855
- 13 S. Gururaja and M. Ramulu, "Analytical formulation of subsurface stresses during Orthogonal cutting of FRP", Composites: Part A, Vol.41, No.9, 2010, pp.1164-1173
- 14 P. Edwards and M. Ramulu., "Peak Temperatures during Friction Stir Welding of Ti-6Al-4V" Science and Technology of Welding & Joining, Vol.15, No.6, 2010, pp. 468-472
- 15 D. G. Sanders. M. Ramulu, P.D. Edwards, and A. Cantrell., "Effect on the Surface texture, Superplastic Forming and Fatigue Performance of Titanium 6Al-4V Friction Stir Welds", Journal of Materials Engineering and Performance, Vol.19, No. 4, 2010, pp.503-509
- 16 P. D. Edwards, D. G. Sanders, M. Ramulu, "Simulation of tensile behavior in Friction Stir Welded and Superplastically formed-titanium 6 Al-4V alloy"Journal of Materials Engineering and Performance, Vol.19, No. 4, 2010, pp.510-514
- 17 D. Sanders , P. Edwards, G. Grant, M. Ramulu , A. Reynolds, " Superplastically formed Friction Stir Welded Tailored Aluminum and Titanium Blanks for Aerospace Applications", Journal of Materials Engineering and Performance, Vol.19, No. 4, 2010, pp.515-520
- 18 P. D. Edwards, D.G. Sanders, M. Ramulu, G. Grant, T. Trapp and P. Comley, "Thinning Behavior Simulations In Superplastic Forming Of Friction Stir Processed Titanium 6Al-4V", Journal of Materials Engineering and Performance, Vol.19, No. 4, 2010, pp.481-487
- 19 P.Edwards and M. Ramulu, "Identification of Process Parameters for Ti-6Al-4V Alloy Friction Stir Welding" ASME Journal of Engineering Materials and Technology, Vol.132, No. 3, 2010, pp.031006-1to 031006-10

- 20 A. Chillman, M. Ramulu, and M. Hashish., " Waterjet and Water-Air Jet Surface Processing of a Titanium Alloy: A Parametric Evaluation" ASME Journal of Manufacturing Science and Engineering, Vol.132, No.1, 2010, pp. 011012
- 21 P. Edwards, M. Petersen, M. Ramulu, R. Boyer., " Mechanical Performance of Heat treated Ti-6Al-4V Friction Stir Welds" Key Engineering Materials, Vol. 436, 2010, pp. 213-221
- 22 M. Ramulu, P. Edwards, D.G. Sanders, A.P. Reynolds and T. Trapp, " Tensile Properties of Friction Stir welded Ti-6AL-4V Butt Joints", Materials & Design, Vol. 30, 2010, pp.3056-306
- 23 M. Ramulu, P. Labossioure and T. Green, "Elastic-Plastic Stress/Strain Response of Friction Stir-Welded Titanium Butt Joints Using Moire Interferometry, Optics and Lasers in Engineering, Vol.48, No.3, 2010, pp.385-392
- 24 D. Sanders, P. Edwards, M. Ramulu, and G. Grant, "Optimization of Friction Stir Welding Process for Superplastic Forming and Improved Surface Texture for Titanium Aerospace Structures" Key Engineering Materials, Vol. 433, 2010, pp. 153-167
- 25 A. Chillman, M. Ramulu, M. Hashish, and A. Cantrell, "High Pressure Waterjets " " An Innovative Means of Alpha Case Removal for Superplastically Formed Titanium Alloys" Key Engineering Materials, Vol. 433, 2010, pp. 103-111
- 26 P. Edwards, M. Ramulu and D. Sanders "Superplastic Behavior and Microstructure of Titanium (Ti-6Al-4V) Friction Stir Welds Made Under a Variety of Processing Conditions" Key Engineering Materials, Vol. 433, 2010, pp. 169-176
- 27 A. Terry, M. Ramulu, and P.N. Rao, "A Method for Determining Tool Group Flexibility with Uncertain Machine Availability - Applications in a Semiconductor Manufacturing Process" Journal of Mechanical Engineering, Vol. 6, No. 1, April 2009, pp 19 - 42
- 28 J. Hoksbergen, M. Ramulu, P. Reinhall, and T. Briggs, " Comparing the Vibration Characteristics of Carbon Fiber Reinforced Plate to Magnesium Plate", Journal of Applied Composites, Vol.16, No. 5, 2009, pp. 263-284
- 29 P. D. Edwards and M. Ramulu., "Effect of Process Conditions on Superplastic Forming Behavior in Titanium 6Al-4V Friction Stir Welds" Science and Technology of Welding & Joining. Vol. 14, No.7, 2009, pp. 669-680
- 30 P.D. Edwards and M. Ramulu., " Investigation of Microstructure, Surface and Subsurface Characteristics in Titanium Alloy Friction Stir Welds of Varied Thickness" Science and Technology of Welding & Joining. Vol. 14, No.5, 2009, pp.476-483
- 31 T. M. Briggs, and M. Ramulu, "Edge Finishing Effects on the Impact Behavior of Chopped GFRP Composites "Experimental Mechanics, Vol.50, No.3, 2010, pp. 321-331
- 32 S. Gururaja and M. Ramulu. Failure analysis of a fibrous composite half-space subjected to uniform surface line load. ASME Journal of Engineering Materials Technology, Vol. 131, No.2, 2009, pp.021013 (8 pages)
- 33 S. Gururaja and M. Ramulu, "Modified Exit-Ply Delamination Drill Model for FRPs " Journal of Composite Materials, Vol.43, No.5, 2009, pp.483-500

- 34 D.G. Sanders, M. Ramulu, E.J. Klock-McCook, P.D. Edwards, A.P. Reynolds, and T. Trapp, "Characterization of Superplastically Formed Friction Stir Weld in Titanium 6Al-4V: Preliminary Results", *Journal of Materials Engineering and Performance*, Vol. 17, No.2, 2008, pp. 187-192
- 35 D. Sanders, M. Ramulu, P. Edwards, "Superplastic Forming of Friction Stir Welds in Titanium Alloy 6Al-4V: preliminary results", *Mat.-wiss. u. Werkstofftech.* Vol.39, No. 4, 2008, pp.1-5
- 36 S. Kunaporn, A. Chillman, M. Ramulu, and M. Hashish "Effect of Waterjet Formation on Surface Preparation and Profiling of Aluminum Alloy" *Wear*, Vol.265, 2008, pp.176-185.
- 37 M. Ramulu, D. Kim, H. Kao and P.N.Rao, "Experimental Modeling and Analysis of Drilling (Al<sub>2</sub>O<sub>3</sub>)p/6061 Metal Matrix Composites Using PCD Tool" *International Journal of Materials and Product Technology*, Vol.32, No.1, 2008, pp.20-40
- 38 D. Kim and M. Ramulu, "Study On The Drilling Of Titanium/Graphite Hybrid Composites, *ASME Journal of Engineering Materials and Technology*, Vol.129, No. 2, 2007, pp. 390-396
- 39 Franna Pitt and M. Ramulu, "Post-Processing Effect on the Fatigue Behavior of Three Titanium Alloys under Simulated SPF Conditions", *Journal of Materials Engineering and Performance*, Vol. 16, No.2, 2007, pp.163-169
- 40 Franna Pitt and M. Ramulu, "Experimental and Numerical Simulation of Tensile Behavior and Failure of Titanium Alloys Under Simulated SPF Post-Processing Conditions", *Journal of Materials Engineering and Performance*, Vol. 16, No.2, 2007, pp.155-162.
- 41 Franna Pitt, S. Young and M. Ramulu, " Post Processing Effects on the Fatigue Crack Propagation and Performance of Titanium (Ti-6Al-4V) Alloy After Simulated Superplastic Forming Conditions", *NAMRI/SME Transactions*, Vol. 35, 2007, pp.367-374.
- 42 A. Chillman, M. Ramulu and M. Hashish, "Waterjet Peening And Surface Preparation At 600mpa: A Preliminary Experimental Study" *ASME Journal Fluids Engineering*, Vol.129, No.2, 2007, pp.485-490
- 43 S. Bernhardt, M. Ramulu And A.S. Kobayashi, "Low-Velocity Impact Response Characterization Of A Hybrid Titanium Composite Laminate" *ASME Journal of Engineering Materials and Technology*, Vol.129, No.2, 2007, pp.220-226
- 44 Patrick B. Stickler, and M. Ramulu, "Experimental Study of Composite T-Joints Under Tensile and Shear Loading" *Advanced Composite Materials*, Vol.15, No.2, 2006, pp.193-210
- 45 Patrick B. Stickler, and M. Ramulu, "Damage Progression Analyses of Transverse Stitched T-Joints Under Flexure and Tensile Loading" *Advanced Composite Materials*, Vol.15, No.2, 2006, pp.243-261
- 46 Y.W.Seo, D. Kim and, M. Ramulu ""Electrical Discharge Machining of Functionally Graded 15-35% Vol% SiC/Al Composites," *Materials and Manufacturing Processes*, Vol.21, No.5, 2006, pp.470-487
- 47 F. Pitt and M. Ramulu, "Experimental Investigation Of Superplastic Forming Conditions On The Oxygen Absorption In Titanium" *Transactions of NAMRI/SME*, Vol. 34, 2006, pp. 39-46

- 48 T.Honda, M. Ramulu and A.S. Kobayashi, "Fatigue of shot peened 7075-T7351 SENB specimen " " A 3-D analysis" *Fatigue & Fracture of Engineering Materials and Structures*, Vol.29, No.6, 2006 ,pp. 416-424
- 49 W. Pedersen and M. Ramulu, "Facing SiCp/Mg Metal Matrix Composites with Carbide Tools" *Journal of Materials Processing Technology*, Vol.172, No. 3, 2006, pp.417-423
- 50 Spitsen, R., Kim, D., Flinn, B., Ramulu, M., and Easterbrook, E.T., "The Effects of Post-Weld Cold Working Processes on the Fatigue Strength of Low Carbon Steel Resistance Spot Welds," *ASME Journal of Manufacturing Science and Engineering*, Vol. 127,N. 4, 2005, pp.718-723
- 51 W.E. Pedersen and M. Ramulu, "Proposed Tool Wear Model for Machining Particle Reinforced Metal Matrix Composites" *Transactions of NAMRI/SME*, Vol. 33, 2005, pp.549-556
- 52 D. Kim, M. Ramulu, and W. Pedersen "Machinability of Titanium/Graphite Hybrid Composite Drilling", *Transactions of NAMRI/SME*, Vol. 33, 2005, pp.445-452
- 53 T.Honda, M. Ramulu and A.S. Kobayashi, "Shot Peening and Fatigue Crack Growth in 7075-T7351 Aluminum", *Key Engineering Materials*, Vol.297, 2005, pp.72-77
- 54 M.K.Han and M. Ramulu, " Fatigue life Prediction of Ship Welded Material" *Key Engineering Materials*, Vol.297-300, 2005, pp.1565-1571
- 55 M.K.Han and M. Ramulu, " Mixed Mode Fatigue Crack Propagation in 7075-T6 Aluminum Sheet Material" *Key Engineering Materials*, Vol.297-300, 2005, pp.743-749
- 56 T.Honda, M. Ramulu and A.S. Kobayashi, "Effect of Shot Peening on Fatigue Crack growth in 7075-T7351" *The Journal of ASTM International*, Vol.2, N0.6, 2005, pp.1-14
- 57 D.Kim, M. Ramulu and X.Doan, " Influence of Consolidation Process on the Drilling Performance and Machinability of PIXA-M and PEEK Thermoplastic Composites" *Journal of Thermoplastic Composite Materials*, Vol.18,No. 3, 2005, pp.195-217
- 58 S. Kunaporn, M. Ramulu and M. Hashish, "Mathemateical Modeling of Ultrahigh Pressure Waterjet Peening" *ASME J of Engineering Materials and Technology*, Vol.127, No.2, 2005, pp.186-191
- 59 M. Ramulu, "Ultrasonic Machining Effects on the Surface Finish and Strength of Silicon Carbide Ceramics *International Journal of Manufacturing Technology and Management*, Vol. 7, No.2/3/4, 2005, pp.107-126
- 60 D. Kim, and M. Ramulu, "Frequency Analysis and Process Monitoring in Drilling of Composite Materials," *Advanced Composites Letters*, Vol.13, No.4, 2004, pp.185-192
- 61 D.G.Sanders and M. Ramulu, "Examination of Superplastic Forming Combined with Diffusion Bonding for Titanium: Perspective from Experience", *Journal of Materials Engineering and Performance*, Vol. 13, No.6, 2004, pp.744-752
- 62 F. Pitt and M. Ramulu, " Influence of Grain size and Microstructure on Oxidation Rates in Titanium Alloy, Ti-6Al-4V Under Superplastic Forming Conditions" *Journal of Materials Engineering and Performance*, Vol. 13, No.6, 2004, pp.727-734

- 63 F. Pitt, M. Ramulu, P.Labossiere and S. Young," Post Processing Effect on the Ductility and Flexural Behavior of Three Titanium Alloys under Simulated Superplastic Forming Conditions", Journal of Materials Engineering and Performance, Vol. 13, No.6, 2004, pp.735-743
- 64 J.Arnold, M. Ramulu and P.N.Rao," Importance of Assembly Simulation as aid for Process Planning for an Aircraft Assembly Operation "" Perspective from Experience", International Journal of Manufacturing Technology and Management, Vol.6, No.5, 2004, pp.434-456
- 65 Y.W.Seo , M. Ramulu,and D. Kim " Surface Characteristics of Abrasive Waterjet Machined Titanium Alloy", The Journal of Jet Flow Engineering, Vol.21, No.2, 2004, pp.13-21
- 66 Y.W.Seo, M. Ramulu and M.Hashish, "Some Aspects in Abrasive Waterjet Machining of Polymer Composites", The Journal of Jet Flow Engineering, Vol.21, No.2, 2004, pp.4-12
- 67 M. Ramulu and J. Kramlich., "Machining Of Fiber Reinforced Composites: Review Of Environmental And Health Effects" International journal of Environmentally Conscious Manufacturing, Vol. 11, No.4, 2004, pp. 1-19
- 68 S. Kunaporn, M. Ramulu, M.Hashish and M.G.Jenkins, "Residual stress induced by waterjet peening: A finite element analysis" ASME Journal of Pressure Vessel Technology , Vol.126, No.3, 2004, pp.333-340
- 69 M. Ramulu , P.B. Stickler, N.S. McDevitt, I.P. Datar, D. Kim and M.G.Jenkins , "Influence of processing methods on the tensile and flexure properties of high temperature composites" Journal of Composites Science and Technology, Vol. 64, No. 12, 2004, pp. 1763-1772
- 70 M.Ramulu, S.-Y.Kuo, Y.M.Chen, D.Kim and R.Spitsen," Cutting Characteristics of Preform and SMC Composites", Transactions of NAMRI/SME, Vol. XXX1I,2004, pp.239 - 246
- 71 D.Kim and M. Ramulu, "Cryogenically Treated Carbide Tool Performance in Drilling Thermoplastic Composites", Transactions of NAMRI/SME, Vol. XXX1I,2004, 79 - 85
- 72 W.E.Pedersen and M. Ramulu," A Study of Varying Reinforcement in SiC/Al with Solid Carbide and Carbide Tipped Drills", Transactions of NAMRI/SME, Vol. XXX1I,2004, pp.279 - 286
- 73 D.Kim and M. Ramulu, "Drilling Process Optimization for Graphite/Bismaleimide-Titanium Alloy Stacks" Composite Structures, Vol.63, No.1, 2004, pp.101-114
- 74 P.B. Stickler, M. Ramulu, S.L. Coguill, and M.E. Tuttle "Experimental Investigation of T-300/PR520 Laminate Properties and Failure Analysis" Journal of Advanced Materials, Vol. 36, No.1, 2004, pp.3-11
- 75 Y.W.Seo, M. Ramulu and D.Kim, " Machinability of Titanium Alloy (Ti-6Al-4V) by Abrasive Waterjets", Proc. Instn Mech .Enggrs, PartB: Journal of Engineering Manufacture, Vol. 217, December, 2003, pp. 1709-1721
- 76 M. Ramulu, D.Kim and G. Choi, "Frequency Analysis and Characterization in Orthogonal Cutting of Glass Fiber Reinforced Composites" Composites Part A: Applications and Manufacturing, Vol.34, No.10, 2003, pp. 949-962
- 77 Brian C..Fabien, M. Ramulu and M. Tremblay, "Dynamic Modeling and Identification of a Water Jet Cutting System", Mathematical and Compute Modelling of Dynamical Systems , Vol.9, No.1, 2003, pp.45-63



- 78 W.Pedersen and M. Ramulu , " Experimental Analysis of Turning Centrifugally Cast SiCp Aluminum Metal Matrix Composites with PCD and Thick Film CVD Diamond Tools" Transactions of NAMRI/SME, Vol. XXX1,2003, pp.177-184
- 79 M.Ramulu, D.Kim, H. Kao, and P.N.Rao, " Experimental Study of PCD Performance in Drilling (Al<sub>2</sub>O<sub>3</sub> p/6061) Metal Matrix composite" Transactions of NAMRI/SME, Vol. XXX1,2003, pp 169-176.
- 80 D.Kim, M. Ramulu W.Pedersen, and Y.W.Seo, " EDM Characteristics of 15 and 35 Vol% SiCp /Al Metal Matrix Composites" Transactions of NAMRI/SME, Vol. XXX1, 2003,pp.241-248
- 81 P.B. Stickler and M. Ramulu, " Parametric Analysis of Stitched Composite T-joint by Finite Elements" Materials & Design , Vol.23, No.8, 2002, pp.751-758
- 82 M. Ramulu, P.N. Rao and H.Kao. " Drilling of (Al<sub>2</sub>O<sub>3</sub>)p/ 6061 Composites", Journal of Materials Processing and Technology, Vol.124, No.1-2, 2002, pp.244-254
- 83 A.F. Cantelli, A.Arguelles, J. Vina, M. Ramulu and A.S. Kobayashi, " Dynamic Fracture Toughness Measurements in Composites by Instrumented Charpy Testing: Influence of Aging" Composites Science and Technology, Vol.62, No. 2, 2002, pp.1315-1325
- 84 D. Arola , M. Sultan and M. Ramulu, " Finite Element Modeling of Orthogonal Cutting of Composites" ASME Journal of Manufacturing Science and Engineering.Vol.124, No.1, 2002, pp.32-41
- 85 D. Arola , M. L. McCain, S.Kunaporn and M. Ramulu," Waterjet And Abrasive Waterjet Surface Treatment of Titanium: A Comparison Of Surface Texture And Residual Stress" Wear, Vol.249, No.-, 2002, 943-950
- 86 Z.Guo And M. Ramulu, "Investigation Of Displacement Fields In Abrasive Waterjet Drilling Processpart II: Numerical Analysis" Experimental Mechanics, Vol.41, No.4, 2001, pp. 388-402
- 87 Z.Guo And M. Ramulu, "Investigation Of Displacement Fields In Abrasive Waterjet Drilling Processpart I: Experimental Measurements" Experimental Mechanics, Vol.41, No.4, 2001, pp. 375 - 387
- 88 M. Ramulu, G.Paul and J. Patel, "EDM Effects On Surface Integrity of15 Vol% Sicp/A356 Al Composite" Composite Structures, Vol.54, No.1, 2001, pp.79-86
- 89 M. Ramulu, T. Branson, and Dae-Wook Kim, "An Experimental Study On The Drilling Of Graphite/Bismaleimide Composite and Titanium Stacks" Composite Structures, Vol.54, No.1, 2001, pp.67-77
- 90 M. Ramulu, S. Kunaporn, M.G.Jenkins, M. Hashish and J. Hopkins., " Fatigue Performance of Waterjet Peened Aluminum Alloy". ASME Journal of Pressure Vessel Technology, Vol.123, No.1, 2002, pp.118-123
- 91 W. E. Pedersen, and M. Ramulu, "An Experimental Investigation Into The Oblique Facing Of Sicp/Mg Metal Matrix Composite" Transactions of NAMRI/SME, Vol. XXIX, 2001, pp. 183-188
- 92 Sharon M. Hayes, M. Ramulu, and W. E. Pedersen." Machining Characteristics Of A Titanium Metal Matrix Composite" Transactions of NAMRI/SME, Vol. XXIX, 2001, pp. 189-196

- 93 P.B. Stickler, and M. Ramulu " Investigation of Mechanical Behavior of Transverse Stitched T-joints with PR520 Resin in Flexure and Tension," Composite Structures, Vol.52, No.2, 2001, pp.307-314
- 94 G. Heike, M. Ramulu, E. Sorenson, P. Shanahan, and K. Moinzadeh, " Mixed model assembly alternatives for low-volume manufacturing: the case of the aerospace industry", International Journal of Production Economics, Vol. 72, 2001, pp.103-120
- 95 P.B. Stickler, M. Ramulu and B.P. Van West., " Transverse Stitched T-joints in Bending with PR520 Resin: Initial Results," Journal of Reinforced Plastics and Composites, Vol.20, No.1, 2001, pp. 65-75
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- 171 M. Ramulu and M. Taya, "An Investigation of Machinability of High-Temperature Composites," 12th Conference on Composite Matls. and Structures, NASA CP-3018 1988, pp. 423-434.
- 172 R.B. Hatangadi and M. Ramulu, "Material Behavior Under Abrasive Waterjet Impact," Dynamic Failure, 1987 SEM Proceedings of Fall Meeting at Savana, Georgia, Oct. 25-28 1987, pp. 112-119.
- 173 M. Ramulu, Per G. Reinhall, and Vincent Choo, "Characterization of Rivet Material Behavior under Fast Electromagnetic Riveting Process," Emerging Trends in Manufacturing, edited by U.R.K. Rao, P.N. Rao, and N.K. Tiwari, Tata McGraw-Hill Publ. Co., New Delhi, 1986, pp. 401-405.

- 174 Per G. Reinhall, M. Ramulu, and S. Gassaei, "Numerical and Experimental Analysis of Electromagnetic Riveting Process," *Emerging Trends in Manufacturing*, edited by U.R.K. Rao, P.N. Rao, and N.K. Tiwari, Tata McGraw-Hill Publ. Co., New Delhi, 1986, pp. 396-400.
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- 176 M. Ramulu and R. Taggart, "Subcritical Growth of Small Fatigue Cracks," *Fatigue Life: Analysis and Prediction*, edited by V.S. Goel, ASM publ. 1986, pp. 117-122.
- 177 M. Ramulu, A.S. Kobayashi, and M. Dadkhan, "Dynamic Fracture Toughness of Photoelastic Polymers," *Mechanism of Fracture*, edited by V.S. Goel, ASM publ. 1986, pp. 445-450.
- 178 J.S. Hawong, A.S. Kobayashi, D. Mahayar, B.S.-J. Kang, and M. Ramulu, "Dynamic Crack Curving and Branching under Biaxial Loading," *Proc. of 1985 SEM Spring Conference on Experimental Mechanics, Las Vegas, NV, June 9-14, 1985*, pp. 127- 133.
- 179 M. Ramulu, D. B. Barker, and A. S. Kobayashi, "Influence of Higher Order Terms in the Dynamic Mixed Mode Crack Tip Stress Patterns," *Proceedings of the Fifth International Congress on Experimental Mechanics, SESA, 1984*, pp. 439-444.
- 180 M. Ramulu and A.S. Kobayashi, "Dynamic Crack Curving and Crack Branching," *Material Behavior Under High Stress and Ultrahigh Loading Rates*, Plenum Press, NY (1983), ed. by Weiss and Mescal, pp. 241-250.
- 181 M. Ramulu, A.S. Kobayashi and B.S.-J. Kang and D.B. Barker, "Further Studies on Dynamic Crack Branching," *Proc. of SESA Spring Meeting, Cleveland, Ohio, May 15-19, 1983*, pp. 183-186.
- 182 A.S. Kobayashi and M. Ramulu, "Recent Developments in Dynamic Crack Curving and Branching," *Proc. of Interntl Conference on Dynamic Mechanical Properties and Fracture Dynamics of Engineering Materials, Valtice, 1983, Czechoslovakia*, pp. 64- 77, 1983.
- 183 M. Ramulu, A.S. Kobayashi and B.S.-J. Kang, "Dynamic Crack Curving and Branching in Line-Pipe," presented at ASME Winter Annual Meeting, Phoenix, AZ, Nov 14-19, 1982, ASME Technical Paper No. 82-WA/PVP-14.
- 184 Y.J. Sun, M. Ramulu, A.S. Kobayashi and B.S.-J. Kang, "Further Studies on Dynamic Crack Curving," *Developments in Theoretical and Applied Mechanics*, Vol. 11, April 1982, pp. 203-218.
- 185 A.S. Kobayashi, M. Ramulu and S. Mall, "Impacted Notch Bend Specimens," presented at ASME Joint Conference of Pressure Vessels and Piping, Materials, Nuclear Engineering and Solar Division, Denver, CO, June 21-25, 1981, ASME Technical Paper No. 81-PVP-14.
- 186 A.S. Kobayashi and M. Ramulu, "Dynamic Mixed Mode Fracture," *Symposium on Mixed Mode Crack Propagation*, Sijthoff and Noordhoff Pub., 1980, pp. 163-172, ed. by Sih and Theocaris.
- 187 M. Ramulu and A.S. Kobayashi, "Dynamic Crack Curving - A Photoelastic Evaluation," *Proc. of SESA Spring Meeting, Oahu & Maui, HI, May 24-28, 1982*, pp. 120-126.

- 188 A.S. Kobayashi, M. Ramulu and B.S.-J. Kang, "Influence of Small Scale Yielding on Dynamic Fracture," Numerical Methods in Fracture Mechanics, Pine Ridge Press, UK, 1980, ed, by Luxmoore and Owen, pp. 525-538.
- 189 A.S. Kobayashi and M. Ramulu, "Dynamic Stress Intensity Factors for Unsymmetric Dynamic Isochromatics," Proc. of IV Internatl Congress on Experimental Mechanics, Boston, MA, May 25-29, 1980, pp. 117-124.

#### Refereed Abstracts

- M. Ramulu and U.R.K. Rao, "Identification and Optimization of Manufacturing Process," Abstract, *Proc. of Indo-British Conference on Engineering Production*, New Delhi, 1977.
- D. Arola and M. Ramulu, "Manufacturing Effects on the Mechanics of Fiber Reinforced Plastics under Static and Dynamic Loading," Abstract, *12th US Congress of Applied Mechanics* held at Seattle, WA June 27-July 1, 1994, pp. 497.
- S.P. Raju and M. Ramulu, "Prediction of the Geometry of an Abrasive Waterjet Kerf using a Hybrid Eulerian-Lagrangian Approach", Abstract, *12th US Congress of Applied Mechanics* held at Seattle, WA June 27-July 1, 1994, pp. 569.
- M. Ramulu, "Fracture Mechanics and Damage Tolerance" Abstract published in International Winter School on Advances in Aeronautical Materials and Technology(AAMT) Souvenir, held at Hyderabad, India December 15-21, 2010
- M. Ramulu, "Fatigue and Fracture Performance of Friction Stir Welded Titanium Aerospace Structures", Abstract of a Plenary lecture- 65TH Annual Technical Meeting of The Indian Institute of Metals Souvenir, and 49TH National Metallurgist' Day, 13—16 November 2011, Hyderabad India

#### Books written

1. M. Ramulu, M.G.Jenkins and A.S. Kobayashi, "*Applied Fracture Mechanics*" a text book (Contract signed April 2002)) by McGraw Hill Publ..
2. M. Ramulu and P.N.Rao. "*Principles and Modeling of Modern Machining Processes*" an advanced text book under preparation
3. M. Ramulu, "*Machining Science and Surface Integrity of advanced Composites*" an advanced text book under preparation

#### Parts of books (chapters in edited books)

1. M. Ramulu . "Cutting Edge wear in Machining Foborous Composite Materials" a *Chapter* in Machining of Ceramics and Composites, Eds., S. Jahanmir, M. Ramulu and P.Koshy , Mercel & Dekker Publ., New York 2000, pp.357-410
2. M. Ramulu . "Characterization of Surface Quality in Machining of Composites " a *Chapter* in Machining of Ceramics and Composites, Eds, S. Jahanmir, M. Ramulu and P.Koshy , Mercel & Dekker Publ., New York, 2000, pp.575-648

3. M. Ramulu and A.S. Kobayashi., "Fatigue " *Chapter* in Encyclopedia of Vibration, Eds S.G. Braun, D.J. Ewins and S.S. Rao., Vol.2, Academic Press Ltd., London, UK. 2002, pp.505-513.
4. M. Ramulu and A.S. Kobayashi., "Analytical and Experimental Studies on Mixed Mode Fatigue Crack Propagation" *Chapter* in Handbook of Fatigue Crack Propagation in Metallic Structures, Vol.2, pp. 1073-1124, eds. A. Carpinteri, Elsevier Publ.1994.

#### **Books edited**

1. M. Taya and M. Ramulu, Eds., Machining Composites, PED Vol. 35, ASME Publ, New- York, NY 1988.
2. M. Ramulu and M. Hashish, Eds., Machining Characteristics of Advanced Engineering Materials, MD-Vol. 16, ASME Publ, New York, NY 1989.
3. M. Ramulu and R. Komanduri, Eds., Machining of Advanced Composites, MD Vol. 45, PED-Vol. 66, ASME Publ, New York, NY 1993.
4. T.S. Srivatsan, K. Ramani and M. Ramulu, Eds., Processing, Design and Performance of Composite Materials, MD-Vol. 52, ASME Publ, New York, NY 1994.
5. S. Jahanmir, M. Ramulu and P.Koshy., Eds., Machining of Ceramics and Composites, Mercel & Dekker Publ., New York 2000.
6. D. G. Sanders, L.D. Hefti, F. Abu-Farha, L. Hector,Jr., M. Ramulu, Eds., Superplasticity in Advanced Materials, (ICSAM 2009), Trans Tech Publ. Switzerland, 2010

#### **Journal issues edited**

1. D. G. Sanders, D. Dunand, F. Pitt, M. Ramulu, E.V. Kaay, Eds., *Journal of Materials Engineering and Performance* (Special Issue), , Vol. 13, No.6, 2004
2. D. G. Sanders, F. Pitt, M. Ramulu, M. Khraisheh, Eds., *Journal of Materials Engineering and Performance* (Special Issue), Vol. 16, No.2, 2007
3. D. G. Sanders, M. Ramulu, M. Khraisheh, Eds., *Journal of Materials Engineering and Performance* (Special Issue), Vo. 17, No.2, 2008
4. D. G. Sanders, L.D. Hefti, M. Ramulu, P.Edwards, and E. Taleff, Eds., *Journal of Materials Engineering and Performance* (Special Issue), **in print 2010**

#### **Patents submitted and/or awarded**

1. M.G.Jenkins, M. Ramulu, and T.L.Stevens, " An Hybrid Nozzle for High Pressure Jet Applications" Patent Disclosure 1997.

#### **Abstracts, letters, non-refereed papers, technical reports *(grouped by type)***

## **Project Reports**

### **Project Reports**

"Dynamic Stress Intensity Factors for Unsymmetric Dynamic Isochromatics," Office of Naval Research, Technical Report No. 36, University of Washington (Dec. 1979), with A.S. Kobayashi.

"Influence of Small-Scale Yielding on Dynamic Fracture," Office of Naval Research Technical Report No. 38, May 1980, University of Washington, with A.S. Kobayashi and B.S.-J. Kang.

"Dynamic Mixed Mode Fracture," Office of Naval Research, Technical Report No. 39, August 1980, University of Washington, with A.S. Kobayashi.

"Dynamic Crack Curving—A Photoelastic Investigation," Office of Naval Research, Technical Report No. 41, October 1981, University of Washington, with A.S. Kobayashi.

"Further Studies on Dynamic Crack Curving," Office of Naval Research, Technical Report No. 42, November 1981, University of Washington, with Y.J. Sun, A.S. Kobayashi, and B.S.-J. Kang.

"Dynamic Crack Branching —A Photoelastic Evaluation," Office of Naval Research, Technical Report No. UWA/DME/TR-82/43, May 1982, University of Washington, with A.S. Kobayashi and B.S.-J. Kang.

"Strain Energy Density Fracture Criterion in Elastodynamic Mixed Mode Crack Propagation," Office of Naval Research, Technical Report No. UWA/DME/TR-82/44, September 1982, University of Washington, with A.S. Kobayashi.

"Further Studies on Dynamic Crack Branching," Office of Naval Research, Technical Report No. UWA/DME/TR-82/46, March 1983, University of Washington, with A.S. Kobayashi, B.S.-J. Kang and D.B. Baker.

"Analysis of Dynamic Mixed Mode Crack Tip Stress Patterns," Office of Naval Research, Technical Report No. UWA/DME/TR-84/49, May 1984, University of Washington, with D.B. Barker and A.S. Kobayashi.

"Dynamic Crack Curving and Branching Under Biaxial Loading," Office of Naval Research, Technical Report No. UWA/DME/TR-85/50, February 1985, University of Washington, with J.S. Hawong, A.S. Kobayashi, M.S. Dadkhah, and B.S.-J. Kang.

"Dynamic Fracture Toughness," Office of Naval Research, Technical Report No. UWA/DME/TR-85/53, August 1985, University of Washington, with A.S. Kobayashi, M.S. Dadkhah, K.H. Yang, and K.S.-J. Kang.

"Production Processes," Washington Technology Center, Progress Report 891/87, University of Washington, April 1987.



"A Preliminary Investigation of Machinability of High Temperature Composites," Flow Industries, Technical Report, University of Washington, July 1987

"Machining of SiC-TiB<sub>2</sub>," Standard Oil Company, Progress Report, No. 1, University of Washington, December 1987.

"Weldability of Al-Li Alloys," Welding Research Council, Preliminary Report, University of Washington, March 1988.

"Machinability of Ceramic Composites," Society of Manufacturing Engineering Education Foundation, Technical Report, University of Washington, May 1988.

"Machining of Advanced Materials," Washington Technology Center, Progress Report No. 2/8, University of Washington, May 1988.

"Weldability of Al-Li Alloys," Welding Research Council, Final Report 88-5, University of Washington, August 1988.

"Detection of Cutting Tool Fracture in Turning by Acoustic Emission," Idaho National Labs, Technical Report, University of Washington, September 1988.

"Characterization of Polycrystalline Diamond Inserts for Use in Machining Graphite/Epoxy Materials," Technical Report to The Boeing Company, University of Washington, January 1989.

"Production Processes," Washington Technology Center, Annual Report, University of Washington, April 1989.

"Damage Accumulation in Advanced Metal Matrix Composites under Thermal Cycling," Air Force Office of Scientific Research, Annual Report, AFOSR-89-0059, October 1987-October 1990 with M. Taya, W. Armstrong, and M. Dunn.

"Production Processes," Washington Technology Center, Annual Report, University of Washington, March 1990.

"Polycrystalline Cutter Development," Interim Report to the Boeing Company, University of Washington, December 1990.

"Damage Accumulation in Advanced Metal Matrix Composites under Thermal Cycling," Air Force Office of Scientific Research, (Technical Report No. UW-ME-91-001, February 1991), Final Report, AFOSR-91-0234, with M. Taya, W. Armstrong, and M. Dunn.

"PCD Cutter Evaluation," Final Technical Report to the Boeing Defense and Space Group, University of Washington, May 1991.

"Chip Formation in Graphite/Epoxy," Final Technical Report to the Boeing Defense and Space Group, University of Washington, December 1991.

"Production Processes" Washington Technology Center, Annual Report, University of Washington, September 1992.

"Telescopic Manhole and Cover Design," Technical Report, June 14, 1993, Final Report to John Morina, Investor, Centralia, WA 98531

"Production Process," Washington Technology Center, Final Report, University of Washington, June 30, 1993

"Development of Cutting Tools for FRP Machining," a proprietary Research (1990-1993), Boeing Military, Seattle.

"Mechanics of Abrasive Waterjet Cutting" Final Technical Report, NSF, June 1995

"Advanced Ceramics for High Pressure Applications" Final Technical Report, Flow International, Seattle, WA, June 1997 with M.G.Jenkins

"Water Peening of Aluminum Alloys" Technical Report, Flow International, Seattle, WA, October 1999.

"Fatigue Performance of Water Peened 7075-T6 Aluminum Alloy" Technical Report, Flow International, Seattle, WA, October 2001.

"Engineering and Management Education: Ford Fellowships", April, 2002.

"Algorithm to Facilitate Lights-Out Operations for Remote and Unattended Abrasive-Waterjet Machining", February 2004

"Fatigue Crack Behavior of Superplastic Formed Titanium Alloys" The Boeing Company, December 2004

"FSW/SPF of Titanium Alloys; Phase-1, The Boeing Company, July 2005.

"Shot Peening of Metallic Materials: Manual Peening" Task-1, The Boeing Company, July 2006

"FSW/SPF of Titanium Alloys; Phase-2, The Boeing Company, July 2006.

"Shot Peening Almen Strip Characteristics: Experimental Results" Task-2, The Boeing Company, July 2007.

"FSW/SPF of Titanium Alloys : Fatigue Performance, The Boeing Company, July 2008 .

"Manual Shot Peening Study on Fatigue Performance of 7050-T74 Alloy" The Boeing Company, June 2009

"Machinability of Tooling Materials for Composite Component Manufacturing-Phase-1" Report to The Boeing Company, June 2010

"Microstructure Characterization of FSW Titanium 54M Materials", The Boeing Company, March 2010

"Machinability of Tooling Materials for Composite Manufacturing-Phase-1" The Boeing Company, March 2011

“Optimal Cutting Conditions for Finishing Operation on Potential Tooling Materials (CB1100, Carbon Foam, and AC for Repair of Composite Components-Phase-2” The Boeing Company, August 2011

“Diffusion Bonding of Dissimilar Titanium Alloys Joints- Initial Results on Microstructure and Quality “ The Boeing Company, November 2011

“Fatigue and Fracture Testing and Analysis of Rapid Prototyped Aerospace Titanium Component by Selective Laser Melting Process, August 2012

**Other (web sites, software, Wiki, etc.)**

Soleheim Manufacturing Science and Technology Laboratory  
<http://mstl.me.washington.edu>  
<http://faculty.Washington.edu/ramulum>

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OTHER SCHOLARLY ACTIVITY

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**Invited lectures and seminars.**

- 1 "Dynamic Crack Propagation and Crack Branching," Carnegie Mellon University, Department of Mechanical Engineering, Dec. 10, 1981.
- 2 "Dynamic Crack Branching Criteria," University of Idaho, Department of Mechanical Engineering, Moscow, May 25, 1984.
- 3 "Controlled Fracturing in Manufacturing," University of Washington, Seattle, Washington, March, 1985.
- 4 "Dynamic Fracture in Brittle Materials," Osmania University, Hyderabad, India, July 1985.
- 5 "Dynamic Fracture Toughness," Defense Metallurgical Research Laboratories, Hyderabad, India, August 25, 1986.
- 6 "Fracture Toughness Testing of Ceramic Tool Materials," Indian Institute of Technology, New Delhi, Dec. 18, 1987.
- 7 "Abrasive Waterjet Cutting of Composites," Manufacturing Research and Development, Boeing Company, Auburn, September 25, 1987.

- 8 "Short Fatigue Crack Mechanics," Damage Tolerance Division, Boeing Company, Renton, November 18, 1987.
- 9 "Fracture and Fatigue in Aluminum Alloys," International Conference on Advances in Structural Testing, Analysis and Design, held in Bangalore, India, July 29-August 3, 1990.
- 10 "Fracture and Fatigue Crack Growth Analysis in Aluminum-Lithium Alloys," *Keynote Lecture, Sixth International Conference on Mechanical Behavior of Materials (ICM-6)*, held in Kyoto, Japan, 29th July - 2 August 1991.
- 11 "Surface and Subsurface damage in Drilling of FRP", Boeing Military, Seattle, August 19, 1992.
- 12 "Machining Process Effects on Surface Integrity of Advanced Ceramics" *Invited Lecture*, American Ceramic Society, *Conference on "Design for Manufacturability of Glass and Ceramics"* held in Detroit, MI, Sept 16-17, 1993.
- 13 "Traditional and Nontraditional Machining of Fiber-Reinforced-Composites" *Invited state of the art Lecture, SAMPE Conference*, Los Angeles, CA, April 1994.
- 14 "Waterjet and Abrasive Waterjet Machining- Research Issues" *Invited state of the art review Lecture ASME/STLE Conference*, Lahaina, Hawaii Oct. 16-20. 1994 also participated in Teaching and Research Issues of Tribology in Manufacturing.
- 15 "Machining Mechanics in Advanced Composites" *Invited Lecture*, A symposium on Machining of Advanced Materials, ASME Summer Meeting at University of California, Los Angeles, June 28-30, 1995
- 16 "Machining and Surface Integrity of Fiber Reinforced Plastic Composites" *Planery Lecture*, International Conference on ADVANCES IN MECHANICAL ENGINEERING, at Indian Institute of Science, Bangalore, Dec. 20-22, 1995, India
- 17 "Abrasive Waterjets: A Novel Tool in Machining advanced Materials" Defense Metallurgical Research Laboratories (DMRL), Hyderabad, India, January 3, 1996.
- 18 "Machining of Advanced Composites" Development of Advanced Composites, Defence Research and Development Laboratory (DRDL), Hyderabad, India, February 14, 1996.
- 19 "Developments in Waterjet Technology", Nuclear Fuel Complex (NFC), Hyderabad, India, February 15, 1996.
- 20 "Experimental Techniques in Dynamic Fracture Mechanics", Bharath Heavy Electricals Limited (BHEL), Research and Development (R&D), Balanagar, Hyderabad, India, February 22, 1996.
- 21 "Ultra-High Pressure Waterjet Cutting" College of Engineering, Osmania University, Hyderabad, India, February 23, 1996.
- 22 "Machining of Hard-to-Cut Materials with High Pressure Waterjets Research at University of Washington" Deccan College of Engineering & Technology, Hyderabad, India, February 24, 1996

- 23 "Material Issues in Machining of Composites" *Honors Lecture*, College of Engineering, University of Rhode Island, April 24, 1997
- 24 " Promise of Water Peening in Enhancing Fatigue Life in Aerospace Materials", Flow International, May 27, 1997
- 25 "Surface Integrity of Composites" *Distinguished Lecturer*, Texas A&M University, College Station, Texas, October 14, 1998.
- 26 "Water Peening" Society of Manufacturing Engineers, Chapter 39, Seattle WA , November 16, 1999.
- 27 "Fatigue Performance of High Pressure Waterjet Peened Aluminum Alloys", Materials Science and Engineering, University of Washington, January 10, 2000
- 28 " Physics of Abrasive Waterjet Machining" 11<sup>th</sup> American Waterjet Conference, Minneapolis MN, August 19, 2001
- 29 "Research Directions in Production Engineering", Srinidhi College of Science and Technology, Jawaharlal Technological University (JNTU), Hyderabad, July 3, 2002
- 30 "Ultra-High Pressure Water Peening", *Alumini Lecture*, University College of Engineering, Osmania University, Hyderabad, July 12, 2002
- 31 "Drilling Issues in Composite –Titanium Stacks" The Boeing Company, November 2004
- 32 "Web Based Control of AWJ Performance", Omax Corporation, May 2004
- 33 "Academic Experience of an Undergraduate in US University" Srinidhi College of Science and Technology, Jawaharlal Technological University (JNTU), Hyderabad, October 23, 2007
- 34 "Fundamental Issues in Machining of Polymer Composites" *Plenary Lecture*, International Conference On Future Trends In Composite Materials And Processing, INCCOM -6, Indian Institute of Technology Kanpur, India , December 12-14, 2007
35. "Current Research in Friction Stir Welding Process: Research opportunities" Defense Metallurgical Research Laboratories, Kanchanbagh, Hyderabad, India, February 6, 2008
36. "Recent Advances in Friction Stir Welding of Titanium Alloys", *Plenary Lecture*, XVII International Conference on Processing and Fabrication of Advanced Materials, held at New Delhi, India, Dec 15-17, 2008
37. "Comparative Study Of Cutting Forces, Exit Delamination And Surface Roughness In Drilling Two Structural Composites" Composites Manufacturing 2010, Society of Manufacturing Engineers, held at San Diego, April 20-22, 2010
38. "Recent Developments in Machining of Advanced Composite Materials" *Key-Note* presented in 3rd International and 24th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2010), held at AU, Vishakapatnam, Dec 13-15, 2010

39. "Fracture Mechanics and Damage Tolerance" *Plenary Lecture* presented in International Winter School on Advances in Aeronautical Materials and Technology(AAMT), held at Hyderabad, India December 15-21, 2010
40. "Quality Issues Associated with Abrasive Waterjet Cutting and Drilling of Advanced Composites" Department of Mechanical Engineering, Texas A&M University, College Station TX 77845, March 21, 2011
41. "Fatigue and Fracture Performance of Friction Stir Welded Titanium Aerospace Structures", Plenary lecture- 65TH Annual Technical Meeting of The Indian Institute of Metals and 49TH National Metallurgist' Day,13—16 November 2011, Hyderabad India

**Presentations given at conferences.**

- 1 "Shakedown Prediction of Fatigue Life Extension After Residual Stress Relaxation via the Recovery Strain", International Conference on Computational & Experimental Engineering and Sciences (ICCES'13), held in Bellevue, WA May 24-28, 2013
- 2 "Diffusion Bonding and Friction Stir Welding of Dissimilar Titanium Alloys", International Conference on Computational & Experimental Engineering and Sciences (ICCES'13), held in Bellevue, WA May 24-28, 2013
- 3 "Flexural Behavior of Diffusion Bonded Titanium Joints", International Conference on Computational & Experimental Engineering and Sciences (ICCES'13), held in Bellevue, WA May 24-28, 2013
- 4 "Modeling the Effect of the Shot Peening Residual Stress on the Vickers Hardness of Aluminum alloy 7050-T7451", International Conference on Computational & Experimental Engineering and Sciences (ICCES'13), held in Bellevue, WA May 24-28, 2013
- 5 "On-line Detection of Delamination when Drilling Composite Materials using Stereo Microphone Signal Processing", International Conference on Computational & Experimental Engineering and Sciences (ICCES'13), held in Bellevue, WA May 24-28, 2013
- 6 "Machinability of Brittle Cellular Materials for Composite Tooling", International Conference on Computational & Experimental Engineering and Sciences (ICCES'13), held in Bellevue, WA May 24-28, 2013
- 7 "Quality of the Hole When Drilling Multi-Directional CFRP Composites ", 24th Advanced Aerospace Materials (AeroMat 2013) Conference, held in Bellevue, WA, April 2-5, 2013
- 8 "Machinability of Brittle Substrate Tooling Materials"24th Advanced Aerospace Materials (AeroMat 2013) Conference, held in Bellevue, WA, April 2-5, 2013
- 9 "Evolution of Microstructures in Ti-6Al-4V/Beta21S Diffusion Bonds", 24th Advanced Aerospace Materials (AeroMat 2013) Conference, held in Bellevue, WA, April 2-5, 2013
- 10 "Charpy Impact Testing of Friction Stir Welded Titanium Joints", 24th Advanced Aerospace Materials (AeroMat 2013) Conference, held in Bellevue, WA, April 2-5, 2013

- 11 "Effect of Surface plies on the Quality of Hole Produced When Drilling Carbon Fiber Reinforced Composites", SME Composite Manufacturing Conference 2013, March 19-21, Long Beach, CA
- 12 " AWJ Cutting and EDM Edge Finishing on Surface Morphology of Fiber-Metal Composite Laminates", 21st International Conference on Water Jetting, held in Ottawa, Canada, Sept 19-22, 2012
- 13 " Friction Stir Welding Combined With Superplastic Forming For Monolithic Titanium Aircraft Structure: Influence Of Post Welding Thermal Treatments On Weld Nugget Residual Stress" ICSAM 2012, July 3-5, 2012, Albi France
- 14 "Mechanical Properties of Titanium Alloy SP 700 After Superplastic Forming" ICSAM 2012, July 3-5, 2012, Albi France
- 15 "Fracture Properties of Friction Stir Welded Titanium Alloy, Ti-6Al-4V" AeroMat 2012, June 2012
- 16 "Quality Issues Associated with Abrasive Waterjet Cutting and Drilling of Advanced Composites" Department of Mechanical Engineering, Texas A&M University, College Station TX 77845, March 21, 2011
- 17 "Fracture Mechanics and Damage Tolerance" a lecture presented in International Winter School on Advances in Aeronautical Materials and Technology(AAMT), held at Hyderabad, India December 15-21, 2010
- 18 "Recent Developments in Machining of Advanced Composite Materials"presented in 3rd International and 24th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2010),held at AU, Vishakapatnam, Dec 13-15, 2010
- 19 "Effect of Die Sinker EDM and AWJ Machining Processes on Flexural Properties of Hybrid Titanium Laminates" presented in SAMPE Conference, May 17-20, 2010, Seattle
- 20 "Stress Analysis in Cutting of Composites" presented in SAMPE Conference, May 17-20, 2010, Seattle
- 21 "Comparative Study Of Cutting Forces, Exit Delamination And Surface Roughness in Drilling Two Structural Composites" Composites Manufacturing 2010, Society of Manufacturing Engineers, held at San Diego, April 20-22, 2010
- 22 "Effects Of Manual Shot Peening Conditions On High Cycle Fatigue" 2008 SEM Spring Conference,New Mexico
- 23 "A General Overview of Waterjet Surface Treatment Modeling" 2009 American WJTA Conference , August 18-20, 2009 , Houston, Texas
- 24 "Quality Issues Associated With Abrasive Waterjet Cutting And Drilling Of Advanced Composites" 2009 American WJTA Conference, August 18-20, 2009 , Houston, Texas
- 25 "Recent Advances in Friction Stir Welding of Titanium Alloys", XVII International Conference on Processing and Fabrication of Advanced Materials, held at New Delhi, India, Dec 15-17, 2008
- 26 "Development of Advanced Titanium Welding Processes for Improved Material Utilization in Aerospace Manufacturing" PNW AIAA Tech Symposium at Boeing 2-22 Auditorium on October 25, 2008.
- 27 "A Coverage Model for the Verification of a Manually Peened Surface" PNW AIAA Tech Symposium at Boeing 2-22 Auditorium on October 25, 2008.
- 28 "Characterizing Machining of FRPs using Analyticaltechniques" PNW AIAA Tech Symposium at Boeing 2-22 Auditorium on October 25, 2008.

- 29 "An Experimental Observation into the Rate Dependence During Low Velocity Impact Loading in CFRP Composites" PNW AIAA Tech Symposium at Boeing 2-22 Auditorium on October 25, 2008.
- 30 "Experimental Investigation of Manual Shot Peening Process Characteristics" PNW AIAA Tech Symposium at Boeing 2-22 Auditorium on October 25, 2008.
- 31 "Mechanical and Microstructure Characterization of Friction Stir Welding in Ti-6Al-4V", PNW, AIAA Tech Symposium at Boeing 2-22 Auditorium on October 25, 2008
- 32 "Tension-tension fatigue behavior of GFRP composites" International Conference on Mechanics of Materials, Numerical Simulation and Modeling of Jan 2-5, 2008, Bangalore, India
- 33 "Advances in Machining of Composites" ICCOM-6, Dec 2007, India
- 34 "Water Peening Effect On Fatigue Performance" 2007 WJTA American Waterjet Conference held in Houston, Tx
- 35 "Investigation Of Surface Preparation In Superplastic Formed Metals" 2007 WJTA American Waterjet Conference held in Houston, Tx
- 36 "Tensile Behavior Simulation of Friction Stir Welded and Superplastically Formed - Friction Stir Welded Titanium Alloy" in 18th AeroMat Conference and Exposition, June 25-28, 2007, Baltimore Maryland
- 37 "Correlation of Alpha Case and Fatigue Results in Titanium after Simulated SPF Exposure" in 18th AeroMat Conference and Exposition, June 25-28, 2007, Baltimore Maryland
- 38 "Elasto-Plastic Mixed Mode Crack Analysis in Thin Sheets of Aluminum Alloys" in Symposium honoring Albert Kobayashi, ASME 2007, Mechanics and Materials Conference at University of Texas at Austin, June 7-10, 2007
- 39 "A New Approach to Focusing Virtual Manufacturing Efforts in a Product Development Environment" presented in 2006 SAE International Aerospace Manufacturing and Automated Fastening Conference and Exhibition, September 11-14, 2006 held at Centre De Congrès Pierre Baudis Toulouse, France
- 40 "Study On The Drilling Of Titanium/Graphite Hybrid Composites, Presented in 2005 ASME International Mechanical Engineering Congress & Exposition, November 5-11, 2005, Orlando, Florida
- 41 "Edge Finishing and Delamination Effects induced during Abrasive Waterjet Machining on the Compression Strength of a Graphite/Epoxy Composite" Presented in 2005 ASME International Mechanical Engineering Congress & Exposition, November 5-11, 2005, Orlando, Florida
- 42 "Low-Velocity Impact Response Characterization of a Hybrid Titanium Composite Laminate Presented in 2005 ASME International Mechanical Engineering Congress & Exposition, November 5-11, 2005, Orlando, Florida
- 43 "Waterjet Peening At 600mpa: A First Investigation" Presented in 2005 ASME International Mechanical Engineering Congress & Exposition, November 5-11, 2005, Orlando, Florida
- 44 "Effects of Edge Finishing on the Impact Behavior of a Hybrid Titanium Composite Laminate" presented in SAMPE Fall Conference 2005 held in Seattle Oct 31-Nov 3, 2005
- 45 "Cutting And Drilling Characteristics Of Hybrid Titanium Composite Laminate (Htcl) "presented in SAMPE Fall Conference 2005 held in Seattle Oct 31-Nov 3, 2005



- 46 "Influence of Manufacturing Process and Fiber Volume on Edge Finishing Characteristics and Surface Integrity of Glass Fiber Reinforced Plastic Composites" presented in SAMPE Fall Conference 2005 held in Seattle Oct 31-Nov 3, 2005
- 47 "Cost Analysis of Abrasive Waterjet Cutting: Thin Sheet Materials" presented in SAMPE Fall Conference 2005 held in Seattle Oct 31-Nov 3, 2005
- 48 "Estimation Of Abrasive Mass Flow Rate By Measuring Feed Line Vacuum During Jet On-Off Cycling" presented at the 2005 WJTA American Waterjet Conference, August 21-25, 2005 Houston, Texas
- 49 "Analysis Of The Abrasive Waterjet Drilling Process" presented at the 2005 WJTA American Waterjet Conference, August 21-25, 2005 Houston, Texas
- 50 "Effect of Severe shot Peening on the Fatigue Crack Propagation in SENB 7075 Aluminum Alloy" International Conference on Experimental Mechanics, June 7-10, 2004, Coasta Mesa, CA
- 51 " Effect of Almen strip characteristics variations in shot Peening Process" International Conference on Experimental Mechanics, June 7-10, 2004, Coasta Mesa, CA
- 52 "Examination of Superplastic Forming Combined with Diffusion Bonding for Titanium" AeroMat 2004Conference, June 7-10, 2004 held in Seattle
- 53 "Differences in Alpha Case and Microhardness Profiles in TwoLots of Superplastic Formed Titanium 6Al-4V alloy" AeroMat 2004Conference, June 7-10, 2004 held in Seattle
- 54 "Effect of Superplastic Forming Exposure and Post Processing on Flextural Testing in Titanium Allos" AeroMat 2004Conference, June 7-10, 2004 held in Seattle
- 55 "A Study Of Abrasive Waterjet Machining Of Kevlar Composite Material" presented at the 2003 WJTA American Waterjet Conference, August 17-19, 2003 Houston, Texas
- 56 "Mathematical Modeling of Ultra High Pressure Waterjet Peening" presented at the 2003 WJTA American Waterjet Conference, August 17-19, 2003, Houston, Texas
- 57 "Abrasive Waterjet Machining Of Aerospace Structural Sheet And Thin Plate Materials" presented at the 2003 WJTA American Waterjet Conference, August 17-19, 2003 Houston, Texas
- 58 "Experimental Study of PCD Performance in Drilling (Al<sub>2</sub>O<sub>3</sub> p/6061) Metal Matrix composite" to be presented at 31st North American Manufacturing Research Conference, held at McMaster University, Hamilton, Ontario, Canada, May 20-23, 2003
- 59 "EDM Characteristics of 15 and 35 Vol% SiCp /Al Metal Matrix Composites" to be presented at 31st North American Manufacturing Research Conference, held at McMaster University, Hamilton, Ontario, Canada, May 20-23, 2003
- 60 "Turning Centrifugally Cast SiCp Aluminum Metal Matrix Composites with PCD and Thick Film Diamond Tools" to be presented at 31st North American Manufacturing Research Conference, held at McMaster University, Hamilton, Ontario, Canada, May 20-23, 2003
- 61 "Abrasive Waterjet Machining: A Cost Effective Process for Composites" presented at 7th Pacific Rim International Conference on Water Jetting Technology May 18 ~ 22, 2003, Jeju, Korea

- 62 "Abrasive Waterjet Machined Surface Characteristics of Titanium Alloy (Ti6Al4V)" presented at 7th Pacific Rim International Conference on Water Jetting Technology May 18 ~ 22, 2003, Jeju, Korea
- 63 "Damage Progression Analysis of Composite T-Joints with Transverse Reinforcement" presented at SEM 2002 Annual Conference held in June 10-12, 2002 at Milwaukee, Wisconsin USA
- 64 "Hole Quality in Drilling of Graphite/Bismaleimide-Titanium Stacks", 33rd Annual SAMPE Technical Conference held in Seattle , November 5-8 ,2001,
- 65 "Surface Texture Effects On Fatigue Performance Of Smc Composites Used In Heavy Truck Industry", 33rd Annual SAMPE Technical Conference held in Seattle , November 5-8 ,2001,
- 66 "Abrasive Waterjet Machining Of Aerospace Materials", 33rd Annual SAMPE Technical Conference held in Seattle , November 5-8 ,2001
- 67 "Abrasive Waterjet Piercing of Holes in Carbon Fiber Reinforced Plastic Laminate" 33rd Annual SAMPE Technical Conference held in Seattle , November 5-8 ,2001
- 68 "Investigation of T-300/PR520 Laminate Properties and Failure Analysis", 33rd Annual SAMPE Technical Conference held in Seattle , November 5-8 ,2001
- 69 "Ultra High Pressure Waterjet Peening: Part II: Fatigue Performance" in 11th American Waterjet Technology Conference held in Minniapolis, MN, August 18-21,2001
- 70 "Ultra High Pressure Waterjet Peening: Part I: Surface Characteristics" 11th American Waterjet Technology Conference held in Minniapolis, MN, August 18-21,2001
- 71 "Environmental And Health Effects In Machining Of Fiber Reinforced Composites" SEM 2001 Spring Conference in Portland, June 4-7,2001.
- 72 "Waterjet Machining and Peening of Advanced Materials" ASME Pressure Vessel Conference held in Boston, August 10-14, 1999
- 73 "Modeling and Simulation of Pressure Fluctuations in Waterjet Jets" 10th American Water Jet Conference 1999
- 74 "Modeling the Waterjet Contact/Impact on Target Material", 10th American Water Jet Conference 1999
- 75 "Simulation of Displacement Fields Associated with Abrasive Waterjet Drilled Hole" 10th American Water Jet Conference 1997
- 76 "Residual Stresses in Water Peening " 1999 SEM Spring Conference, Cincinnati, OH, June 7-10, 1999.
- 77 "Experimental and Numerical Analysis of Abrasive Waterjet Drilling Process" 1999 SEM Spring Conference, Cincinnati, OH, June 7-10, 1999.
- 78 "Elastic-Plastic Analysis of Mixed Mode Crack Propagation :Experiments and Numerical Models" 1999 SEM Spring Conference, Cincinnati, OH, June 7-10, 1999.
- 79 "Water Peening " presented in SAE Conference in June 1999, Seattle WA
- 80 "Component Fabrication Effects on the Surface Texture and Flexural Strength Distributions of a Structural Silicon Nitride" Proceedings of the 1998 SEM Spring Conference on Experimental and Applied Mechanics, Houston, TX, June 1 -4, 1998

- 81 "Effect of Temperature, Exposure Time and Material Removal Processes on the Mechanical Properties and Performance of Nicalon<sup>TM</sup> -and Nextel<sup>TM</sup> Reinforced Oxide-Matrix Ceramic Matrix Composites" 1998 SEM Spring Conference on Experimental and Applied Mechanics, Houston, TX, June 1 -4, 1998
- 82 "Wear Performance of Monolithic and Composite Mixing Tubes for Abrasive Waterjet Cutting of Advanced Ceramics" presented at the 22nd Annual Cocoa Beach Conference and Exposition, Jan 21-24, 1998.
- 83 "Abrasive Waterjet Process Dependent Performance of Polymer Composites under Static and Dynamic Loading,, " 9th American Water Jet Conference held in Detroit, MI, August 23 -26, 1997
- 84 "Abrasive waterjet Drilling and Cutting Mechanisms in Continuous-fiber Ceramic Composites, " 9th American Water Jet Conference held in Detroit, MI, August 23 -26, 1997.
- 85 "An Experimental and Numerical Study of Abrasive Waterjet Generated Stress Fields," 9th American Water Jet Conference held in Detroit, MI, August 23 -26, 1997
- 86 "Abrasive waterjet Machining Effects on the High Temperature Degradation and Mechanical Properties of a Ceramic Matrix Composite", 9th American Water Jet Conference held in Detroit, MI, August 23 -26, 1997
- 87 "Mixed-Mode (I/II) Fracture in Aluminum Sheet Alloys", IX International Congress on Experimental Mechanics, Seattle WA, June 9-11, 1997.
- 88 "Elastic-Plastic Mixed-Mode (I/II) Fracture in Aluminum Sheet Alloys", VIII International Congress on Experimental Mechanics, held in Nashville, TN, June 10-13, 1996
- 89 "Influence of Reinforcement Material on the Mechanics of machining", NAMRI Technical Conference, 1996 Society of Manufacturing Engineers
- 90 "Machining and Surface Integrity of Fiber Reinforced Plastic Composites", Proceedings of the International Conference on Advances in Mechanical Engineering, 1995
- 91 "Measurement of Strains Associated with Abrasive Waterjet Drilling of Ceramics," 8th American Waterjet Technology Conference, held in ---, August, 1995.
- 92 "Abrasive Waterjet Machining of Titanium Alloy," 8th American Waterjet Technology Conference, held in, August, ----1995,.
- 93 "Machining Stresses in Glass Fiber Reinforced Composites" 1995 SEM Spring Meeting, Grand Rapids, MI, June 6-13, 1995
- 94 "Prediction of Hydro-Abrasive Erosive Wear During Abrasive Waterjet Cutting-Part II: An Experimental Study and Model Verification," Symposium on Manufacturing Science and Engineering 1994, ASME Winter Annual Meeting, held in ----1994
- 95 "Prediction of Hydro-Abrasive Erosive Wear During Abrasive Waterjet Cutting-Part I: A Mechanistic Formulation 8 its Solution," Symposium on Manufacturing Science and Engineering 1994, ASME Winter Annual Meeting, held in ----1994
- 96 "Waterjet and Abrasive Waterjet Machining of Advanced Materials," Tribology in Manufacturing Processes, ASME Bound Volume, CRTD-Vol. 30, Trib-Vol. 5, PED-Vol. 69, ASME/STLE Proceedings (1994), pp. 195-207.

- 97 "Prediction of the Geometry of an Abrasive Waterjet Kerf using a Hybrid Eulerian-Lagrangian Approach", 12th US Congress of Applied Mechanics held at Seattle, WA June 27-July 1, 1994.
- 98 "Manufacturing Effects on the Mechanics of Fiber Reinforced Plastics under Static and Dynamic Loading," 12th US Congress of Applied Mechanics held at Seattle, WA June 27-July 1, 1994
- 99 "Preliminary Investigation of Stresses in the Orthogonal Cutting of Fiber Reinforced Plastics," 1994 SEM Spring Conference and Exhibits, 1994, pp. 184-192.
- 100 "Traditional and Non-traditional Machining of Fiber Reinforced Plastic Composites," Proceedings of the 39th SAMPE Symposium and Exhibition, held in Los Angeles, CA May ----
- 101 "Investigation of Edge Quality and Ply Delamination in Abrasive Waterjet Machining of Graphite/Epoxy," Symposium on Machining of Advanced Composite Materials, held at ASME Winter Annual Meeting, November 28-Dec 3, 1993.
- 102 "Mechanism of Material Removal in Abrasive Waterjet Machining in two Commonly used Aerospace Material," 7th American Water Jet Conference held in Seattle, WA, August 28 -31, 1993.
- 103 "An Optical Investigation on the Abrasive Waterjet Penetration Process," 7th American Water Jet Conference held in Seattle, WA, August 28 -31, 1993.
- 104 "A Transient Model for Material Removal in the Abrasive Waterjet Machining Process," 7th American Water Jet held in Seattle, WA, August 28 -31, 1993.
- 105 "An Experimental Investigation into Pitting of Hole Surfaces When Drilling Graphite/Epoxy," Processing Fabrication and Manufacturing of Composite Materials, ASME Bound Volume, MD-Vol. 35, 1992, pp. 11-25.
- 106 "Experimental Investigation of High Pressure Waterjet Piercing Process," Proceedings of the VII SEM International Congress on Experimental Mechanics, Las Vegas, June 8-11, 1992.
- 107 "EDM Surface Effects on the Fatigue Strength of a 15 Vol. % SiCp/Al Metal Matrix Composite Material," Proceedings of the VII SEM International Congress on Experimental Mechanics, Las Vegas, June 8-11, 1992
- 108 "Delamination in Surface Plies of Graphite/Epoxy caused by the Edge Trimming Process," Processing and Manufacturing of Composite Materials, ASME Bound Volume, PED-Vol. 49, 1991,
- 109 "Photoelastic Investigation of Jet Piercing Process," Proceedings of the 6th American Waterjet Conference, Houston, TX, August 24-27, 1991.
- 110 "Photoelastic Study of Abrasive Waterjet Drilling Process," 1991 SEM Spring Meeting, Wisconsin, June 6-13, 1991.
- 111 "J-R Curve Characterization of 2090 and 2091 Al-Li Alloy Sheet Materials," Proceedings of the 1991 SEM Spring Meeting, Wisconsin, June 6-13, 1991
- 112 "Application of Non-Linear Goal Programming Technique to Optimize the EDM Machining Process," 5th International conference on CAD/CAM, Robotics & Factories of the Future, '90, held in Norfolk, Virginia, Dec 2-5, 1990.
- 113 "Development of Time and Cost Estimation Algorithm for Part Design and Manufacturing Process," 5th International conference on CAD/CAM, Robotics & Factories of the Future, '90, held in Norfolk, Virginia, Dec 2-5, 1990.

- 114 "Photoelastic Investigation of Abrasive Waterjet Cutting," 1990 SEM Spring Conference on Experimental Mechanics, June 4-6, 1990, Albuquerque, New Mexico.
- 115 "EDM Machined Surface Characterization of a Ceramic Composite, TiB<sub>2</sub>/SiC," Machining of Advanced Engineering Materials, ASME Bound Volume, MD-Vol. 16, 1989, pp. 1-8.
- 116 "Machining of Graphite/Epoxy Composite Material with Polycrystalline Diamond (PCD) Tools," Symposium on "Machining Characteristics of Advanced Engineering Materials," ASME Winter Annual Meeting held in San Francisco, December 1989
- 117 "Machinability of High Temperature Composites by Abrasive Waterjet," Symposium on "Machinability of Composites," ASME Winter Annual Meeting held in Chicago, December 1988.
- 118 "Short and Long Fatigue Crack Propagation in Al-Li Alloys," Proceedings VI International Conference on Experimental Mechanics, June 5- 10, 1988, Portland, Oregon.
- 119 "Material Behavior Under Abrasive Waterjet Impact," Dynamic Failure, 1987 SEM Proceedings of Fall Meeting at Savana, Georgia, Oct. 25-28 1987.
- 120 "Characterization of Rivet Material Behavior under Fast Electromagnetic Riveting Process," Emerging Trends in Manufacturing, New Delhi, 1986, pp. 401-405.
- 121 "Numerical and Experimental Analysis of Electromagnetic Riveting Process," Conference on Emerging Trends in Manufacturing, held in IIT New Delhi, 1986,.
- 122 "Propagation of a Small Surface Crack in Aluminum and Steel Alloys," Optical Methods in Composites, SEM Fall Conference held in Keystone, Co , 1986
- 123 "Subcritical Growth of Small Fatigue Cracks," ASM International Conference on Fracture Fatigue and Corrosion Cracking, held at Salt Lake City, Utah, USA, December 2-6, 1985
- 124 "Dynamic Fracture Toughness of Photoelastic Polymers," ASM International Conference on Fracture Fatigue and Corrosion Cracking, held at Salt Lake City, Utah, USA, December 2-6, 1985
- 125 "Dynamic Crack Curving and Branching under Biaxial Loading," 1985 SEM Spring Conference on Experimental Mechanics, Las Vegas, NV, June 9-14, 1985.
- 126 "Influence of Higher Order Terms in the Dynamic Mixed Mode Crack Tip Stress Patterns," Fifth International Congress on Experimental Mechanics, SESA, held in -----1984,
- 127 "Further Studies on Dynamic Crack Branching," SESA Spring Meeting, Cleveland, Ohio, May 15-19, 1983.
- 128 "Dynamic Crack Curving and Branching in Line-Pipe," presented at ASME Winter Annual Meeting, Phoenix, AZ, Nov 14-19, 1982
- 129 "Dynamic Crack Curving - A Photoelastic Evaluation," SESA Spring Meeting, Oahu & Maui, HI, May 24-28, 1982
- 130 "Dynamic Stress Intensity Factors for Unsymmetric Dynamic Isochromatics," IV Interntl Congress on Experimental Mechanics, Boston, MA, May 25-29, 1980
- 131 "Identification and Optimization of Manufacturing Process," presented at Indo-British Conference on Engineering Production held in New Delhi, March 10-12, 1977

### **Professional society memberships.**

American Society for Engineering Education (ASEE 1985-1998, 2011-)  
American Society of Mechanical Engineers (ASME 1978 - )  
American Society for Metals (ASM 1983 - )  
Society of Automotive Engineers (SAE 1984-1998)  
Society for Experimental Mechanics (SEM 1978 - )  
Society for the Advancement of Material and Process Engineering (SAMPE 1992)  
Society of Manufacturing Engineers (CASA/SME 1984- )  
North American Manufacturing Research Institute(NAMRI/SME 1993- )  
The Minerals, Metals & Materials Society (TMS)  
International Waterjet Technology Association (IWJTA)  
US Water Jet Technology Association (WJTA 1989)  
Tau Beta Pi, Engineering Honors Society (1982 - )

### **Peer Review Activities**

Journals ( a total of 8-12 papers/year review)

Applied Surface Science  
Applied Mechanics Reviews  
Composites, Part A: Applied Science and Manufacturing  
Composites Science and Technology  
Experiments in Fluids  
Experimental Mechanics  
Experimental Techniques  
ASEE Journal of Engineering Education  
ASME Journal of Engineering Materials and Technology  
ASTM Symposiums and STP  
ASME Journal of Engineering for Industry  
ASME Journal of Manufacturing Science and Engineering  
ASME Journal of Heat Transfer  
ASME Journal of Pressure Vessel Technology  
ASME Journal of Tribology  
Journal of Composite Materials  
Journal of Material Science  
Journal of Materials Processing and Technology  
Journal of Matereials Engineering and Performance  
International Journal of Advanced Manufacturing Technology  
International Journal of Machining and Machinability of materials  
International Journal of Engineering Sciences  
International Journal of Fracture  
International Journal of Solids and Structures  
International Journal of Mechanical Sciences  
International Journal of Machine Tools and Manufacture  
International Journal of Waterjet Technology  
International Journal of Manufacturing Research

Manufacturing Review  
Microstructures and Materials Properties  
Modeling and Simulation  
Philosophical Magazine  
Science and Technology of Welding & Joining  
Tribology Transactions  
Wear  
ASME Symposium Papers & SEM Spring and Fall Meeting Papers  
NSF proposal reviews

Conferences

1987-Present ASME Symposium Papers & SEM Spring and Fall Meeting Papers  
three to four papers per year in each society  
2006-Present North American Manufacturing Conference (NAMRC) of SME.  
Two to four papers per year in each society  
1989 Reviewer of technical papers to the VII International Conference on  
Fracture held in Houston, March 1989  
1992 ASM, Reviewer of Conference papers on "Machining of Composite-I"  
1985 International Conference on Fracture Fatigue and Corrosion Cracking,  
organized by ASM at Salt Lake City, Utah, USA, December 2-6, 1985

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GRADUATE STUDENTS

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**Chaired Doctoral Degrees**

<b>Student Name</b>	<b>Dissertation Title</b>	<b>Current Employer</b>	<b>Completed (Year)</b>
Renuka Prabhakaran	<i>Modeling and analysis of Porous Building Material Created from Contaminated Waste Glass</i>	Current: TA	
Todd Morton	<i>Microstructural Aspects of Diffusion Bonding/Superplastic Forming, FSW/SPF of Titanium Joints</i>	Current: The Boeing Company, Seattle , MS&E	
Melissa Johnson	<i>Experimental and Numerical Study of Residual stress in Machining and Surface Integrity of Titanium based Alloys</i>	Current: The Boeing Company, Seattle	(On leave)
Neha Kulakarni	<i>Modeling and Simulation of Diffusion bonding and Superplastic Forming Process</i>	Current: RA	
Eshetu Eneyew	<i>On-line Inspection of Defects</i>	Current: RA	PhC,

	<i>During Machining and Drilling of CFRPs</i>		Summer 11
Alex O'Connor	<i>Machinability of Aerospace Tooling Materials For Composite Repair</i>	Current: RA	PhD Expected Summer 13
Harinder Obroei	<i>Machined Surface Integrity Effects on the Strength Properties, Damage Evolution and Fatigue Strength of Composite Laminates</i>	Current:The Boeing Company, Seattle	PhD, Expected, Fall 13
Jeff Miller	<i>Investigation of Machinability and Dust Emissions in Edge Trimming of Laminated Carbon Fiber Composites</i>	Current:The Boeing Company, Seattle	PhD, Expected Summer 13
Girum Gebremariam	<i>Numerical Modeling and Simulation of Delamination Free Hole Production in Composite Materials</i>	The Boeing Company, Seattle	Qualifying Exam Passed, Spring 08(on-leave)
Julio Davis	<i>Analytical Modeling of Residual Stresses Induced in Near Net Shape Manufacturing</i>	Current: The Boeing Company, Seattle	2012
Heechang Bae	<i>Experimental and Numerical Investigation of Shot Peening Effect on Fatigue Performance in Aerospace Materials</i>	Instructor, Shoreline Community College	2011
Alex Chillman	<i>Ultra High Pressure Waterjet Applications in Manufacturing</i>	Flow International, Kent WA	2010
Timothy M.Briggs	<i>Rate Dependent &amp; Low Velocity Impact of Composites</i>	Research Scientist (accepted-3/10) Sandia National Laboratories, CA	2010
Paul D. Edwards	<i>Friction Stir Welding of Titanium Alloy Ti-6Al-4V, Sheet and Plate for Aerospace Structures</i>	Manager, The Boeing Company, Seattle	2010
Daniel G. Sanders	<i>Development of Superplastic Forming Process to Friction Stir welded Titanium alloys</i>	Senior Technical Fellow, The Boeing Company, Seattle	2008
Suhasini Gururaja	<i>Analytical Studies Addressing the Issues in Machining of Fiber Reinforced Composites</i>	Assistant Professor, Department of Aerospace Engineering, Indian Institute of Science, Bangalore, India,	2008



Franna Pitt	<i>Effect of Simulated Superplastic Forming Processing on the Mechanical Properties of Three Titanium Alloys</i>	Associate Technical Fellow, The Boeing Company, Seattle	2005
William P. Pedersen	<i>Machinability of Functionally Gradient Al/SiC Metal Matrix Composite</i>	Associate Professor, University of Minnesota, Deluth	2003
Dave Wook Kim	<i>Machining And Drilling Of Hybrid Composites</i>	Associate Professor, Washington State University, Vancouver, WA	2002
Sawalee Kunaporn (late)	<i>An Experimental and Numerical Analysis of Waterjet Peening Of 7075-T6 Aluminum Alloy</i>	Associate Professor, Walailuk University, Thailand	2002
Patrick Stickler	<i>Experimental and Numerical Investigation of Transeversly Stitched T-joint</i>	Technical Fellow, The Boeing Company, Seattle	2001
Zihong Guo	<i>Experimental and Numerical Investigation of Machining Damage in Structural Ceramics</i>	Manager, Light Sciences Corporation, Issaquah, WA	1998
Farzad Zafari	<i>Experimental and Numerical Investigation of Elastic-Plastic Mixed Mode Fracture in High Strength Aluminum Alloys</i>	Senior Principal Engineer, Damage Tolerance of Composites, The Boeing Company, Seattle	1997
Dwayne D. Arola	<i>Abrasive Waterjet Manufacturing Effects on the Structural Integrity of Fiber-Reinforced Plastics</i>	Professor, University of Maryland, Baltimore County	1996
Chien W. Wern	<i>Fiber and Fiber-Matrix Interface Effects on the Orthogonal Cutting of Fiber Reinforced Plastics</i>	Associate Professor, Portland State University, OR	1995
Srinivasa P. Raju	<i>Theoretical and Experimental Investigations into the Material Removal Process During Abrasive Waterjet Cutting</i>	Projects Manager, Bash	1994
Hon Yeh,	<i>Dynamic Photoelastic Study of High Pressure Waterjet Penetration Process in Brittle Polymer(not submitted)</i>	Entrepreneur, Taiwan	1993

D.H. Wang	<i>Machining Characteristics of Graphite/Epoxy Composites</i>	Professor, Kyungnam University, Korea	1991

### **Chaired Masters Degrees**

#### **MS Thesis 2013**

Mark S. Van Sickle

Thesis Title: Assessment of Field Surface Treatments for Prolonging the Life of Steel Welded Joints Subjected to Fatigue Loading

Current: Manager, The Paccar, Mount Vernon, WA

#### **MS Thesis 2012**

Renuka Prabhakaran

Thesis Title: Compressive and Flexural Properties of Porous Building Material Created from Contaminated Waste Glass

Current: PhD Student

Arrian Forbush

Thesis Title: Fatigue Testing and Evaluation of Rapid Prototyped Aerospace Titanium Component by Selective laser Melting Process

Current: Arcca Inc, Philedelphia

Bryan Ross

Thesis Title: Experimental and Numerical Study of Fatigue Life in Aluminum 6061-T6 Under Stochastic Loading

Current: Paccar, WA

#### **MS Thesis 2011**

Amarjit Singh

Thesis Title: Numerical Evaluation of Non-Singular T-Stresses for Fracture Mechanics Test Specimen Geometries and their Influence on Plastic Zone Shape and Size

Current: Boeing Company

#### **MS Thesis 2010**

Eshetu Eneyew

Thesis Title: Effect of Loading Rate on Carbon Fiber Reinforced Plastic (CFRP) Properties

Brayan Mandou

Thesis Title: FEM Analysis of Effects of Manufacturing Defects in Composites

#### **MS Thesis 2009**

Alexander P. O'Connor

Graduate Student, UW

Thesis Title: Feasibility Study of Friction Stir Tooling for Joining a Polymer

Julio Davis

Thesis Title: Analytical Modeling of Shot Peening Coverage and Predictions of Manually Peened Surfaces

Vara Isvilanonda

Thesis Title: Comparative Study of Abrasive Waterjet Machining and Electrical Discharge Machining of Hybrid Titanium Composite Laminates.

Andrew Mark Cantrell

Thesis Title: Fracture Properties of Friction-Stir Welded Titanium Alloy, Ti-6Al-4V

Christopher Fay

The Boeing Company

Thesis Title: Systems Engineering Approach to Large-Scale Implementation of Laser Projection Technology-A Case Study

#### **MS Thesis 2008**

Inkwon Hwang

Dewook Corp., Korea

Thesis Title: A Study of Damage Characteristics in AWJ Cutting and Drilling of Composites

Matthew Beck

US Coast Guard, Washington DC

Thesis Title: Investigation of Wear behavior in Laser clad Low Carbon Steel Using Inconel 625 Nano Powder

Trent Greenwell

United States Air Force Academy, CO

Thesis Title: Full-Field Strain Behavior of Friction Stir-Welded Titanium Alloy

#### **MS Thesis 2007**

Jeremy M. Stewart

The Boeing Company, Seattle. Currently at MIT Leadership Program

Thesis Title: Study of the Causes of Interface Burr Height in Carbon Fiber Reinforced Plastic and Titanium Stacks.

Juan V. Esteve Balducci

Microsoft Corporation, Redmond WA, <http://www.microsoft.com>

Thesis Title: A proposal for a Search Approach to Optimizing Mechanical Assemblies

Nda-Agyima Addae-Mensah

Graduate Student, Purdue University

Thesis Title: Characterization of Surface Morphology and Roughness Generated by Friction Stir Welding (FSW) Process in Titanium Alloy.

### **MS Thesis 2006**

Temitope R. Adekola  
Schlumberger, <http://www.slb.com/>  
Thesis Title: Characterization of the Effects of different Peening Techniques on the Fatigue Crack Propagation in Aluminum Alloy 7075-T6.

Joel Hoksbergen  
Team Corporation, <http://www.teamcorporation.com>  
Thesis Title: A Comparison Study on the Vibration Characteristics of Magnesium Plate versus Carbon Fiber Reinforced Plastic Plate.

Timothy Briggs  
Graduate Student, University of Washington  
Thesis Title: Low Velocity Impact Response Characterization of Glass Fiber Reinforced Plastics (GFRP).

Alex Chillman  
Flow International Corporation, <http://www.flowcorp.com>  
Graduate Student, University of Washington  
Thesis Title: Surface Preparation and Textures by Ultra High Pressure Waterjet Cleaning Processes.

Paul Edwards  
The Boeing Company, [www.boeing.com](http://www.boeing.com)  
Graduate Student, University of Washington  
Thesis Title: Experimental and Numerical Characterization of Friction Stir Welded and Superplastically Formed Friction Stir Welded Titanium.

Eric Winter  
The Boeing Company, [www.boeing.com](http://www.boeing.com)  
Thesis Title: A New Approach to Focusing Virtual Manufacturing Efforts in a Product Development Environment.

### **MS Thesis 2005**

Edward J. Klock-McCook  
Westing House  
Thesis Title: Characterization of Friction Stir Welded and Superplastic Formed Titanium Joints.

Sandeep D Abhyankar  
Microsoft Corporation, <http://www.microsoft.com>  
Thesis Title: Modeling and Simulation of Tensile behavior of Titanium Alloy under Simulated SPF Conditions.

Curtis D. Doyle  
General Dynamics, Redmond WA

Thesis Title: Experimental studies on the Propellant Burn-Rate Testing Techniques.

Jennifer L. McCormick

General Dynamics, Redmond WA

Thesis Title: Product Development Methodology for Use During Development of Specialized Defense Products.

Brian Carver

Amazon.com, Seattle WA

Thesis Title: Operational Forecasting Models, Case Study: Amazon.Com.

Scott E. Bernhardt

Takata Corporation, Moses Lake WA

Thesis Title: Impact Response Characterization of a Hybrid Titanium Composite Laminate.

### **MS Thesis 2004**

Jacob P. Civitts

Paccar, Mount Vernon WA

Thesis Title: Lean Manufacturing Implementation: A Case Study of the Omax Corporation.

Christopher T. Hughes

Naval Ship Yard, Bremerton WA

Thesis title: Investigation of Surface modification and Laser Cladding of Low carbon Steel using Inconel 625 Nano-powder.

Ian M.Conner

The Boeing Company, Seattle WA

Thesis title: Development of a Windows-Based Program for Remote and Unattended Operation of an Abrasive Waterjet System.

M.Spaulding

Jet Propulsion Laboratory, Pasadena CA

Thesis title: - Electrical Discharge Machining of Hybrid Titanium Composite (HTCL) Material.

Edward .M. West

Western Washington University, Bellingham WA

Thesis title: Development of a Two-Speed Automated Manual Transaxle for a Parallel Hybrid Electric Vehicle.

Y.Seo

Korea

Thesis title: Fatigue Crack Growth Rate in Super Plastic Formed Titanium Alloys.

T. Munson

Aerospace Integrator, WA

Thesis title: The Effect of Shot Peening on Fatigue Crack Propagation in 7075-T7351 Aluminum Alloy, SENB Specimens.

### **MS Thesis 2003**

J. Bennett

The Boeing Company, Seattle WA

Thesis title: Test Analysis and Reduction of Brake System Air Leaks in Class 8 Trucks.

P. Posinasetti

Infosys, Hyderabad, India

Thesis title: Modeling and analysis of Abrasive Waterjet Drilling.

H. Wu

China

Thesis title: A Comprehensive Review of Application of Competitive Technical Intelligence in New Product Development Lifecycle.

J. Arnold

The Boeing Company, Seattle WA

Thesis title: Evaluation of Assembly Simulation as a Process Planning Development Aid.

### **MS Thesis 2002**

Samuel V. Alworth

Microvision, Seattle WA

Thesis title: Analysis of Market Segments, Customer Requirements and Technical Specification for a Processor Based, Home Ultrasound Medical Imaging Device.

Arlene R. Martin

Microsoft, Reno, NV

Thesis title: Microsoft Xbox Program Equipment Allocation: A Case Study in using Six Sigma Methodology.

### **MS Thesis 2001**

Scott Krajca

The Boeing Company, Seattle WA

Thesis title: Abrasive Waterjet Drilling of Composites.

X.T. Doan

Structural Integrity Technology, WA

Thesis title: Drilling Study of Thermoplastic Composite.

Adam Terry

Intel, Portland OR

Thesis title: A method for determining Tool Group flexibility with Uncertain Machine Variability: Application in a Semiconductor Manufacturing Process.

Bekki S. Leu

Senior Analyst, Solectron, CA

Thesis title: Finished goods distribution strategy : a case study of Solectron.

L.Kaegabien  
Amazon.com, Seattle WA  
Thesis title: Models for Optimization of the Integration of Parts: Application in the Aerospace Industry.

Larry Parafitt  
Paccar, WA  
Thesis title: Tension-Tension Fatigue Behavior of Heavy Truck Industry Utilized Composite Materials.

Matt Lau  
The Boeing Company, Seattle WA  
Thesis title: A Strategy on Bill of Material for High Volume High Variability Product Release.

### **MS Thesis 2000**

Craig Hall  
Manufacturing Engineer, The Boeing Company, <http://www.boeing.com>  
Thesis title: Six Sigma Application in 777 Assembly Process

Sean Weathers  
Manufacturing Engineer, Ford Motor Company, Detroit  
Thesis title: Surface Roughness Model to Predict the Flexural Strength of Ceramics and Composites.

Indresh P. Datar  
Design Engineer, The Boeing Company, <http://www.boeing.com>  
Thesis title: Influence of Manufacturing Processes on Mechanical Properties of Advanced Polymer Composites

Troy C. Harris  
Intel Corporation  
Thesis title: A Comparative Simulation of Advanced Re-entrant Scheduling Policies in a Semiconductor Application.

Long K. Nguyen  
Delloitte, CA  
Thesis title: A decision support model for quality implementation.

Touya A. Harris  
Leaders Program, Ford Motor Company  
Thesis title: Standard Interior Configuration: A Process for developing A standard Selection Interior and reducing Engineering design time.

Welly Sugiarto  
Microsoft, Redmond WA  
Thesis title: A framework for developing and managing network security system.

John R. Mason  
R&D, Microsoft Corporation  
Thesis title: Software Packaging Process Improvements: A Case Study in the Application of Modern Quality Concepts at Microsoft.

William E. Pederson  
Thesis title: Preliminary Study on the Oblique Facing of Magnesium Metal Matrix Composite.

Thomas D. Hall  
Manufacturing Engineer, The Boeing Company, <http://www.boeing.com>  
Thesis title: Optimization of the Manufacturing Engineer's Organization Role.

Franna Pitt  
Associate Technical Fellow, The Boeing Company, <http://www.boeing.com>  
Thesis title: Effect of Alloy Composition and Superplastic Forming Conditions on Oxygen Absorption in Titanium

### **MS Thesis 1999**

Adam Biggs  
Manufacturing Engineer, The Boeing Company, <http://www.boeing.com>  
Thesis title: Analysis of Factors Affecting Almen Strip Arc Height After Shot Peening.

Nicole McDevitte  
Process Engineer, The Boeing Company, <http://www.boeing.com>  
Thesis title: Effects of Processing Methods on the Flexural Properties of High Temperature Composites.

Christopher Dawson  
The Boeing Company, <http://www.boeing.com>  
Thesis title: Fatigue Crack Propagation in Bolt Materials.

Sharon M. Hayes  
Instructor, Highline Community College  
Thesis title: Machinability of Titanium Composite.

Terry H. Branson  
Thesis title: Drilling of Graphite/Bismaleimide and Titanium stacks.

Garry M. Hieke  
Senior Analyst, Price Waterhouse Cooper, Seattle, WA  
Thesis title: Modeling of Alternatives for Mixed Model Assembly in the Aerospace Industry.

Kirk R. Neumann  
Senior Manager, Greatergood.com  
Thesis title: Developing a Business Strategy and Cost Model for Evaluating a New Telecom Laser Design.

Elizabeth W. Kent



The Boeing Company, <http://www.boeing.com>  
Thesis title: Reducing Cycle Time in an Assembly and Test Area Using Simulation Modeling.

**MS Thesis 1998**

Martin Trimble  
IBM, San Jose, CA  
Thesis title: Modeling and Simulation of Waterjet Cutting Forces.

Kunaporn Sawalee  
Institute of Engineering and Resources Technology Walailuk, Thailand  
Expired in August 2005  
Thesis title: Waterjet Peening of 7075-T6 Aluminum Alloy.

Timothy E. Hansen  
Manager, Environmental Consultancy, Alaska  
Thesis title: Resource Allocation in the Communication Industry.

Christopher D. Hance  
Ernst & Young, Seattle, WA  
Thesis title: Production Policies for Multiple Products and Multiple Product Families.

Robert V. Dwyer  
Manager, Harris Group Industries, FL  
Thesis title: Process Optimization in Steel Platform Fabrication and Painting.

Geoffrey J. Bissell  
Manager, Paccar, TX  
Thesis title: Controlling Supplier Variability – An analysis of Frame Mismatches in the 41 Section of an Aerospace Aircraft.

John Campbell  
Manager, InfoSpace.com, Seattle, WA  
Thesis title: Process Defect Analysis and Re-work Reduction in Final Assembly of Aircraft Structures.

Christopher Brem  
Product Manager, Inter Corporation, OR  
Thesis title: Titanium Castings in Primary Aircraft Structures- Status Quo and Implementation Proposal.

**MS Thesis 1997**

S. Kao  
Manager, Manufacturing Company, Taiwan  
Thesis title: Drilling of Aluminum-Based Metal Matrix Composites.

W. McClenahan  
Manager, The Boeing Company, <http://www.boeing.com>

Thesis title: Application of Statistical Analysis & Parameter Design to Structural Assembly Process.

**MS Thesis 1995**

Peter Young  
Mantech, San Francisco, CA  
Thesis title: Experimental Investigation on Drilling of Graphite/Epoxy.

**MS Thesis 1994**

Michael Allen  
M+IND, Seattle, WA  
Thesis title: Fractographic Investigation of Fracture and Fatigue in Aluminum Alloys.

S. Miguel  
Kyosara Corporation, Vancouver, WA  
Thesis title: Ultrasonic Machining of Si<sub>3</sub>N<sub>4</sub>.

Ben Hu  
The Boeing Company, <http://www.boeing.com>  
Thesis title: Erosion of Silicon Nitride Material by Abrasive Air Jets.

Cathylyn Durand  
Data I/O, Redmond, WA  
Thesis title: Machining silicon nitride with a Nd:YAG laser.

**MS Thesis 1993**

Kevin Colligan  
Boeing Defense and Space, Seattle, WA  
Thesis title: Machined Edge Effects on The Compressive Strength of Graphite/Epoxy.

Frank W. Ng  
Indonesia  
Thesis title: Ultrasonic Drilling of Ceramics.

Lt. Chris Carlsson  
Wright Patterson Air Force Base, Dayton, OH  
Thesis title: Experimental and Numerical Investigation of Mixed-Mode Fatigue.

Shon Harker  
Research Engineer, GE, Schenectady, NY  
Thesis title: Experimental Modeling of Abrasive Jet Drilling and Cutting of Glass.

**MS Thesis 1992**

Greg C. Paul  
Veteran's Administration, Chicago, IL

Thesis title: Effect of Electrical Discharge Machining on Surface Integrity and Fatigue Properties of 15 Vol% SiCp/A356 Metal Matrix Composite.

### **MS Thesis 1991**

Karen L. Sakai

The Boeing Company, <http://www.boeing.com>

Thesis title: Ultrasonic Machining Effects on the Surface Integrity of Advanced Ceramics.

Dwayne Arola

Associate Professor, University of Maryland, Baltimore County

<http://www.umbc.edu/engineering/me/lamp/>

Thesis title: Surface and Subsurface Topography of an Abrasive Waterjet Machined Graphite/Epoxy

C.W. Wern

Associate Professor, Portland State University, OR <http://www.me.pdx.edu/~wernc/>

Thesis title: Machined Surface Characterization of Graphite/Epoxy.

Jamil Zarrah

Design Engineer, Royal Buildings, Morocco

Thesis title: Plane Stress Fracture Toughness Evaluation of Aluminum Alloys.

Jinse Park

Product Engineer, International Paper, Oregon

Thesis title: A Study on the Effect of PCD Tool Geometry on the Machining of Graphite/Epoxy Composite Material.

John Diagnault

Manufacturing Engineer, Immunex Corporation, Seattle, WA

Thesis title: EDM Process Effects on Surface Finish and Strength of TiB<sub>2</sub>/SiC.

Kwok-Pew Wong

Manufacturing Engineer, Hydrojet Company, Singapore

Thesis title: Photoelastic Investigation of Abrasive Waterjet Machining.

### **MS Thesis 1990**

Gene C. Anderson

Consultant, Advanced Technologies, Everett, WA

Thesis title: Fracture Toughness Testing of Aluminum-Lithium Alloys under Predominantly Plane Stress Conditions.

Eric Rogers

The Boeing Company, <http://www.boeing.com>

Thesis title: An Experimental Study on the Performance of PCD and Carbide Tooling in the Interrupted Cutting of Graphite-Epoxy.

Faridnia Mohammed-Reza

Design Engineer, Control Components Inc., CA  
Thesis title: Preliminary Study on the performance of Polycrystalline Diamond (PCD) Cutters in Machining of Graphite/Epoxy.

D. H. Wang (1993)  
Professor, Kyungnam University, Korea  
<http://mecha.kyungnam.ac.kr/prof/dhwang/>  
Thesis title: Simulation of Cutting Forces in End Milling.

### **MS Thesis 1988**

Gary Hamatani  
The Boeing Company, <http://www.boeing.com>  
Thesis title: Machinability of High Temperature Composites.

Allen Gilliams  
Industrial Products, San Francisco, CA  
Thesis title: Economics of Waterjet Cutting.  
(Withdrawn from Univ, Dec 1988)

Richard Jefferson  
Lecturer, Community College, Bellingham, WA  
Thesis title: Small Fatigue Crack Propagation Under Mixed-Mode Loading.  
(First Native American to get MS in the history of the Mechanical Engineering Department)

Mark C. Rubbert  
Sales Engineer, GE, San Francisco, CA  
Thesis title: Weldability of Aluminum-Lithium Alloys.

Jiou Zeng  
Research Engineer, Omax Corporation, Seattle, WA  
Thesis title: Erosion of Ductile Material Under Angular Impact of Waterjets.

Hung-Wah See  
Product Supervisor, HP, Singapore  
Thesis title: Electrical Discharge Machining of Ceramic Composites.

Farzad Zafari  
Principal Engineer, Damage Tolerance, The Boeing Company, <http://www.boeing.com>  
Thesis title: Long and Short Fatigue Crack Growth Behavior in Aluminum-Lithium Sheet Material.

Kenneth Wing-Ning Lu  
Software Engineer, Manufg Software, CA  
Thesis title: PC-Based CAD/CAM Integration for Computer Numerical Control Machine Tools.

John H. Koh  
Consulting Engineer, Rotodyne, Seattle, WA  
Thesis title: Investigation of Acoustic Emission During Oblique Metal Cutting.

### **MS Thesis 1987**

Ram Hatangadi  
Siemens, Seattle

Thesis title: Modeling of Material Removal Using Abrasive Waterjet Machining.

### **Other significant student supervision (Non Thesis/Project)**

#### **Current Students:**

##### **Thesis**

Mr. Mark Van Sickle, **Thesis**, Paccar, Mt Vernon, WA

Mr. Eric VanWerven, **Thesis**, Electroimpact, WA

Mr. Eric K. Mueller, Non-thesis/**project**, The Boeing Commercial Airplane Co., Seattle, WA

#### **MSME/MSE (non-thesis/project) Graduates, year and Employer:**

Mr. Brian Vo (2013 Sp)

Mr. Robert McCarville Robert McCarville (2013 W), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Marc J. Petersen (2012F), The Boeing Commercial Airplane Co., Seattle, WA

Mr. William N Scheurich (2012 S),

Ms. Nicole Vickers (2012 S), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Daniel Scott Davidson (2012 Sp), SonoSite, Bothel, WA

Mr. Eric L. Paul (2012 Sp), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Sean Dittrich (2012 Sp), The Boeing Commercial Airplane Co., Seattle, WA

Ms. Sarah E. Nichols (2012 W),

Mr. Timothy R. Johnson (2012 W), The Boeing Commercial Airplane Co., Seattle, WA

Ms. Lisa Rosenthal (2012 W), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Sukhwant S. Sohi (2012 W), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Jonathan Fender (2011 F), The Boeing Commercial Airplane Co., Seattle, WA

Ms. Nadia M. Gomez (2011Su), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Nathan Andrew Fabro (2011S), The Boeing Commercial Airplane Co., Seattle, WA

Mr. Brian R. Blakeman (2011S), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Nicholas J. Foti (2011S), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Tony T Vo (2010), The Boeing Commercial Airplane Co.,Seattle, WA  
Ms Danielle N Vardaro (2010), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Soi Lan Lu (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr.Chuck Chan (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Ms.Kelly I. O'Boyle (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Ms.Danielle Hood (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Ms. Nancy E. Adcock (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Tesfaye.T.Ejigu (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Douglas Backhus (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Josh Little (2009), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Sudhindra Singh (2008), GE, India  
Mr. Daniel Fowler(2008), Northwest Composites  
Mr. D. Alcazar(2008), The Boeing CommercialAirplaneCo.,Seattle, WA  
Ms. Maria G Berschauer(2008), Spokane, WA  
Mr. Bryson Sprangler(2008),US Coast Guard, Washington D.C  
Mr. Steve Schwark(2007),Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Stephen McLaughlin (2006), Adams Aircraft, Denver, Colorado  
Ms. Jessica A Quam (2005),The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Frank Ashert(2005), The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Terry Pitch (2005), National Instruments  
Mr. Alex Transwosk(2004),The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. Jay Patel(2004),The Boeing Commercial Airplane Co.,Seattle, WA  
Ms. Tammy Pessig(2004),The Boeing Commercial Airplane Co.,Seattle, WA  
Mr. C.L.Faar(2003) Wood Manufacturing

Mr. S.Y.Kuo (2003) Bearing Manufacturing, Taiwan

Mr. Y.M. Chen (2003) Taiwan

Mr. S. Ralhan (2001), The Boeing Commercial Airplane Co.,Seattle, WA

Ms. L. Ginter(2002), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. M. Foster(2000),The Boeing Commercial Airplane Co.,Seattle, WA

Mr. S.Chon (2000),The Boeing Commercial Airplane Co.,Seattle, WA

Mr. M.Graves (1999), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. J. Philips(1999),The Boeing Commercial Airplane Co.,Seattle, WA

Mr. G. Miller(1999), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. A. Patch (1998),The Boeing Commercial Airplane Co.,Seattle, WA

Mr. D. Anwar (1998), Boston Scientific , Seattle, WA

Mr. M. Graves (1998),The Boeing Commercial Airplane Co.,Seattle, WA

Mr. P. Stickler (1998), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. M. Danish (1998), Started his own Software co., Kent, WA

Mr. T. Reed (1997), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. J. Kim (1996), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. H. Sharma (1995), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. F. Farahnakain (1995), Air Canada

Mr. J. Hennings (1995), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. C. Randall(1995), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. S. Michael, T(1995), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. D. Sandquist(1994), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. C. Klemechick(1993),The Boeing Commercial Airplane Co.,Seattle, WA

Mr. R. Marshall(1992), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. M. Yuen (1992), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. J. Shoji(1991), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. A. Fixman (1990), The Boeing Commercial Airplane Co.,Seattle, WA

Mr. Robert DeCarlo(1990), Not available

### **Other significant student supervision**

#### MS Thesis Committee

- 1 Hans Boysen (Professor P.G. Reinhall, ME), Dec 1986
- 2 William E. Cox (Professor A.F. Emery, ME), June 1987
- 3 Doung C. Tran (Professor A.S. Kobayashi, ME), Dec 1986
- 4 Kirk Girds (Professor M. Tuttle, ME), June 1988
- 5 Laura Lonn Tuss (Professor Ganter, ME), June 1989
- 6 Richard Saunders (Professor Garbini, ME), Aug 1988
- 7 Richard Gaevart (Professor D. Calkins, ME), Dec 1988
- 8 Marty Dunn (Professor M. Taya, ME), Aug. 1989
- 9 Robin Wong (Professor M. Tuttle, ME), March 1990
- 10 Robert H. Brinnon, Jr. (Professor A.S. Kobayashi, ME), March 1990
- 11 Scott Tomchick (Professor Garbini, ME), June 1990
- 12 David A. Brock (Professor Reinhall, ME), July 1991
- 13 Karl Y. Park (Professor Tuttle, ME), July 1991
- 14 M. Kenji (Professor Kauffman, MSE), July 1989
- 15 M.A. Semeliss, March 1990
- 16 Darrin. Hatcher (Professor Tuttle, ME) June 1991
- 17 Jan Kordel (Professor Tuttle, ME) 1992
- 18 Mike Vanderwel (Professor Kumar, ME) March 1991
- 19 Edward Akucewich (Professor Emery, ME)
- 20 John Weller (Professor Kumar, ME) March 1992
- 21 John Barry (Professor Tuttle, ME) June 1992
- 22 Zhiguang Li (Professor Taya, ME) Dec 1992
- 23 Peter Rupp (Professor Tuttle, ME)
- 24 S. Walker (Professor Kobayashi, ME)
- 25 Richard Koehler (Professor Tuttle, ME)
- 26 Woojin Kim (Professor Taya, ME) June 1993
- 27 Rajeev Sareen (Professor Storch, IE) June 1993
- 28 L.P. Santana (Prof. Kobayashi, ME) 1996
- 29 T.L. Stevens (Prof. Jenkins, ME), 1996
- 30 J.Wood (Prof. Jenkins, ME), June 1998
- 31 Ms.B.Woldmichael (Prof. Kobayashi) June 1998
- 32 M. Sole (Prof. Jenkins, ME), March 1998
- 33 J.H. Jackson (Prof. Kobayashi, ME) March 1998
- 34 M. L. Halverson (Prof. Tuttle, ME), June 1998
- 35 C.Connors (Prof. Malte,ME), June 2000
- 36 Amy Avitabile (Prof. Fabien, ME), Dec 2000
- 37 Long Ngquen, (Professor, R.Starch, IE), August 2000
- 38 Shawn Williams (Professor A. Mescher, ME) August 2000
- 39 Brice Johnson ( Prof. Tuttle, ME), August 2001
- 40 Kristen Rounds (Prof. Joyce, ME) December 2001



- 41 Lafond (Prof Ganter, ME) June 2002
- 42 P.Stegawski (Prof. Kobayashi, ME) August 2004
- 43 T.Khosla (Prof. W. Li), June 2005
- 44 V. Chapman, (Prof Fabien), 2007
- 45 Amy van Velthuyzen (Prof Fabien), 2010
- 46 Tory Shifman (Prof Tuttle,ME), 2011
- 47 Brian Head (Prof Tuttle,ME), 2013

PhD Students Advising Committee:

- 1 K. Govindavaju (*Professor M. Ramulu, ME*), June 1987
- 2 Shyh-Pin Kow (Professor B. Adee, ME), March 1987
- 3 James Forte (Professor J. Riley, ME), April 1988
- 4 Kenneth E. Lulay (Professor M. Tuttle, ME) July 1988
- 5 G. Mason (Professor, M. Berg, ME), June 1989
- 6 F. Zafari (*Professor M. Ramulu, ME*) Feb 1989
- 7 M. Dunn (*Professor M. Ramulu, ME*) Dec 1989
- 8 L. Barber (Professor J. Jorgensen, ME) Feb 1989
- 9 A. Pasricha (Professor J. Garbini, ME) June 1990
- 10 D.H. Wang (*Professor M. Ramulu, ME*) June 1990
- 11 M. Dunn (*Professor M. Ramulu, ME*) Feb 1990
- 12 R. DeCarlo (*Professor M. Ramulu, ME*) Withdrawn 1991
- 13 S.P. Raju (*Professor M. Ramulu, ME*) Nov 1991
- 14 H. Yeh (*Professor M. Ramulu, ME*) June 1991
- 15 C.W. Wern (*Professor M. Ramulu, ME*) March 1992
- 16 D. Arola (*Professor M. Ramulu, ME*) June 1992
- 17 X. Zhang ( Professor M. Tuttle, ME)
- 18 J. Allen ( Professor N. McCormick)
- 19 Z. Guo (*Professor M. Ramulu, ME* ) June 1993
- 20 Mathieu Fregeau (Prof J. Hermanson, AA), May 2005

Doctor of Philosophy Student Supervisory Committees:

- 1 Yousry S. Aboelnaga (Professor D. Storti, ME), Aug 1988
- 2 Yu Hsing Chao (Professor A. Emery, ME), Dec 1987
- 3 Richard Allen Downs (Professor J. Garbini, ME)
- 4 Shyh Pin Kow (Professor J. Garbini, ME) Dec 1989
- 5 David Jiro Mukai (Professor G.R. Miller, CE) **Graduate Faculty Representative**
- 6 Kenneth E. Lulay (Professor M. Taya, ME) Aug 1990
- 7 William Armstrong (Professor M. Taya, ME) Jan 1991
- 8 John Robert Rogacki (Professor M. Tuttle, ME)
- 9 Ding Fwu Lii ( Professor W. Scott, MSE ) **Graduate Faculty Representative**
- 10 Lyle Ray Deobald (Professor Kobayashi, ME) June 1991
- 11 Chang-Te Yu (Professor A. Kobayashi, ME) Dec 1992
- 12 B.K. Jones (Professor A. Emery) June 1992
- 13 E.W. Hare (Professor R. Stang, MSE) **Graduate Faculty Representative**
- 14 Zhi Kai Guo (Professor A. Kobayashi, ME)
- 15 Makoto Kosai ( Professor A. Kobayashi, ME)
- 16 R.M. Tanaka (Professor J. Garbini, ME)

- 17 D. Haskel (Professor E.A. Stern, PHysics), **Graduate Faculty Representative**
- 18 C.A. Barwell (Professor Fyfe, A&A)
- 19 R. Li (Professor K.Y. Lin, A&A) **Graduate Faculty Representative**
- 20 S.M. Chern (Professor M. Tuttle, ME)
- 21 J.A. Salem (Professor M.G. Jenkins, ME)
- 22 L. Ma (Professor Kobayashi, ME)
- 23 P.W. Lam (Professor Kobayashi, ME)
- 24 D.K. Tran (Professor Kobayashi, ME)
- 25 D.Haskel (Professor E.Stern, Physics)March 1998, **Grad.Faculty Representative**
- 26 L T Ng Boyle (Professor F.Mannering, CE) Aug 1998, **Grad.Faculty Representative**
- 27 O.E. Zamir (Professor O.Etzioni, CSE) Dec 1999, **Grad.Faculty Representative**
- 28 Salvador R. Correa (Professor Shapiro, EE) June 2004, **Grad.Faculty Representative**
- 29 R.J.Dunn (Professor Steven Gribble, CSE), Nov 2006, **Grad.Faculty Representative**
- 30 Eric Hofbeck
- 31 Liangjun Li (Prof. J.Y. Li, ME)
- 32 Jie Lian (Junlang Wang, ME)
- 33 Nikolas W. Hrabe ( Prof. R. Bordia, MSE) **2011,Grad.Faculty Representative**
- 34 Cheng-Ling Chang (Prof W.Wang, ME)
- 35 Juan Carlos Gonzalez-Pons (Prof James C. Hermanson,AA)
- 36 Feng-Ju Hsieh (Prof W.Wang, ME)
- 37 David Webster ( Prof Berman, CEE), **2012,Grad.Faculty Representative**
- 38 Yang Yang (Prof. J.Y. Li, ME)
- 39 Bonnie Wade (Prof Feraboli, AA), **2012,Grad.Faculty Representative**
- 40 Phillip Miller (prof Junlan Wong, ME)

#### **Doctor of Philosophy Student's Dissertation Reading Committee**

- Yu Hsing Chao (Professor A. Emery, ME) Dec 1987  
S.P. Kow (Professor J. Garbini, ME) Dec 1989  
William Armstrong (Professor M. Taya, ME) Jan 1991  
J.R. Rogaki (Professor M. Tuttle, ME)  
D. J. Mukai (Professor G. Miller, CE ) Dec 1991  
D-F. Lii (Professor W. Scott, MSE ) Dec 1992  
M.L. Dunn (Professor M. Taya, ME) June 1992  
B.K. Jones (Professor A. Emery)June 1992  
R.A. Downs (Professor J. Garbini, ME) March 1993  
M. Kosai (Professor Kobayashi, ME) June 1995  
R. Tanaka (Professor Garbini, ME) August 1995  
J. Lee (Professor Kobayashi, ME) June 1996  
J.K. Lee (Professor M. Taya, ME) June 1996  
B. Russell ( Professor Kapur, IE ) March 1998  
S.M. Chern (Professor M. Tuttle, ME) Dec 1998  
L. Ma (Professor Kobayashi, ME) June1998  
D.K. Tran (Professor Kobayashi, ME), March 1999  
P.W. Lam (Professor Kobayashi, ME), Dec 2000  
P. Singhatanadgid (Prof Tuttle, ME), Dec 2000

Peder Fitch (J.Cooper, ME), June 2004  
E.Daniels (Prof Berg, ChE), June 2006  
Liangjun Li (Prof. Li, ME), June 2010

---

## RESEARCH ACTIVITIES

---

### **Visiting Professors, Scholars, and Scientists**

Professor Hiroshi Morikawa, Visiting Scholar  
Associate Professor, Department of Mechanical Engineering, Sasebo National College of  
Technology, Japan  
2010 April – 2011 March

Ms. Neha Kulakarni, Visiting Scientist  
Lousian University, USA  
2010 April- 2010 September

Professor P. Lakshminarayana, Visiting Scholar,  
Professor, University College of Technology, Osmania University, India.  
March 2009

Professor D. H. Bae  
School of mechanical engineering, Sungkyunkwan University, Seoul, Korea.  
2007-2008

Professor M.K. Han  
Visiting Scholar, Koje College, Korea.  
2003-2006

Mr. Takashi Honda  
Visiting Scientist, Government Industrial Laboratory, Japan.  
2003-2004

Professor Yong.Wie. Seo  
Visiting scholar, Mechanical and Automotive Engineering, Inje University, Korea.  
2002-2003

Mr.S. Takemura  
Visiting Scientist, Japan  
1999-2001

Professor Choi  
Visiting Associate Professor, Hansung University, Seoul, Korea  
1999 Summer

Professor Alfenso F. Cantelli  
Visiting Scientist, University of Oviedo, Spain  
1998-1999

Mr. T. Nissau  
Visiting Scholar, Universitat-Gh-Duisburg, Germany  
1996-1997

Professor T. Yamaboliev  
Associate Dean, Technical University, Bulgaria.  
1992-1993

Professor T. Sakai  
Faculty of Science and Engineering, Ritsumeikan University, Japan.  
1989-1990

Professor H. Inoue  
University of Osaka Prefecture, Sakai, Osaka Japan.  
1987-1988

**Current Funded Research**

<b>Funding Agency</b>	<b>Title</b>	<b>Total Amount (Subcontracts)</b>	<b>Your Amount</b>	<b>Your role, Other Pi's co-Pi's</b>	<b>Dates (start, finish)</b>
Joint Center for Aerospace Technology Innovation <b>JCATI</b>	Real time Inspection While Drilling Composites	<b>\$67,929</b>	<b>\$67,929</b>	<b>PI</b>	<b>1/1/13-6/30/13</b>
The Boeing Company/ AFOSR	Material Affordability TIMETAL-FSW	<b>\$175,000</b>	<b>\$175,000</b>	<b>PI</b>	<b>3/11-7/13</b>
The Boeing Company	In-Process Detection of Drilling Damage	<b>\$380,000</b>	<b>\$255, 000</b>	<b>Co-PI (L. Atlas)</b>	<b>04/10-12/12</b>
The Boeing Company	Rapid Prototyped Titanium Component By Selective Laser Melting Process: Testing & Evaluation	<b>\$80, 000</b>	<b>\$80, 000</b>	<b>PI</b>	<b>1/12-9/12</b>
The Boeing Company	Machinability of Aerospace Tooling Materials	\$150,000	\$150,000	PI,	11/09-11/10
The Boeing Company	Microstructural Characterization of Titanium Friction Stir Welds	\$78, 500	\$78, 500	PI	10/09-9/10

**Pending Proposals**

<b>Funding Agency</b>	<b>Title</b>	<b>Total Amount(Subcontracts)</b>	<b>University Matching</b>	<b>Your Amount</b>	<b>Your role, Other Pi's co-Pi's</b>	<b>Dates (start, finish)</b>
<b>JCATI</b>	Titanium FSW of Aerospace Structures	<b>\$78'000</b>		<b>78,000</b>	<b>PI</b>	<b>7/13</b>

**Unfunded Proposals (Optional)**

<b>Funding Agency</b>	<b>Title</b>	<b>Amount (Subcontracts)</b>	<b>Involvement, Pi's co-Pi's</b>	<b>Date Submitted</b>
JCATI	Establishing a Composite Nondestructive Inspection Laboratory at the University of Washington	\$315,000	Co-PI	1/14/13
Boeing Company	Rate Dependent & Low Velocity Impact Damage of Composites	\$120,00	PI	12/12

**Un-sponsored research.**

Surface Integrity of Aerospace Metallic Materials  
Development of Innovative Surface Treatment by using High Pressure Waterjets  
Machining Composite Dust : Measurement, analysis and modeling to address Health Hazards Issues

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**TEACHING ACTIVITIES**

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**Supervision of independent study (design projects and research).**

*More than 100 undergraduate (ME498, ME499) and 36 Graduate students (ME599, ME600) did independent research/projects in the past 28years.*

**List of other teaching contributions**

TEACHING- Subjects Taught (1982-Present):

**Undergraduate Courses:**

ENGR 210	Engineering Statics
ENGR 220	Introduction to Mechanics of Materials
ENGR 498	Special Topics in Engineering
MEIE 315	Statistical Analysis of Engineering Measurements
ME 304/355	Manufacturing Processes
ME 352	Mechanics of Solids
ME343	Mechanical Behavior of Materials
ME 353	Machine Design
ME 403	Material Removal Processes
ME 409	Introduction to Numerical Control and Computer-aided Manufacturing
ME 434	Advanced Mechanical Engineering Laboratory
ME440	Advanced Strength of Materials
ME 445/459	Fracture of Engineering Materials
ME450	Introduction to Composites and Design
ME 469	Applications of Dynamics in Engineering
ME 499	Senior Research Projects

**Graduate Courses:**

ME 501	Modern Manufacturing Processes
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ME 502	Plastic Metal Forming
ME 518	Advances in Manufacturing and Management Seminars
ME 541	Advanced Engineering Materials
ME 542	Topics in Engineering Materials (New Title: Durability/Damage Tolerant Design)
ME 551	Applied Elasticity
ME 559	Applied Fracture Mechanics
ME 560	Advanced Theory of Fracture
ME599D	Nontraditional Machining Processes
ME 599	Special Projects
ME 599MR	Machining Science and Surface Integrity of Advanced Composites
ME 599P/518	Seminars in manufacturing and Management

**Modernized and Updated Mechanics, Materials & Manufacturing Courses:**

ME 304	Manufacturing Processes
ME 355	Introduction to Manufacturing Processes
ME 343	Mechanical Behavior of Materials
ME 403	Material Removal Processes
ME 459	Introduction to Fracture Mechanics
ME 502	Plasticity and Metal Forming
ME 541	Fatigue of Materials

**New Courses Originated and Taught**

ME 409	Introduction to Numerical Control and Computer-aided Manufacturing
ME 501	Modern Manufacturing Processes
ME 518	Advances in Manufacturing and Management Seminars
ME 599E	Nontraditional Machining Processes
ME 599MR	Machining Science and Surface Integrity of Advanced Composites
ME 599	Tooling for Composite Manufacturing

**Laboratory Development**

ME 304	Manufacturing processes
ME 343	Mechanical Behavior of Materials
ME 409	Numerical Control machining and CAM

**Televised / ( Web Streaming Videos ) Graduate Courses( Since 1983):**

ME403	Material Removal Processes (Also broadcasted on the Web)
ME 445/459	Introduction to Fracture Mechanics
ME450	Introduction to Composites and Design
ME 501	Modern Manufacturing Processes
ME 502	Plasticity and Metal Forming
ME 518	Advances in Manufacturing and Management Seminars(Broadcasted on the Web)
ME 541	Advanced Engineering Materials
ME 559	Fracture Mechanics-I
ME 560	Advanced Theory of Fracture-II
ME 599MR	Machining Science and Surface Integrity of Advanced Composites

**Continuing Education Courses:**

## EIT Refresher Course on Engineering Dynamics (Winter 1983)

### Short Courses

- 1 *Introduction to Finite Element Methods* a course was given to Fatigue and Fracture Mechanics Group at Defence Metallurgical Research Laboratory (DMRL), India, Nov-December 1995  
(Host: Dr. Malakondaiah, DMRL; Dr. P. Rama Rao, DRDO)
- 2 *Advanced Composites- Challenge in Machining:* a course was given at, Defence Research and Development Laboratory (DRDL), Hyderabad, India, February 1996.  
(Host: Rohini Devi, DRDL: Dr. Abdul Kalam DRDO)
- 3 *Fracture Mechanics : Basics and Applications in Process Industries* a Course was given at Indian Institute of Chemical Technology (IICT), India, March 5, 1996  
(Host: Deputy Director, IICT)
- 4 *Physics of Abrasive Waterjets* a Course lecture was given in the High Pressure Waterjets Short course held in Hilton Hotel, Minneapolis, MN August 19, 2001  
(Host: Dr. M. Hashish , American Waterjet Technology Association)
- 5 *Fracture and Failure Analysis* a Course lecture was given to ASM International Puget Sound Chapter Short course held in Fatigue Technology, Inc, 401 Andover Park East, Tukwila, WA , March 16, 2002  
(Host: Dr J. Cotton, ASM Int, Puget Sound)

### Pedagogical Meetings& Activities Related With Education:

- *Manufacturing Technology Seminars*, organized by Washington Technology Center, Seattle, November 1985
- *Modern Manufacturing Processes Seminars*, organized by Bellevue Community College, Bellevue, Winter 1986.
- *Numerical Control Machining*, Shoreline Community College Spring and Summer 1986
- *Workshop on Artificial Intelligence in Manufacturing, and Computer Applications in Jig and Fixture Design*, WESTECH '86, Machine Tool Conference, Organized by the Society of Manufacturing Engineering and American Society for Metals, Los Angeles, March 1986.
- National Science Foundation *Workshop on Material Processing and Modern Manufacturing Processes*, Minneapolis, Minnesota, May 1986.
- 81st National Congress of Tau Beta Pi, Engineering Honors Society, Iowa State University, Ames, Iowa, October 13-17, 1988
- *Emerging Trends in NDE*, WESTECH '90, Los Angeles, March 22-26, 1990.
- *Smart Structures* a Tutorial class at 1992 International Congress on Experimental Mechanics, held in Las Vegas, NV, June 3-8, 1992
- *A Workshop on Faculty Mentoring*, Organized by Women in Engineering (WIE), University of Washington, Seattle, April 16, 1997
- *Annual Conference of Women in Engineering*, Organized by Women in Engineering (WIE), University of Washington, Seattle, January, 24 1998

### Education Related Workshops:

- 1998 Invited participant 4th Boeing/University Workshop, Seattle WA, Feb. 15-16, 1998. All the participants were Deans/Associate Deans from 83 Key Universities.
- 1996 Chief Guest and Keynoter, " Workshop on Need Analysis in Mechanical Engineering" Organized by the All India Council for Technical Education, held in Osmania University, February 10, 1996.



- 1995 "Undergraduate Education National Action Convocation" Organized by National Research Council and NSF, held in Washington DC, April 9 - 11, 1995
- 1993 Invited panelist, PYI's Workshop on " Future Research Directions in Mechanics of Materials" hosted by NSF, IMM and IBM at IBM Research Center, San Jose, CA, July 6 - 9
- 1992 Invited panel member, NSF Workshop, "Minority Engineering Education", Rosemead, Los Angeles, CA. April 21-24, 1992
- 1990 Invited panel member, NSF Workshop, "Higher Education in US in Year 2010 and Beyond" Washington D.C, Nov. 4-6, 1990

### Teaching Awards, Nominations for Teaching Awards

#### Teaching Awards

- 2006 *Faculty of the Year Award*, Department of Mechanical Engineering, UW
- 2004 *R1edu Award*, which recognizes excellence in online teaching and innovation. R1edu is a consortium of 34 of the leading American universities coordinated by the University of Washington
- 1985-1986 First recipient of "*Outstanding Teacher Award*," College of Engineering, UW
- 1986 *Ranked in the Top Ten Professors at UW* by Graduating Students in all campus yearbook, *TYEE* , for influencing their academic life.

#### Nominee

- 2009 Nominee for Community of Innovators Award for Research and Teaching, COE, University of Washington
- 2008 Nominee, Faculty of the Year Award, Department of Mechanical Engineering, UW
- 2006 Nominee UW Distinguished Graduate Mentor Award
- 2005 Nominee for the University Brotman Award for Instructional Excellence
- 2006 Nominee for the University Distinguished Teacher award (1986, 1990 , 2000, 2001, 2003, 2005)
- 2001 Ranked in the top Ten Nominees over 100 nominations for UW Distinguished Graduate Mentor Award in 2000 and also nominee in 2001

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## SERVICE

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### Departmental service

- 2004-2007 MMM Group Co-ordinator
- 2005-2007 Faculty Affairs Committee
- 2006-2007 Sub Committee (FAC)-Faculty Awards
- 2000-2005 Graduate Education Committee
- 1998-1999 Faculty Search Committee
- 1998-2003 Departmental Promotion Advisory Committee
- 1998-2007 Co-administer of Fellowships from the A.S.K. Endowed Fund
- 1996-2003 Collegial Evaluation of Teaching Effectiveness Committee
- 1996-1998 **Group leader**, Mechanics, Materials & Manufacturing
- 1997-2000 **Chairman**, Committee on Albert S. Kobayashi Endowed Scholarship
- 1997-1998 Graduate Students Admission Committee
- 1997-1999 **ME Advisor**, Boeing MS program in Manufacturing
- 1996-2001 **Chairman**, Collegial Evaluation of Teaching Effectiveness Committee

1996-1997 Search Committee, Instructional Technician  
1993 -1995 Undergraduate Education Committee  
1991-1994 Collegial Evaluation of Teaching Effectiveness Committee  
1989-1993 Faculty Affairs Committee (**Chairman**)  
1991-1992 Subcommittee on Merit Review of Full Professors  
1990-1991 Faculty Search Committee (Energy and Fluids)  
1988-1990 Undergraduate Student Admissions Committee  
1987-1988 Secretary to Mechanics and Materials Group  
1987-1988 Secretary to Research & Resource Committee  
1986-1989 Research and Resource Space Distribution Subcommittee  
1985-1989 Research and Resource Committee  
1986-1989 Faculty Search Committees (Manufacturing Processes and Design)  
1985-1987 MS/MSE, Manufacturing Systems Engineering Degree Program Committee

### College service

2012-present Industrial Engineering Faculty Search Committee  
2011-2012 **Chairman**, College Promotion and Tenure Committee  
2010-2011 **Vice Chairman**, College Promotion and Tenure Committee  
2003-2012 College Promotion and Tenure Committee  
2000-2002 BS/MBA Program Committee  
2000-2007 **EDGE (Distance Education) Advisory Board**  
2000-2003 Electron Microscopy Center Committee  
1999-2000 John Fluke Manufacturing Chair, Review Committee  
1998-2002 **Faculty Advisory Board** on Women in Engineering  
1997-2005 College of Engineering Steering Committee on Boeing MS program in Manufacturing  
1988-2002 **Industrial Advisory Board** of the Minority Science and Engineering Program  
1997-1998 Search Committee, Industrial Engineering Student Advisor  
1987-1995 Minority Students Scholarship Committee, College of Engineering  
1987-1988 **Chairman**, College of Engineering Student and Faculty Achievement Awards Committee  
1986-1987 College of Engineering "Outstanding Teachers Awards" Committee

### University service

2007-Present College Marshal, UW Commencement  
1999-2006 Faculty participant, UW Commencement  
1998-2004 Senate Committee on Minority Faculty Affairs  
1996-1997 Senate Faculty Committee on Educational Outreach  
1990-1992 Faculty Senate  
1988-1989 College of Engineering UW Branch Campus Planning Committee  
1986-present Graduate Faculty  
1980-1981 Student Residences Advisory Committee  
1980-1981 Elected Senator to Graduate and Professional Student Senate (GPSS), University of Washington, Seattle, WA 98195, USA

## **Professional society and other service**

### ***Society Committees***

#### **ASEE Member**

#### **ASM**

- 2006-Symposium Organizing Committee on The International Symposium on Superplasticity and Superplastic Forming (SPF) Technology, 17<sup>th</sup> AeroMat 2006, May 15-18, 2006, Seattle, Washington
- 2005- Symposium Organizing Committee on The International Symposium on Superplasticity and Superplastic Forming (SPF) Technology, AeroMat 2005, June 6-9, 2005, Orlando, Florida
- 2004- Symposium Organizing Committee on The International Symposium on Superplasticity and Superplastic Forming (SPF) Technology, AeroMat 2004, June 7-10, 2004, Seattle
- 1999-present Fellows Council
- 1995 Review papers Committee on "Maching of Composites-II"
- 1984,2002 Puget Sound chapter's short course on fracture mechanics, one of the lecturer
- 1985 International Scientific Papers Review Committee, ASM Fracture Fatigue and Corrosion Cracking International conference

#### **ASME**

- 1993- 1996, *Executive Member*, Western Washington Section
- 1992-1995 *Chairman*, ASME Materials Processing Committee
- 1989-1991 *Vice Chairman*, ASME Materials Processing Committee, Materials Division.
- 1989-1992 ASME Materials Division *Liaison* to Production Engineering Division
- 1986-present *Member* Manufacturing Engineering & Materials Divisions

#### **ICCES: International Conference on Computational & Experimental Engineering and Sciences, ICCES 2013, Seattle USA, May 24-28, 2013**

- 2012-2013 Local Organizing Committee

#### **ISCSP :International Scientific Committee for Shot Peening**

- 2011 Present Member, International Scientific Committee on Shot Peening
- 2011- Elected to International Scientific Committee (ISCSP)
- 2010 – 2011 Local Organizing Committee on 11<sup>th</sup> International Conference on Shot Peening, September 12-15, 2011, in South Bend, Indiana, USA

#### **SAMPE**

- 2010- Organizer of Manufacturing Sessions, SAMPE 2010, May 17-20, Seattle WA
- 2008- Present, *Chairman*, Education Committee, Seattle SAMPE Chapter

#### **SEM**

- Life Member
- Fellows Committee 1998-2004
- Fracture and Fatigue Technical Division
  - 1995-1997 *Chairman*
  - 1993-1995 *Vice Chairman*
  - 1990-1995 *Chairman*, Fracture Technical Papers Review Committee

1986-present *Member*, Fracture Technical Activity Committee  
Research Committee  
1992-1994 *Chairman*  
1990-1992 *Vice Chairman*  
1986-Present Research Papers Review Committee  
1986-1994 *Chairman*, Research Papers Review Committee  
Technical Program Planning Committee  
1990- 1994 *Executive Member*  
1990- 1995, Technical Scope Council  
Fatigue Technical Division  
1988-1992 *Chairman*  
SEM Editorial Council  
1992-1994 *Committee member*

**SES (Society of Engineering Science)**

2000 International Scientific Committee member, 37<sup>th</sup> Annual Technical Meeting,  
University of South Carolina, October 23-25, 2000

**SME**

2012- SMEEF Scholarship committee  
2004-present, Manufacturing Technology Advisory Group (MTAG), Board of Directors  
2003-Present, AFFT/SME Cutting technologies for Forming and fabrication Technical  
Group committee  
1993-present, *Member*, North American Manufacturing Research Institute of SME  
1987-present CASA, Manufacturing Engineering Education Scholarship Committee  
1987-2002 Founding member, Faculty Advisor, SME Student Chapter #S175, University  
of Washington

**WJTA**

1991-1993, Co-Chairman, The 7th American Water Jet Conference, August 28-31, 1993,  
Seattle, WA

***Professional Meetings, Conferences Organization and Technical Sessions***

Organizer of Conferences or Symposiums

1. "Fracture and Hybrid Experimental and Numerical Methods," SEM 1987 Spring Conference held in Houston, June 14-20, 1987.
2. "Symposium on Short Cracks," VI International Congress on Experimental Mechanics held in Portland, June 5-10, 1988.
3. Symposium on "Machinability of Composites," ASME Winter Annual Meeting held in Chicago, December 1988.
4. Symposium on "Machining Characteristics of Advanced Engineering Materials," ASME Winter Annual Meeting held in San Francisco, December 1989.
5. "Fatigue of Non-Metallic Materials," 1992 International Congress on Experimental Mechanics, held in Las Vegas, NV, June 3-8, 1992.
6. "Federal Perspective on Experimental Mechanics Research, "1993 SEM Spring Conference held in Dearborn, MI, June 7-10, 1993.

7. The 7th American Water jet Conference held in Seattle, WA, August 28-31, 1993 (Co-Chairman).
8. "Future Research Needs in Jet Cutting Technology" The 7th American Water Jet Conference held in Seattle, WA, August 28-31, 1993.
9. Symposium on "Advances in Machining of Composite Materials," 1993 ASME Winter Annual Meeting held in New Orleans, Nov. 28 -Dec. 3.
10. Symposium on " Mechanics in Manufacturing", 12th US Congress on Applied Mechanics held in June 28-July 2, 1994.
11. Symposium on " Design, Processing and Manufacturing of Composite Materials", 1994 ASME International Mechanical Engineering Conference and Exposition (IMEC&E) held in Chicago, Nov. 6 - 11, 1994.
12. A Tributing "Symposium honoring Albert S. Kobayashi", 1997 SEM Spring Conference held in Bellevue, WA , June 2-4, 1997
13. "Modeling of Manufacturing Processes ", 1999 SEM Spring Conference held in Cincinnati, OH, June 7-10, 1999.
14. " Research in Progress" IX International Congress on Experimental Mechanics, June 5-8, 2000, Orlando, Florida.
15. "Composite Materials: Issues in Machining", 2000, Society of Engineering Science annual Conference, South Carolina
16. Organizing Committee Member, 2000, Society of Engineering Science annual Conference, South Carolina
17. Symposium Organizing Committee Member on "Recent Advancements in Superplastic Material Science and Related Technology Transfer to New Industrial Applications for SPF" Aero MaT 2004, June 7-10, Seattle
18. Symposium Organizing Committee Member on "Superplastic Forming Science and Technology SPF" Aero MaT 2006, June 7-10, Florida
19. Technical Planning Committee Member, 2007, 22nd Annual Technical Conference of the American Society for Composites, to be held in September 17-19, 2007 , at University of Washington Campus, Seattle, Washington
20. International Advisory Committee, 17<sup>th</sup> International Symposium on Processing and Fabrication of Advanced Materials, Dec. 15 - 17, 2008, India Habitat Centre, New Delhi, India
21. International Advisory Committee, International Conference on Computational Methods in Engineering and Sciences, during Jan.8-10,2009 India
22. Organizing Committee Member, 2009 International Conference on Superplasticity in Advanced Materials (ICSAM 2009) Bell Harbor International Conference Center Seattle, Washington June 29-July 2, 2009
23. Organizing Committee Member, SAMPE 2010, May 17-20, Washington Convention Center, Seattle, WA
24. Scientific Committee Member, 3<sup>rd</sup> International Conference on Manufacturing Technology and 23<sup>rd</sup> All India Machine Tool Design and Research Conference, Andhra University, Vishakapatnam, December 12-15, 2010, India

25. Organizing Committee Member, 11<sup>th</sup> International Conference on Shot Peening(ICSP-11), Sept 12-16, 2011, South Bend, Indiana, USA
26. Organizing Committee Member, NanoEngineering for Energy and Sustainability (NEES), sessions, ASME IMEC, 2011, Denver, Co, November 13-18, 2011
27. International Scientific Committee member, Fourth International Conference on Structural Stability and Dynamics (ICSSD-2012), 4-6<sup>th</sup> January 2012 Malaviya National Institute of Technology, J.L.N. Marg, Jaipur, Rajasthan, 302 017, India
28. International Scientific Committee member, Twenty-First International Symposium on Processing and Fabrication of Advanced Materials (PFAM XXI) to be held in Guwahati, India, Dec 10-13, 2012

Session Chairman of Professional Meetings:

"Fracture" and "Fatigue" Technical Sessions (2) at *International Conference on Fatigue, Fracture Mechanics, Corrosion Cracking, and Failure Analysis*, held in Salt Lake City, Utah, December 2-6, 1985.

"Fracture" and "Stress Analysis" Sessions (2) at *SEM 1987 Spring Conference* held in Houston, June 14-20, 1987.

"Short Crack Growth" Session (1) at *VI International Congress on Experimental Mechanics* held in Portland, June 5-10, 1988.

"Machining of Composites-I" session (1)," ASME Winter Annual Meeting held in Chicago, December 1988.

"Machining Characteristics" session (1) ASME Winter Annual Meeting held in San Francisco, December 1989.

"Fracture -II" session (1) at 1991 *SEM Spring Meeting*, Milwaukee, WI, June 6-13, 1991.

"Machining Processes" session VI (1) at *NAMRI/SME Conference* held at Washington State University, Pullman, WA, May 19-22, 1992.

"Fracture-III" session (1) at *1992 International Congress on Experimental Mechanics*, held in Las Vegas, NV, June 3-8, 1992

"Machining" session (1) at *Symposium on Processing and Manufacturing of Composite Materials*," held at ASME Winter Annual Meeting, November 8-13, 1992, Anaheim, CA.

"Research Needs" session (1), "Fatigue" (1) and "Research-in- Progress-I" (1) at *1993 SEM Spring Conference* held in Dearborn, MI, June 7-10, 1993.

"Manufacturing Applications" session (1) and " Future Research Needs in Jet Cutting Technology" (1) at *The 7th American Water jet Conference* held in Seattle, WA, August 28 -31, 1993.

"Machining of Advanced Composites- I" session (1) at *Symposium on Machining of Advanced Composite Materials*, held at ASME Winter Annual Meeting, November 28- Dec 3, 1993.

"Problems in Manufacturing with Experimental Mechanics Solutions and New Manufacturing Methods", "Fatigue" and "Research-in-Progress" technical sessions (3) at *1994 SEM Spring Conference* held in Baltimore, MD June 6-8, 1994.

"Manufacturing Processes", "Micromechanics V" and "Manufacturing Process Effects on Surface Integrity-I" technical sessions (3) at *The Twelfth U.S. National Congress of Applied Mechanics* held in Seattle, WA June 27- July 1, 1994.

"Nontraditional Machining Processes" technical session (1) at *1994 ASME International Mechanical Engineering Conference and Exposition (IMEC&E)* held in Chicago, Nov 6 - 11, 1994

"Fracture -I" session (1) and "Fatigue " session (1) at *1995 SEM Spring Meeting*, Grand Rapids, MI, June 6-13, 1995

"Fracture -I" session (1), "High Temperature Behavior of Ceramic Composites" Session (1), and "Fatigue " session (1) at *VIII International Congress on Experimental Mechanics*, held in Nashville, TN, June 10-13, 1996

" Fracture & Fatigue " session (1), "Fracture -Albert Symposium" session (1) *1997 SEM Spring Conference* held in Bellevue, WA , June 2-4, 1997

"Manufacturing Applications" session (1) at *The 9 th American Water jet Conference* held in Detroit, MI, August 23 -26, 1997.

"Applications of Photoelasticity and Photoplasticity" session, *1998 SEM Spring Conference on Experimental and Applied Mechanics* held in Houston, TX, June 1 -4, 1998.

"Modeling of Manufacturing Processes ", Session (2), "Fracture-II" Session (1), *1999 SEM Spring Conference* held in Cincinnati, OH, June 7-10, 1999.

"Fracture – II Technical Session, *2001 SEM Spring Conference* held in in Portland, June 4-7,2001

"Abrasive Waterjets : Manufacturing", Research Session, at *The 12th American Water jet Conference* held in Houston, TX, August 17-19, 2003.

"Albert Kobayashi Honoring Symposium, McMat 2007, Session (2), at ASME Applied Mechanics and Materials Conference, June 3-7, 2007 ~ University of Texas at Austin

"Abrasive Waterjets : Manufacturing", Research Session, at *The 13th American Water jet Conference* held in Houston, TX, August 17-19, 2007.

" Fracture of Composites", *17<sup>th</sup> International Symposium on Processing and Fabrication of Advanced Materials*, Dec. 15 - 17, 2008, India Habitat Centre, New Delhi, India

### Editorships

Editorial Board, *Journal ISRN Tribology*, 2012-present  
Editorial Board, *Journal of Advances in Automobile Engineering*, 2011-present  
Editorial Board, *Journal of Ocean University of China*, 2011-present  
Editorial Board Member, *International Journal of Mechanical Engineering and Materials Science*, 2008-present  
Editorial Board, *Mechanics of Advanced Materials and Structures*, 2007-Present  
Editorial Board Member, *International Journal of Machining and Machinability of Materials*, 2006-present  
International Editorial Advisory Board, *Machining Science and Technology Journal* 2005-present  
Founding Member and Associate Editor: *Machining Science and Technology Journal* 1996-2004  
Associate Editor: *ASME Journal of Engineering Materials and Technology*, 1992-1995  
Editor: *Machining Composites*, ASME Bound Volume 1988 (with M. Taya)  
Editor: *Machining Characteristics of Advanced Engineering Materials*, ASME Bound Volume, 1989 (with M. Hashish)  
Editor: *Machining of Advanced Composites*, ASME Bound Volume 1993 (with R. Komanduri)  
Editor: *Processing, Design and Fabrication of Composites*, ASME Bound Volume (in press) 1994 (with T.S. Srivatsan and K. Ramani)  
Editor: *Machining of Ceramics & Composites*, Mercer & Dekkar Publ, New York, 1999 (with J.S. Jahanmir, P.Koshy).  
Editor: *Superplasticity in Advanced Materials*, (ICSAM 2009), Trans Tech Publ. Switzerland, 2010 (with D. G. Sanders, L.D. Hefti, F. Abu-Farha, L. Hector,Jr)

### **Community service**

2006-Present Advisor, Osmania University Alumni Association of North America

#### Seattle/King County Coalition on Homelessness

Volunteer, 2012 One Night Count of people who are homeless and without shelter  
Volunteer, 2009 One Night Count of people who are homeless and without shelter  
Volunteer, 2010 One Night Count of people who are homeless and without shelter

#### Consulting

2004-2005	Magnuson Lowell PS, Redmond WA
1998-2005	Boeing (Commercial ) Company, Business Knowledge Bank
1997 Winter	InControl, Redmond, Washington
1993 Fall	Saunders College Publishing Company, Philadelphia
1993 Summer	John Morino, Centralia, Washington
1992 Summer	Keytech Corporation, Bothel, Washington
1991 Autumn	Expert Witness, Seattle, Washington

### **International, national or governmental service**

#### Reviews of Proposal and Panels

Office of Naval Research

Metallic Structures Program Review, 2011



National Science Foundation

Once in every two years as proposal and panel reviewer

The Boeing Commercial Company

Member, External reviewer of New Airplane Technology (2002-2009)

**All other service**