

## ARUN SHUKLA

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Dr. Arun Shukla is the Simon Ostrach Professor of Mechanical, Industrial and Systems Engineering at the University of Rhode Island, where he has been a member of the faculty since 1981. He is also the Co-Director of the National Institute for Undersea Vehicle Technology. He received his B.Tech. degree from the Indian Institute of Technology (IIT)-Kanpur in 1976. After working briefly at Voltas Ltd., he joined the University of Maryland in 1977, and received his M.S. in 1978 and Ph.D. in 1981; both in experimental fracture mechanics. He has also been the Clark B. Millikan Visiting Professor of Aerospace at the California Institute of Technology, Satish Dhawan Visiting Chair at the Indian Institute of Sciences, Bangalore India, and a visiting faculty at IIT Kanpur, and Texas A&M University during his sabbatical years.

Dr. Shukla was elected to the European Academy of Sciences and Arts in 2011 and as a Foreign Member of the Russian Academy of Engineering in 2015. He is a Fellow of the American Society of Mechanical Engineers (ASME), Fellow of the American Academy of Mechanics, Fellow of the Society for Experimental Mechanics (SEM), Fellow Society for Shock Wave, India. He received the M.M. Frocht Award from SEM for “*outstanding achievements as an educator in the field of experimental mechanics*” and the B.J. Lazan Award from SEM for “*outstanding technical contributions to the understanding of dynamic phenomena in engineering materials and structures.*” He received the Taylor Award and the Tatnall Award from SEM in 2012. Dr. Shukla presented the prestigious Murray Lecture at the 2011 SEM conference. In 2003 he served as the President of SEM. In 2023 he received the Drucker Medal from the ASME and the Theocarlis Award from the SEM. He has served as the Technical Editor of the international journal *Experimental Mechanics* and currently serves on the Editorial Boards of several key engineering journals. He has also served on the National Research Council on the United States National Committee on Theoretical and Applied Mechanics. Dr. Shukla has also received the Distinguished Alumnus Award from the IIT Kanpur. He was a member and Chair of the Executive Committee of the Applied Mechanics Division of ASME.

Dr. Shukla’s research grants focus on the dynamic behavior of materials. Under the sponsorship of the National Science Foundation, Office of Naval Research, NAVSEA, Air Force Office of Scientific Research, US Army, Army Research Office, Federal Highway Administration, and the Department of Homeland Security, he has developed an internationally recognized research laboratory and research program in experimental solid mechanics. He has provided leadership to the Office of Naval Research in establishing and running a US-India collaborative program on Blast Mitigation. He was also the founder and the inaugural co-director of the 60 million dollars National Institute for Undersea Vehicle Technology.

Along with his more than 130 Post-doctoral, Ph.D. and M.S. students, he has published more than 450 papers in refereed journals and proceedings (some receiving best paper awards). Eleven of his doctoral students serve as faculty members at universities in US and abroad. Dr. Shukla has authored, co-authored, and edited 8 books, 4 special issues of journals and has delivered numerous plenary and keynote lectures around the world.

Dr. Shukla has also been recognized for his excellent research and teaching activities with various awards at his university. He is a recipient of the Simon Ostrach First Endowed Professorship Award (2000), Vincent and Estelle Murphy Faculty Excellence Award (1998), Distinguished Engineering Professor Award (1997), the University of Rhode Island's Scholarly Excellence Award (1995), Albert E Carlotti Faculty Excellence Award (1990) and Outstanding Research Achievement Award (1984).

### **EDUCATION**

Ph.D., University of Maryland (Mechanical Engineering), 1981  
M.S., University of Maryland (Mechanical Engineering), 1978  
B.Tech., Indian Institute of Technology, Kanpur (Mechanical Engineering), 1976.

### **PERSONAL INFORMATION**

Married with three children  
Date of birth: 1<sup>st</sup> October 1953  
US Citizen

### **PROFESSIONAL EXPERIENCE**

September 2017-September 2023	Co-Director, National Institute for Undersea Vehicle Technology
July 2000-Present	Simon Ostrach Professor, University of Rhode Island
Dec 2019-Jan 2020	Satish Dhawan Visiting Chair, Indian Institute of Sciences, Bangalore India
January 2011-June 2011	Clark B. Millikan Visiting Professor in Aerospace, California Institute of Technology.
July 2000- June 2009	Chairman Department of Mechanical Engineering and Applied Mechanics, University of Rhode Island.
February 2002- June 2003	Interim Dean, College of Engineering, University of Rhode Island.
January 1997-June 2000	Distinguished Engineering Professor, University of Rhode Island.
July 1988-1996	Professor, Department of Mechanical Engineering and Applied Mechanics, University of Rhode Island.
December 1994-May 1995	Visiting Professor, Texas A&M University, California Institute of Technology and IIT Kanpur, India, sabbatical leave.
July 1987-January 1988	Visiting Professor, Department of Mechanical Engineering, Indian Institute of Technology, Kanpur, sabbatical leave.
July 1984-June 1988	Associate Professor, Department of Mechanical Engineering and Applied Mechanics, University of Rhode Island.
September 1981-June 1984	Assistant Professor, Department of Mechanical Engineering and Applied Mechanics, University of Rhode Island.
January 1977-August 1981	Graduate Research Assistant and Instructor, Department of Mechanical Engineering, University of Maryland.
July 1976-December 1976	Design Engineer, Voltas Ltd., India.

### **ACADEMIC/RESEARCH SUMMARY**

Dr. Shukla has been a regular and long-term contributor to the mechanical engineering community. His research program initially focused on the *experimental characterization of dynamic fracture*. This effort has investigated all phases of dynamic fracture including crack initiation, crack propagation, crack curving and crack branching in a variety of engineering materials.

In the mid-1980s Dr. Shukla started a major research thrust to understand *dynamic load transfer process in granular materials*. The effect of media micro-structure on the load transfer process is better understood because of this effort.

In the 1990s Dr. Shukla's research efforts were focused on studying dynamic decohesion of interfaces. Along with this effort, he started investigating dynamic fracture in functionally graded materials (FGMs). This analytical and experimental research involved *fabrication, characterization, and fracture of FGMs*. During this time, he also worked on the use of fiber optic sensors in a variety of applications. He was active in establishing a Fiber Optic and Bio Sensor Research Group at the University of Rhode Island.

Dr. Shukla also led an international collaborative research effort in 1990s on *dynamic fracture of composites* under the auspices of the National Science Foundation. He helped establish a state-of-the-art research facility at the Indian Institute of Technology at Kanpur for the dynamic characterization of fiber reinforced composites. During subsequent years, this collaboration shifted to studies on nanocomposites. Other significant collaborations include work with Stanford University on *load transfer in particulate cemented aggregates* and with Caltech on *decohesion of bimaterial interfaces*. The Department of Transportation has funded his collaborative efforts with the Civil and Chemical Engineering Departments at URI on health monitoring of bridges and characterization of asphalt and concrete.

His recent research efforts have been in the *fabrication, characterization and fracture of polymer based nano-composites; impact behavior of modified armor; dynamic response of materials at high temperatures; air blast loading effect on composite materials and sandwich structures; blast mitigation efforts for homeland security and underwater dynamic response and implosion phenomenon in metallic and marine composite structures*. Dr. Shukla was the Technical Lead for the blast mitigation effort of the 12-million-dollar Center of Excellence on Explosive Detection, Characterization and Mitigation (Department of Homeland Security Joint Center between URI and Northeastern University).

He was also the founder and the inaugural Co-director of the National Institute for Undersea Vehicle Technology (a collaborative effort between URI and UCONN equal partners). Although only officially launched in 2017, NIUVT to date (FY18, FY19, FY20, FY21, FY22, FY 2023 allocation 25M) has received more than 80 M dollars from ONR both to conduct applied research and development work at the two universities in conjunction with the Navy and EB. Additionally, NIUVT received a three-year, \$1.3 million STEM grant from ONR and \$3 million from NDEP to boost opportunities that prepare undergraduates to join the shipbuilding industry. Several other large individual grants have been obtained from ONR to support NIUVT activities at both URI and UCONN.

Dr. Shukla has also provided valuable leadership in helping ONR start a multi-million-dollar US-India collaboration in 2020 on blast mitigation using composite materials. This collaboration involves URI, VT, NUWC, NSWC and several DRDO labs in India.

Dr. Shukla has published more than 450 technical articles in journals and proceedings, written four textbooks, edited four books, edited four special issues for international journals, and written several book chapters. He has taught solid mechanics courses at both undergraduate and graduate levels. At URI, he has developed several new courses, including Fracture Mechanics, Mechanics of Composite Materials and Experimental Mechanics. Besides these, existing courses like Advanced Mechanics of Materials and several mechanical engineering laboratory courses have been considerably improved and updated under Dr. Shukla's guidance. He has also served as an advisor to the Pi Tau Sigma undergraduate honor society at URI and is currently the faculty advisor to the student chapter of the Society for Experimental Mechanics (SEM). He has served as the Director of Graduate Studies in the department, Chairman of the department and the Interim Dean of the College of Engineering. He has directed many doctoral and master's degree (thesis option) students. He has also given plenary, keynote and invited lectures at various conferences, universities, and laboratories in the U.S. and abroad.

Dr. Shukla has also been active in professional society activities. He was the technical editor of the international journal *Experimental Mechanics* and served as the associate editor of the journal *Optics and Lasers in Engineering*. He served as the Chair of the international advisory board of the

Journal of Dynamic Behavior of Materials. Dr. Shukla is a member of the editorial advisory board of Key Engineering Materials, Trans Tech Publications and serves on the editorial board of the journal Strain, Multiscale and Multidisciplinary Modeling, Experiments and Design. He has been particularly active in organizing symposiums, conferences, and topical sessions for both the American Society of Mechanical Engineers (ASME) and the Society for Experimental Mechanics (SEM). He has chaired the Fracture Mechanics committees of the ASME and the SEM and has served for six years as a member of the Executive Board of the Society for Experimental Mechanics. He served as the Vice President of SEM (2000-2001) President-Elect of SEM (2001-2002) and as President of SEM (2002-2003). He has also served the National Research Council, on the United States National Committee on Theoretical and Applied Mechanics for eight years, and as the chairman of the USNCTAM, IUTAM committee. He served as the Chair and member of the Executive Committee of the Applied Mechanics Division of ASME (Member 2012-2017, Chair 2017, Honors Committee 2012-2022).

### **HONORS AND AWARDS**

Drucker Medal, ASME, 2023

P.S. Theocaris Award, Society for Experimental Mechanics, 2023.

2023 Outstanding Graduate Mentoring Award, URI

Satish Dhawan Visiting Chair Professorship, IISc Bangalore, 2019-20.

Elected Fellow, Society for Shock Wave, India. 2019.

Midwest Mechanics Seminar Speaker, 2019.

Elected as Foreign Member of Russian Academy of Engineering 2015.

Elected to European Academy of Sciences and Arts, 2011.

Clark B Millikan Visiting Professorship, Caltech 2011.

Distinguished Alumnus Award, Indian Institute of Technology, Kanpur, 2009.

Fellow of the American Academy of Mechanics, 2001.

Fellow of the American Society of Mechanical Engineers, 1996.

Fellow of the Society for Experimental Mechanics, 1993.

ICCES/Albert S Kobayashi Award, for "outstanding contributions to experimental studies on fracture mechanics and blast mitigation," 2015.

Taylor Award, Society for Experimental Mechanics, 2012.

Tatnall Award, Society for Experimental Mechanics, 2012.

Research Excellence Award, College of Engineering, URI, 2012.

Murray Medal and Murray Lecture, Society for Experimental Mechanics, 2011.

B. J. Lazan Award for Outstanding Technical Contributions to Experimental Mechanics, Society for Experimental Mechanics, 2002.

The University of Rhode Island's Scholarly Excellence Award (only one each year), 1995.

Best Paper Award, SEM Annual Conference-Dynamic Failure, 2012.

Best Paper Award, Journal of Strain, 2008.

Flyde Electronics Prize, British Society for Strain measurement, 2008

President of the Society for Experimental Mechanics, 2002-2003.

Appointed as World Class Collaborator, Air Force Research Lab, Dayton Ohio, 2004.

Board of Visitors, Army Research Office Biennial Review Mechanical Sciences, 2005.

The University of Rhode Island Outstanding Contributions to Research Award, 2001.

Appointed Simon Ostrach Professor, First Endowed Professorship in Mechanical Engineering at the University of Rhode Island, July 2000.

Received the Vincent E. and Estelle Murphy Faculty Excellence Award, College of Engineering, University of Rhode Island, 1998.

Received the ASTM Outstanding Paper Award, J. of Testing and Evaluation, 1998

Appointed Distinguished Engineering Professor, University of Rhode Island, 1997.

Appointed to the Executive Board of the Society for Experimental Mechanics, 1994-1996.

Received Albert E. Carlotti Faculty Excellence Award, College of Engineering, University of Rhode Island, 1990

Received College of Engineering Outstanding Research Achievement Award, 1984.

### **SPONSORED RESEARCH ACTIVITIES**

1. "A Study of Dynamic Fracture Behavior Associated with High Velocity Crack Propagation".  
Sponsor: National Science Foundation, June 1982 to Nov. 1984, \$101,520, Principal Investigator.
2. "Photoelastic Investigation of Dynamic Load Transfer in a Discontinuous Media".  
Sponsor: National Science Foundation, Feb. 1984 to July 1986, \$93,536, Principal Investigator.
3. "An Experimental Study of Dynamic Fracture".  
Sponsor: National Science Foundation, Feb. 1985 to July 1987, \$91,560, Principal Investigator.
4. "Photoelastic and Numerical Investigation of Wave Propagation in Granular, Layered and Porous Media," with M.H. Sadd.  
Sponsor: Army Research Office, July 1986 to June 1989, \$308,000, Co-Principal Investigator.
5. "Experimental Investigation of Dynamic Fracture in Opaque Materials".  
Sponsor: National Science Foundation, Jan 1988 to Jan 1991, \$59,211, Principal Investigator.
6. "Wave Propagation and Dynamic Load Transfer in Heterogenous Granular Media With Micro structure," with M.H. Sadd

- Sponsor: Air Force Office of Scientific Research, \$289,559, July 1989 to July 1992, Principal Investigator.
7. "Study of Dynamic Fracture of Composite Materials," with B.D. Agarwal (Collaborative Project with India)  
Sponsor: National Science Foundation, \$150,000 Aug. 1990 to July 1993, Principal Investigator.
  8. "Dynamic Characterization of Advanced Polymers Using Fiber Optics," with S. Letcher, Sponsor: National Science Foundation, \$141,370, August 1991 to December 1993, Principal Investigator.
  9. "Impact Behavior of Composite Materials".  
Sponsor: U.S. Navy, \$2,000, 1992, Principal Investigator.
  10. "Fabrication and Use of Etched Fiber Sensor for Static and Dynamic Material Characterization".  
Sponsor: National Science Foundation REU, \$5000, 1993, Principal Investigator.
  11. "Studies of the Effect of Micro structure on the Dynamic Behavior of Granular and Particulate Materials," with M.H. Sadd.  
Sponsor: Air Force Office of Scientific Research, \$227,975, March 1993 to July 1996, Principal Investigator.
  12. "Role of Damage and Damage Growth on Dynamic Load Transfer in Particulate Materials," with M.H. Sadd.  
Sponsor: Air Force Office of Scientific Research, \$110,000, July 1993 to June 1996, Principal Investigator.
  13. "Symposium on Dynamic Failure Mechanics of Modern Materials", with A.J. Rosakis, Sponsor: National Science Foundation, \$16,000, April 1993 to March 1994, Co-Principal Investigator.
  14. "Dynamic Characterization of Rubberized Materials".  
Sponsor: Stanley Bostitch Company, \$7,500, 1994, Principal Investigator.
  15. "Split Hopkinson Bar Testing of Elastomers".  
Sponsor: US Navy, \$4000, 1994, Principal Investigator.
  16. "Dynamic Properties of Elastomeric Materials".  
Sponsor: Stanley Bostitch Company, \$5000, 1995, Principal Investigator.
  17. "Fatigue Strength of Deteriorated and Previously Stressed Highway Bridges," with G. Tsiastas and E. McEwen.  
Sponsor: Rhode Island Department of Transportation, \$51,491, June 1995 to July 1995, Co-Principal Investigator.
  18. "High Temperature Dynamic Performance of Polyurethanes"  
Sponsor: Stanley Bostitch Company, \$7,500, 1996, Principal Investigator.
  19. "Investigation of Dynamic Decohesion in Polymer/Metal and Polymer /Ceramic Bimaterial Interfaces", with A.J. Rosakis from California Institute of Technology.  
Sponsor: National Science Foundation, \$339,000 (\$168,200, URI Share), August 1995 to August 1999, Principal Investigator.
  20. "Evaluation of Fatigue Cracking and Permanent Deformation Characteristics of Asphalt," with K. Wayne Lee.  
Sponsor: Department of Transportation, \$74,836, February 1996 to February, 1997, Co-Principal Investigator.

21. "Low-Temperature Cracking Resistance Characteristics of Recycled Asphalt Pavement Binder," with K. Wayne Lee.  
Sponsor: Department of Transportation, \$74,600, August 1997 to December 1998, Co-Principal Investigator.
22. "Optimization of the Geometric Shape of the Armor Material to Improve Ballistic Performance."  
Sponsor: US Army, Natick MA, \$64,256, March 1997 to March 1998, Principal Investigator.
23. "Northeast Graduate Students Symposium on Mechanics."  
Sponsor: Society for Experimental Mechanics, \$2,000, 1997.
24. "Evaluation and Characterization of Composite Materials Under Dynamic Loading Conditions," with B.D. Agarwal.  
Sponsor: National Science Foundation, International Program, \$35,000, October 1997 to September 2000, Principal Investigator.
25. "Penetrator Resistance and Target Damage Due to multiple Impact Upon Granite and Concrete: Joint Experimental, Numerical and Analytical Effort ," with M.H. Sadd and J. Dvorkin of Stanford University.  
Sponsor: Air Force Office of Scientific Research, \$375,000 (\$212,572 URI Share) November 1997 to November 2000, Principal Investigator.
26. "Acquisition of Ultra High Speed Imaging System and Light Source for Dynamic Mechanics Studies".  
Sponsor: National Science Foundation, \$476,084 (NSF \$322,759, URI \$153,325), August 1998 to November 2001, Principal Investigator.
27. "Processing of Novel Particulate Composite Materials Using Cenospheres and Characterization of their Mechanical and Thermal Properties," with A. Bose  
Sponsor: National Science Foundation, \$238,825, October 1999 to September 2002, Principal Investigator.
28. "Improving Armor Ballistic Performance by Geometric Modifications".  
Sponsor: US Army, \$74,875, October 1999 to October 2000, Principal Investigator.
29. "Processing and Characterization of a Light-Weight Concrete Using Cenospheres," with A. Bose and W. Lee.  
Sponsor: RIDOT, \$74,827, October 1999 to October 2000, Principal Investigator.
30. "Fiber Reinforcement of Concrete," with R. Brown.  
Sponsor: URI Transportation Center, \$74,652, Dec. 1999 to Dec. 2000, Co-Principal Investigator.
31. "Investigation of Concrete Composite Joint Strength Subjected to Corrosive Environments," with Richard Brown.  
Sponsor: RIDOT, \$79,201, Jan. 1, 2000 to Dec. 31, 2002, Co-Principal Investigator.
32. "Using Cenospheres to Develop New Asphalt and Cement Based Concrete Materials," with A. Bose.  
Sponsor: URI Transportation Center, \$74,550, (Dec. 1999 to Aug 2001), Principal Investigator  
Sponsor: URI Transportation Center \$45,000, (Sept. 2001 to Aug. 2002), Principal Investigator.
33. "The Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Material," with M. H. Sadd.  
Sponsor: URI Transportation Center, \$84,847, (Oct. 2000 to Dec 2001), Co-Principal Investigator.  
Sponsor: URI Transportation Center \$45,000 (Dec. 2001- Nov. 2002), Co-Principal Investigator.
34. "Durability and Performance of Novel Concrete-Cenosphere Composites in Extreme Environments" with A. Bose and W. Lee.

- Sponsor: RI Department of Transportation, \$75,000, May 1, 2001 to December 30, 2002, Principal Investigator.
35. "Fiber Reinforcement of Concrete," with R. Brown.  
Sponsor: URI Transportation Center, \$75,000, Jan. 2001 to Dec. 2002, Co-Principal Investigator.
  36. "Ballistic Performance of Boron Carbide and Silicon Carbide Tiles,"  
Sponsor: US Army, \$30,000, June 2001 to May 2002, Principal Investigator.
  37. "A Broad Based Enhancement of the Mechanical Engineering Undergraduate Laboratory," with M. H. Sadd, R. Lessmann and D. Chelidze.  
Sponsor: Champlin Foundations, \$125,562, Jan. 2002 to Jan. 2003 Principal Investigator.
  38. "Dynamic Strength Characterization of High Performance Concrete," with V. Parameswaran.  
Sponsor: RI DOT, \$29,769, January 2001 to December 2002, Principal Investigator.
  39. "Remote Bridge Monitoring – A Survey," with V. Parameswaran  
Sponsor: RI DOT, \$44,969, April 2002 to March 2003, Co-Principal Investigator.
  40. "3-D Orthogonal Woven Composites in Armor Systems".  
Sponsor: 3TEX Engineered Fiber Products, \$92,061, March 2002 to July 2004, Principal Investigator.
  41. "Mechanical Behavior of Recycled Asphalt Material Under Dynamic Loading Conditions," with M. H. Sadd  
Sponsor: URI Transportation Center, \$81,380, Dec. 2002 to July. 2004, Co-Principal Investigator.
  42. "Evaluation of Aggregate Gradation and Master Ranges on Performance of Asphalt Mixtures," with K. Wayne Lee  
Sponsor: RIDOT, \$79,936, August 2002 - July 2004, Co-Principal Investigator.
  43. "Experimental and Analytical Evaluation of Dynamic Fracture in Graded Multifunctional Materials,"  
Sponsor: National Science Foundation, \$225,432 June 03 to May 06, Principal Investigator.
  44. "Experimental Evaluation of Novel Composites for Use in Transport of Explosive Materials," with Carl-Ernst Rousseau  
Sponsor: URI Transportation Center and 3 TEX Corporation, \$160,033 July 2003 to December 2004, Co-Principal Investigator.
  45. "Fiber Reinforced Lightweight Shotcrete for Patching and Retrofitting of Concrete Structures," with Richard Brown  
Sponsor: Federal Highway Administration through RIDOT, \$120,001 September 2003 to August 2005, Principal Investigator.
  46. "Effect of Blast Loading on the Mechanical Properties and Failure of Marine Composite Materials,"  
Sponsor: Office of Naval Research, \$170,000, March 2004 to February 2007, Principal Investigator.
  47. "Comparative Performance of Explosion Shielding Materials Used in transportation," with Carl-Ernst Rousseau.  
Sponsor: URI Transportation Center and 3 TEX Corporation, \$166,000 Jan 2005 to December 2005, Co-Principal Investigator.
  48. "US-India Co-operative Research: Development and Characterization of Polymer Particulate Nanocomposites," with V. Parameswaran and N. Kishore, IIT Kanpur.  
Sponsor: NSF, \$30,700, Dec. 2004- July. 2009, Principal Investigator.



49. “Determination of Interfacial Bond Behavior of Composite Concrete-Asphalt Pavement Systems,” with Martin Sadd.  
Sponsor: Federal Highway Administration through RIDOT, \$75,001, June 2005 to May 2006, Co-Principal Investigator.
50. “Effect of Shock loading on Sandwich Composites,”  
Sponsor: Office of Naval Research, \$9,000, May 2005 to April 2006, Principal Investigator.
51. “Air Blast and Ballistic Impact Damage Evaluation of Marine Composite Structures,” with Material Science Corporation.  
Sponsor: US Navy, SBIR Phase II, URI share \$75,000, December 2005 to July. 2007.
52. “Dynamic Failure of Integrated Durable Hot Structure for Space Access Vehicles,”  
Sponsor: Air Force Office of Scientific Research, \$252,465, Principal Investigator, Jan. 2006 to August 2009.
53. Dynamic Response of sandwich Composites to Blast Loading,”  
Sponsor: Office of Naval Research, \$9,000, July, 2005 to June 2006, Principal Investigator.
54. “Acquisition of a Transmission Electron Microscope for Nano/Biomaterial Research and Education” with A. Bose, C. Rousseau, G. Bothun and J. Rines.  
Sponsor: National Science Foundation, \$636,979, August 2006 to July 2007, Co-Principal Investigator.
55. “Performance of Marine Composites and Sandwich Structures Under Blast Loading Conditions”.  
Sponsor: Office of Naval Research, \$270,316, March 2007 to February 2010, Principal Investigator.
56. “Center of Excellence for Explosives Detection, Mitigation, and Response,” with J. Oxley and several other Co-PI’s. In Partnership with Northeastern University.  
Sponsor: Department of Homeland Security, \$12,000,000, 2008-2012, Serving as Technical Lead for the Blast Mitigation Effort. My share is \$150,000/year.
57. “An Ultra High speed Digital Image Correlation System for Dynamic Strain and Displacement Measurements”. DURIP  
Sponsor: Office of Naval Research, \$250,150, 2009, Principal Investigator.
58. “Electrical Response of Conductive Polymer Grafted Nanotube Reinforced Copolymers Under Quasi-static and Dynamic Loading,” with S. Yang and V. Chalivendra,  
Sponsor: National Science Foundation, Principal Investigator, \$360,743 (URI share \$223,000), 6-1-09 to 5-30-12.
59. “Response of Pre-loaded Sandwich Structures to Blast Loading,”  
Sponsor: Office of Naval Research, \$15,000, September 2009-August 2010, Principal Investigator.
60. “Shock Response and Dynamic Failure of Spatially Tailored Aero-Thermal Structures,”  
Sponsor: Air Force Office of Scientific Research, \$323,042, Sept. 2009 to Dec. 2013, Principal Investigator.
61. “Dynamic Failure of Cast Iron,” with C. Rouseau  
Sponsor: Lawrence Livermore National Lab, \$85,000, June 2010-June 2011, Principal Investigator.
62. “IMPLAST 2010 Conference,”  
Sponsor: ONR, \$10,000, Sept. 2010-August 2011.
63. “Research Experiences for Undergraduates,”  
Sponsor: NSF, \$12,000, March 2010-December 2010.

64. “The Blast Performance of Marine Composite and Sandwich Structures Under Extreme Environments,”  
Sponsor: Office of Naval Research, \$302,081, August 2010-July 2013, Principal Investigator.
65. “Advanced Composite Materials for Blast and Fire Resistance,”  
Sponsor: Department of Homeland Security, \$119,319, July 2010 – June 2012, Principal Investigator.
66. “Experimental and Numerical Investigation on Fundamental Understanding of Implosion Within a Tube,”  
Sponsor: Office of Naval Research, \$303,116 May 2012-April 2015, Principal Investigator.
67. “Graphene-Polymer Composite Materials,” with A. Bose, R. Hurt and A. Tripathi.  
Sponsor: STAC, \$200,000, July 2012-September 2013. Co-PI.
68. “A Pressure Vessel with Ultra High Speed Imaging Capability for Conducting Underwater Explosion and Implosion Experiments,”  
Sponsor: ONR DURIP, \$221,983, 2011, June 2012-June 2013.
69. “Advanced Composite Materials for Blast and Fire Resistance,”  
Sponsor: UCONN, \$120,000, July 2012 – December 2013. Principal Investigator.
70. “Deformation and Damage Mechanisms in Ternary Carbides and Nitrides under Dynamic Conditions,” with Texas A&M.  
Sponsor: NSF, \$ 300,000 (URI share \$150,099, Sept. 15, 2012 to Aug. 31, 2015).
71. “Research Experiences for Undergraduates,”  
Sponsor: NSF, \$12,000, September 2012-September 2013.
72. “Response of Aerospace Materials to Shock Loadings and Extreme Environments,”  
Sponsor: AFOSR, \$332,155, 3-1-13 to 5-31-17. Principal Investigator.
73. “Experimental Investigation of Free Field and Shock Initiated Implosion of Composite Structures,”  
Sponsor: Office of Naval Research, \$304,339 Dec. 2013-Nov. 2016, Principal Investigator.
74. “Near Field Blast Response of Composite Plates,”  
Sponsor: Naval Undersea Warfare Center, \$20,000, June 2014-September 2014.
75. “Development of an Ultra-High Speed Infrared Imaging System to Image Dynamic Deformation and Fracture in Materials,” with P. Guduru, Brown University.  
Sponsor: STAC RI, \$75,000 (URI-25K), Sept. 2014-Aug. 2015.
76. Response of Composite Materials Subjected to Aggressive Marine Environments: An Experimental and Computational Study”,  
Sponsor: NAVSEA, \$125,000 Oct. 2014 to Sept. 2015.
77. “Novel Experiments for Understanding Underwater Implosion and Its Mitigation,”  
Sponsor: ONR, \$100,000, June 2015-June 2016.
78. “Near Field Blast Response of Structures,”  
Sponsor: NUWC, \$20,000, June 2015-December 2015.
79. “Shock Response of Composite Materials Subjected to Aggressive Marine Environments: An Experimental and Computational Study”, Naval Engineering Education Center, (NAVSEA), \$333,000 Jan. 2016 to March. 2019.

80. “Implosion of Advanced Composite Structures within Complex Underwater Environments,” Office of Naval Research, \$ 419, 253, Jan. 2017 to Dec. 2019.
81. “Southeast New England Naval STEM Coalition: Advancing the Navy’s STEM Education and Workforce Capabilities,” with D. Taggart, and J. Miller ONR, 9-1-17 to 8-31- 20, \$643,595.
82. “Underwater Blast Injury Monitoring,”  
Sponsor: STTR, US Army, Subcontract Triton, 5-7-18 to 11-20-18, \$45,000.
83. “Effects of Combined Depth Pressure and Long-Term Seawater Immersion on Structural Integrity of Composite Vehicles,”  
Sponsor: ONR, September 1, 2018 –August 30, 2021, \$319,574
84. “ Accelerating Innovation in Undersea Vehicle Technology,” ONR 1-22-19 to 1-21-21,  
Sponsor: ONR \$3,484,310 with R. Christenson UCONN, (Distributed to 11 Co-PIs on two campuses), URI share \$1,647,547\*.
85. “Bubble Interaction and Collapse on Structures from Near Field Explosions,” Sponsor:, 100K, 1-22-19 to 1-21-20\*.
86. “Dynamic Constitutive Behavior of Additively Manufactured Components, “with C. Rousseau,  
Sponsor:, \$200K, 1-22-19 to 1-21-21\*.
87. “Performance of Elastomeric Coatings and Coated Structures Subjected to Long Term Seawater Submersion, UV Radiation, and Arctic Temperatures under Extreme Loading Conditions, “  
Sponsor: NAVSEA, \$299,690, 4-1-19 to 3-31-22.
88. “Arctic and Low Temperature Effects on the Mechanical, Fracture, and Acoustic Behaviors of Thermoset Fiber Reinforced Plastic (FRP) Composite Laminates,” Sponsor: NUWC, \$14,999, 5-1-19 to 9-1-19.
89. “Accelerating Innovation in Undersea Vehicle Technology,” ONR 1-1-20 to 12-31-22, ONR \$7,000,000 with R. Christenson UCONN, (Distributed to 26 CO-PIs on two campuses), URI share \$3,100,000\*.
90. “Accelerating Innovation in Undersea Vehicle Technology,” Shukla Admin Support, \$213K,  
Sponsor: ONR, 1-22-19 to 1-21-21\*.
91. “Concept Development, Training, Admin,”  
Sponsor: ONR, \$200K, 1-22-19 to 1-21-21\*.
92. “ Bubble interaction & Collapse on Structure from Near Field Explosions,”  
Sponsor: ONR, 650K, 4-1-20 to 3-31-23\*.
93. “Shock Loading Behavior of Additively Manufactured Components w/ Corrugated Surface Features,” with C.Rousseau.  
Sponsor: ONR, \$50K, 1-22-19 to 1-21-21\*.
94. “Response of Composite Structure to Dynamic & Extreme Loading Conditions,” with C. Rousseau.  
Sponsor: ONR, \$450K, 1-22-19 to 1-21-21\*.
95. Arctic and Low Temperature Effects on the Mechanical, Fracture, and Acoustic Behaviors of Thermoset Fiber Reinforced Plastic (FRP) Composite Laminates  
Sponsor: NUWC, \$15,000, 6-1-20 to 9-15-20.

96. “Characterization and Dynamic Response of Novel Composite Structures to Air Blast and Underwater Shock,”  
Sponsor: ONR, 9-1-20 to 8-31-23, \$980,000.
97. “Complex Underwater Implosion Phenomena and Mitigation of Implosion and Implosion Pulses in Marine Composite Structures,” with H. Matos,  
Sponsor: ONR, \$ 150,000, 5-1-21 to 4-3-24.
98. “Accelerating Technology Innovation and Capability Adoption for Current and Future Undersea Vehicles”.  
Sponsor: ONR 8-31-20 to 7-30-25, ONR \$9.16 million with R. Christenson UCONN, (Distributed to 27 C0-PIs on two campuses), URI share \$4.4 million\*\*.
99. “Administration, Concept Development Work”.  
Sponsor: ONR 8-31-20 to 7-30-25, ONR \$243,138\*\*.
100. “Mechanistic-based Constitutive Modeling of Mechanical Behaviors for Polyurea Polymers with Experimental Validation”.  
Sponsor: ONR 8-31-20 to 1-30-22, ONR \$50,000\*\*.
101. “Advanced Double Hull Structural Configurations for Undersea Vehicles and Weapons,” with H. Matos.  
Sponsor: ONR 8-31-20 to 7-30-24, ONR \$327,713\*\*.
102. “Blast Performance of Advanced Inflatable Structures” with H. Matos.  
Sponsor: ONR 8-31-20 to 7-30-25, ONR \$463,752\*\*.
103. “Evaluation of Additively Manufactured Corrugated Core Sandwich for Blast Mitigation” with C. Rousseau.  
Sponsor: ONR 8-31-20 to 7-30-25, ONR \$243,138\*\*.
104. “Accelerating Technology Innovation for Current and Future Undersea Vehicles,”  
Sponsor: ONR 8-22-21 to 8-21-25, ONR \$11.99 million with R. Christenson UCONN, (Distributed to 30 C0-PIs on two campuses), URI share \$5.8 million\*\*\*.
105. “Administration, Concept Development Work”.  
Sponsor: ONR 5-02-22 to 5-01-25, ONR \$243,000\*\*\*.
106. “NIUVT - Applied Research to Advance Current and Future Technologies in the Undersea Vehicle Domain (FY22)”,  
Sponsor: ONR 5-02-23 to 5-01-26, ONR \$20,962,576.00 with R. Christenson UCONN, (Distributed to 27 C0-PIs on two campuses), URI share \$10,325,824 \*\*\*\*.
107. “Efficient mitigation of implosion pressure spikes using shrouds: Experiments and machine learning-based design,”  
Sponsor: ONR 5-02-22 to 5-01-24, ONR \$525,654\*\*\*\*.
108. “Prototyping Systems for Research of Advanced Composite Structures in Undersea Environments” with H. Matos and c. Rousseau  
Sponsor: ONR DURIP 5-02-22 to 5-01-23, ONR \$525,654,
109. “Administration, Concept Development Work”.  
Sponsor: ONR 5-02-22 to 5-01-26, ONR \$758,437\*\*\*\*

**DISSERTATION AND THESIS DIRECTE7**

## **A. Doctorate**

1. H. Nigam, 1988.
2. C. Zhu, 1990.
3. Xu Yi, 1991.
4. S.K. Khanna, 1992.
5. H. Zervas, 1995.
6. A.J. Rafanelli, 1995.
7. R.P. Singh,, 1995.
8. G. Vallee, 1995.
9. Yan Zhu, 1996.
10. Frank Sienkiewicz, 1997.
11. Mahesh Kavatru, 1998.
12. P. Venkatesawaran, 1999.
13. Jason Gomez, 2000.
14. Victor Ricci, 2001.
15. Michelle Skoorka, 2004.
16. Vijay Chalivendra, 2003.
17. Victor Evora, 2004.
18. N. Jain, 2005.
19. Robert Doleski, 2008.
20. Arjun Tekalur, 2007.
21. Ying Du, 2007.
22. Addis Asmelash Kidane, 2009.
23. Jim LeBlanc, 2011.
24. Erhang Wang 2011.
25. Puneet Kumar, 2011.
26. Nate Gardener, 2012.
27. Sandeep Abotula, 2013.

28. Sachin Gupta, 2015.
29. Nicholas Heeder, 2014.
30. Emad Makki, (2017)
31. Prathmesh Naik, (2016)
32. Erin Gauch, (2016)
33. Michael Pinto (2016)
34. Helios Matos (2017)
35. Jefferson Wright (2017)
36. Carlos Javier (2019)
37. Shyamal Kishore (2021)
38. Koray Senol (2020)
39. Irine Neba Mforsoh (2021)
40. Craig Tilton (2023)
41. Piyush Wanchoo (2023)
42. Vikranth K. Reddy in progress
43. Akongnwi Ngwa in progress
44. Tyler Chu in progress
45. Philip Keppel in progress
46. Akash Pandey in progress
47. Victoria Reilly in progress
48. Siddharth Jain in progress

**B. Masters with Thesis Option**

1. S. Anand, 1983.
2. K. Kumar, 1983.
4. E. Saliba, 1985.
5. C. Damania, 1986.
6. R.K. Agarwal, 1987.

7. Xu Yi, 1987.
8. H. Zervas, 1987.
9. V. Prakash, 1988.
10. I.Masabani, 1989.
11. J.Butts, 1990.
12. John Toth, 1992.
13. R. P. Singh, 1992.
14. M. Nanduri, 1993.
15. S. Viswanathan, 1994.
16. B. Gauthier, 1994.
17. R. Govindan, 1995.
18. Victor Evora, 1996.
19. Victor Ricci, M.S., 1996.
20. Jason Gomez, M.S., 1997.
21. Sanjiv Venkatram, 1997.
22. William Bentley, 1997.
23. Ted Archibald, 1998.
24. M. Escobar, 1999.
25. V. Srivastava, 1999.
26. James Wilson, 2000.
27. A. Sharma, 2000.
28. R. Cardoso, 2000.
29. David Morgan, 2000.
30. S. McBride, 2001.
31. V. Tewari, 2002.
32. S. Singh, 2002.
33. E. Kovolyan, 2002.
34. J. Grogan, 2004.

35. A. Tekular, 2004.
36. R. Riley, 2004.
37. M. Marcillino, 2004.
38. Paul Ruggiero, 2006.
39. J. LeBlanc, 2005.
40. M. Jackson, 2009.
41. V.Menneth 2009.
42. Nicholas Heeder, 2011.
43. Ryan Sekac, 2011
44. Sachin Gupta, 2011.
45. Jefferson Wright, 2012
46. Dan Gracia, 2012
47. Alex Escher, 2012.
48. Chris O'Connel, 2013.
49. Frank LiVolsi, 2014.
50. Payam Fahr, 2014.
51. Craig Tilton 2016.
52. Chris Shillings 2016.
53. Dan Clarkin (2017)
54. Sebastian Reh (2016)
55. Kimberly Clark (2017)
56. Monica Black (2017)
57. Chris Salazar (2019)
58. Nidhi Mehta (2019)
59. Dillon Fontaine (2020)
60. Tyler Chu (2021)
61. Chelsea Fox (2021)
62. Mark Keenan (2021)



63. Michael Galuska (2023)
64. Michael Papa in progress
65. Valentina Rossel (2022)
66. Matt Leger (2022)
67. Juliana Martinez (2022)
68. Bastian Madsen (2023)
69. Greg Gormly (2023)
70. Andrew Elloso in progress
71. Chris Donahue in progress
72. Julia Chiappelli in progress
73. John Vallencourt in progress
74. Keevan Winters in progress
75. Alexandra Byrne in progress

#### **Masters with Project Option**

1. John Wareham, 2010.
2. Joseph Simpson, 2010.
3. Erin Gauch, 2011.
4. Ryan Saeger, 2021.

**\*\*\* Eleven of these graduate students serves as faculty members. Students have won twenty awards at the student paper competitions in conferences.**

#### **POST DOCTORAL FELLOWS AND VISITING FACULTY**

1. Dr. Li Gongbo (1998-99)
2. Dr. Kwang Ho Lee (2000-2001, 2006)
3. Dr. V. Parameswaran (2001 to 2003, 2006, 2008, 2013)
4. Dr. S. Kang (2002)
5. Dr. N N Kishore (2006 and 2007)
6. Dr. V. Chalivendra (2007, 2010-2012)
7. Dr. Murat Yazici (2011-2012, 2013, 2014, 2016)

8. Dr. Idris Karen (2013-2014, 2016)

9. Dr. Prathmesh Parrikar (2017)

### **JOURNAL AND REFEREED PUBLICATIONS**

1. "Dynamic Crack Behavior at Initiation," with J.W. Dally, Mechanics Research Communications, Vol. 6, No.4, pp. 239-244, 1979.
2. "A Dynamic Photoelastic Study of Crack Propagation in a Ring Specimen," with J.W. Dally and T. Kobayashi, Crack Arrest Methodology and Application, ASTM STP 711, pp. 161-177, 1980.
3. "Energy Loss in Homalite 100 During Crack Propagation and Arrest," with J.W. Dally, Engineering Fracture Mechanics, Vol. 13, pp. 807-817, 1980.
4. "A Photoelastic Study of Energy Loss During a Fracture Event," with J.W. Dally, Experimental Mechanics, Vol. 21, No. 4, pp. 163-168, 1981.
5. "Study of Energy Loss During Fracture of 4340 Steel," with D.B. Barker, Mechanics Research Communications, Vol.8, No.3, pp. 193-199, 1981.
6. "Dynamic Photoelastic Investigation of Interaction of Stress Waves with Running Cracks," with H.P. Rossmannith, Experimental Mechanics, Vol. 21, No. 11, pp. 415-422, 1981.
7. "Photoelastic Investigation of Stress Wave Diffraction About Stationary Crack Tips," with H.P. Rossmannith, Journal of the Mechanics and Physics of Solids, Vol. 29, No. 5/6, pp.397-412, 1981.
8. "Dynamic Fracture of Imperfectly Bonded Lap Joints," with H.P. Rossmannith, Ingenieur Archives, Vol. 51, pp. 275-285, 1981.
9. "Two and Three Parameter Representations of Crack Tip Stress Fields," with G.R. Irwin and R. Chona, Journal of Strain Analysis, Vol. 17, No.2, pp. 79-86, 1982.
10. "Photoelastic Investigation of Dynamic Load Transfer in Granular Media," with H. P. Rossmannith, Acta Mechanica, Vol. 42, pp. 211-225, 1982.
11. "Analysis of Photoelastic Fringes in Wave Propagation Problems," with A.J. Durelli, Journal of Applied Mechanics, Vol. 50, pp. 460-462, 1982.
12. "Influence of Specimen Geometry and Initial State of Stress on Energy Loss During a Fracture Process," with W. L. Fourney, Fracture Mechanics: Theory and Analysis, ASTM STP 791, Vol. 1, pp. 151-164, 1983.
13. "Transient Mixed Mode Stress Intensity Factors During Elastic Crack Wave Interaction," with H. P. Rossmannith, Fracture Mechanics: Theory and Analysis, ASTM STP 791, Vol. 1, pp. 1131-1156, 1983.
14. "Identification of Isochromatic Fringes," with A.J. Durelli, Experimental Mechanics, Vol. 23, No. 1, pp. 111-119, 1983.
15. "Comparison of Static and Dynamic Energy Release Rates for Different Fracture Specimens," Engineering Fracture Mechanics, Vol. 18, No. 3, pp. 725-730, 1983.
16. "Influence of Late Breaking Ligaments on Crack Propagation in Compact Specimens - A Photoelastic Study," with J. W. Dally, Experimental Mechanics, Vol. 23, No. 3, pp. 298-304, 1983.

17. "Mechanisms of Energy Loss During Fracture of Homalite 100," with W. L. Fournay, Engineering Fracture Mechanics, Vol. 19, No. 2, pp. 251-259, 1984.
18. "Multiple Spark Gap Camera for Photoelastic and Caustic Studies," with H. Nigam, Experimental Techniques, Vol. 8, No. 8, pp. 17-20, 1984.
19. "Interaction of an Explosively Driven Crack with a Large Flaw," Advances in Fracture Research, Pergamon Press, Editor S.R. Valluri et al., Vol. 5, pp. 3109-3118, 1984.
20. "Dynamic Crack Tip Stress Field in Fracture Test Specimens," with R. Chona, Advances in Fracture Research, Pergamon Press, Editor S.R. Valluri et al., Vol. 5, pp. 3167-3176, 1984.
21. "Explosively Driven Crack Propagation Across an Interface," with W.L. Fournay, International Journal of Rock Mechanics, Vol. 22, No. 6, pp.443-452, 1985.
22. "A Numerical Experimental Analysis of Contact Stress Problem," with H. Nigam, Journal of Strain Analysis, Vol. 20, No. 4, pp. 241-245, 1985.
23. "Dynamic Crack Propagation and Branching Under Biaxial Loading," with, S. Anand, Fracture Mechanics, ASTM STP 905, Vol. 17, pp. 697-714, 1986.
24. "Crack Arrest with Externally Bonded Ligaments," with R. Desantis and B. Gauthier, Mechanics Research Communications, Vol. 13, No. 1, pp. 25-31, 1986.
25. "A Note on the Stress Intensity Factor and Crack Velocity Relationship for Homalite 100," with H. Nigam, Engineering Fracture Mechanics, Vol. 25, No. 1, pp. 91-102, 1986.
26. "Dynamic Photoelastic Investigation of Wave Propagation and Energy Transfer Across Contacts," with H.P. Rossmannith, Journal of Strain Analysis, Vol. 21, No. 4, pp. 213-218, 1986.
27. "Dynamic Photoelastic Study of Crack-Wave Interaction in Thick Walled Rings," with H.P. Rossmannith, Journal of Pressure Vessel Technology , Vol. 109, pp. 108-115, 1987.
28. "Experimental Investigation of Wave Velocity and Dynamic Contact Stresses in an Assembly of Discs," with C. Damania Experimental Mechanics, Vol. 27, No. 3, pp. 268-281, 1987.
29. "The Stress Field Surrounding a Rapidly Propagating Curving Crack: An Experimental Study," with R. Chona ASTM STP 945, pp. 86-99, 1987.
30. "Comparison of the Techniques of Transmitted Caustics and Photoelasticity as Applied to Fracture," with H. Nigam, Experimental Mechanics, Vol.28, No.2, pp. 123-135, 1988.
31. "Angular Dependence of Dynamic Load Transfer Due to Explosive Loading in Two Dimensional Granular Aggregates," with C. Zhu and M. H. Sadd, Journal of Strain Analysis, Vol. 23, No. 3, pp. 121-127, 1988.
32. "Dynamic Fracture Studies of 7075-T6 Aluminum and 4340 Steel Using Strain Gages and Photoelastic Coatings," with R.K. Agarwal and H. Nigam, Engineering Fracture Mechanics, Vol.31, No.3, pp.501-515, 1988.
33. "Application of Maximum Circumferential Stress Criterion and Strain Energy Density Criterion to Dynamic Crack Curving," with R. Chona and C.Y. Zhu, Advances in Fracture Research, Editor K. Salama, Pergamon Press, pp. 753-762, 1988.

34. "Influence of the Micro structure of Granular Media on Wave Propagation and Dynamic Load Transfer," with C.Y. Zhu, Journal of Wave Material Interaction , Vol. 3, No.3, pp. 249-265, 1988.
35. "Experimental Methods for Determining Dynamic Stress Intensity Factor in Opaque Materials," with H. Nigam and R.K. Agarwal, Advances in Fracture Research, Pergamon Press, Editor K. Salama et al., Vol.5, pp. 3269-3281, 1989.
36. "Determination of Stress Intensity Factor in Orthotropic Composite Materials Using Strain Gages," with B. D. Agarwal and B. Bhushan, Engineering Fracture Mechanics, Vol. 32, No. 3, pp. 469-477, 1989.
37. "Effect of Stress Field Parameters on Dynamic Crack Branching," with H. Nigam and H. Zervas, Engineering Fracture Mechanics, Vol. 36, No. 3, pp. 429-438, 1990.
38. "The Effect of Voids and Inclusions on wave Propagation in Granular Materials," with M.H. Sadd, Micromechanics and Inhomogeneity- The Toshio Mura Anniversary Volume, Editors G.J.Weng et al., Springer Verlag, pp 367-383, 1989.
39. "Wave Propagation in Porous Media as a Function of Fluid Saturation," with V. Prakash, Experimental Mechanics, pp. 80-87, 1990.
40. "Experimental and Computational Modeling of Wave Propagation in Granular Media," with M.H.Sadd and H. Mei, Experimental Mechanics, Vol. 4, pp. 377-381, 1990.
41. "Stress Wave Velocity in Granular Medium," with Xu Yi Mechanics Research Communications, Vol. 17, No. 6, pp. 382-391, 1990.
42. "Dynamic Photoelastic Studies of Wave Propagation in Granular Media," Journal of Optics and Lasers in Engineering, Vol. 14, pp. 165-184, 1991.
43. "Dynamic Load Transfer in Virgin and Damaged Granular Rock Media," with V. Prakash Journal of Engineering Mechanics, Vol. 117, No. 3, pp. 498-512, 1991.
44. "Determination of Fracture Parameters Using Embedded Fiber Optic Sensors," with N. Narendran and S. Letcher, Experimental Mechanics, Vol. 4, pp. 360-366, 1991.
45. "Application of Fiber Optic Sensors to Fracture Mechanics Problems," with N. Narendran and S. Letcher, Engineering Fracture Mechanics, Vol. 38, No. 6, pp. 491-498, 1991.
46. "Prediction of Dynamic Contact Loads in Granular Assemblies," with C.Y. Zhu and M.H. Sadd, Journal of Applied Mechanics, Vol. 58, pp. 341-346, 1991.
47. "Influence of Singularity Dominated Zone for Propagating Cracks in Finite Size Specimens," with C.Y. Zhu and R. Chona, Journal of Theoretical and Applied Fracture Mechanics, Vol. 16, pp. 167-177, 1991.
48. "Effect of Fiber Matrix Interface on Toughening Mechanisms During Dynamic Fracture of Fiber Reinforced Materials," with S.K. Khanna, Experiments in Micromechanics of Failure Resistant Materials, AMD Vol. 130, Edited by K.S. Kim, pp. 91-103, 1991.
49. "Dynamic Stresses in Granular Assemblies with Microstructural Defects," with C.Y. Zhu and Xu Yi, Journal of Engineering Mechanics, Vol. 118, No. 1, pp. 190-203, 1992.
50. "Modeling Wave Propagation in Granular Media Using Elastic Networks," with M.H. Sadd, W. Qiu and W.G. Boardman, International Journal of Rock Mechanics and Mining Sciences, Vol. 29, No. 2, pp. 161-170, 1992.

51. "Optical Fiber Interferometric Strain Sensor Using a Single Fiber," with N. Narendran and S. Letcher, Experimental Techniques, pp. 33-36, 1992.
52. "Effect of Fiber Reinforcement on Dynamic Crack Growth in Brittle Matrix Composites," with S.K. Khanna, Journal of Engineering Materials and Technology, Vol. 115, No. 1, pp. 140-145, 1993.
53. "Role of Particle Shape and Contact Profile on the Dynamic Response of Particulate Materials," with M.H. Sadd, R. Singh, Q. Tai and S. Vishwanathan, Journal of Optics and Lasers in Engineering, Vol. 19, pp. 99-119, 1993.
54. "Optical-Fiber Strain Sensor Using Combined Interference and Polarimetric Technique," with N. Narendran and S. Letcher, Optics and Lasers in Engineering, Vol. 18, pp. 121-133, 1993.
55. "Influence of Loading Pulse Duration on Dynamic Load Transfer in a Simulated Granular Medium," Journal of the Mechanics and Physics of Solids, Vol. 41, No. 11, pp. 1795-1808, 1993.
56. "Evaluation of Static and Dynamic Contact Stresses in Simulated Granular Particles Using Strain Gages", with Yi, Xu, Journal of Testing and Evaluation, Vol. 21, No. 3, 1993, pp. 178-187.
57. "Energy Absorption Mechanisms During Dynamic Fracturing of Fiber Reinforced Composites," with S.K. Khanna, Journal of Materials Science, Vol. 28, pp. 3722-3730, 1993.
58. "Contact Law Effects on Wave Propagation in Particulate Materials Using Distinct Element Modeling," with M.H. Sadd and Q. Tai, International Journal of Non Linear Mechanics, Vol. 28, No. 2, pp. 251-265, 1993.
59. "Advantages and Disadvantages of Using Various Fiber Optic Sensors in Fracture Mechanics," with S. Letcher, R. Singh, N. Narendran, C. Zhou and F. Sienkiewicz, Novel Experimental Techniques in Fracture Mechanics, Editor A. Shukla, AMD-Vol. 176, pp. 47-62, 1993.
60. "On the Application of Fiber Optic Sensors in Physical, Chemical and Biological Problems," with S. Letcher, C. Brown and G. Rand, Experiments in Smart Materials and Structures, Editor K.S. Kim, AMD-Vol. 181, pp. 11-26, 1993.
61. "Fiber-Optic Sensors and Fracture Mechanics," with S. Letcher, R. Singh and N. Narendran, Applications of Fiber Optic Sensors in Engineering Mechanics, published by ASCE, Editor F. Ansari, pp. 177-191, 1993.
62. "Evaluation of a Fiber-Optic Sensor for Strain Measurement and an Application to Contact Mechanics," with F. Sienkiewicz, Experimental Techniques, Vol 3, pp. 28-33, 1994.
63. "Influence of Fiber Inclination and Interfacial Conditions on Crack Growth," with S.K. Khanna, Experimental Mechanics, pp. 171-180, June 1994.
64. "Development of Stress Field Equations and Determination of Stress Intensity Factor During Dynamic Fracture of Orthotropic Composite Materials," with S.K. Khanna, Engineering Fracture Mechanics, Vol. 47, No. 3, pp. 345-359, 1994.
65. "On the Role of Pore Fluid and Interparticle Cementation on Wave Propagation in Granular Materials," with M.H. Sadd, F. Sienkiewicz and A. Gautam, Wave Propagation and Emerging Technologies, Editor V. Kinra et al., AMD-Vol. 188, pp. 11-28, 1994.
66. "Fiber-Optic Acoustic Sensor for Non-Destructive Evaluation," with N. Narendran, C. Zhou and S. Letcher, Journal of Optics and Lasers in Engineering, Vol 22, No. 2, pp. 137-148, 1995.

67. "Effect of Flaws on the Stress Wave Propagation in Particulate Aggregates: Near and Far Field Observations," with R. Singh and H. Zervas, International Journal of Solids and Structures, Vol. 32, No. 17/18, pp. 2523-2546, 1995.
68. "Development of a Dynamic Load-Deflection Apparatus for Elastomeric Materials," with G. Vallee, Journal of Testing and Evaluation, pp. 358-364, 1995.
69. "On the Use of Strain Gages in Dynamic Fracture Mechanics," with S.K. Khanna, Engineering Fracture Mechanics, Vol. 51, pp. 933-948, 1995.
70. "Fiber Optic Microphone Based on a Combination of a Fabry Perot Interferometer and Intensity Modulation," with C. Zhou and S. Letcher Journal of Acoustical Society of America, Vol. 98, pp. 1042-1046, 1995.
71. "A Combined Experimental and Numerical Scheme for the Determination of Contact Loads between Cemented Particles," with F. Sienkiewicz, M.H. Sadd, Z. Zhang and J. Dvorkin, Mechanics of Materials, Vol. 22, pp. 43-50, 1996.
72. "Investigation of Stresses in the Orthogonal Cutting of Fiber Reinforced Plastics," with M. Ramulu and C.W. Wern, Experimental Mechanics, Vol. 36, pp. 33-41, 1996.
73. "Microstructural Characterization of SiC/Al and FP/Al Metal Matrix Composites Subjected to Dynamic Loadings," with M. Nanduri, Journal of Material Science, Vol. 31, pp. 633-641, 1996.
74. "Subsonic and Intersonic Crack Growth Along a Bimaterial Interface," with R. P. Singh, Journal of Applied Mechanics, Vol. 63, pp. 919-924, 1996.
75. "Explosively Generated Pulse Propagation Through Particles Containing Natural Cracks," with R. Singh and H. Zervas, Mechanics of Materials, Vol 23, pp. 255-270, 1996.
76. "The Effect of Microstructural Fabric on Dynamic Load Transfer in Two Dimensional Assemblies of Elliptical Particles," with Y. Zhu and M.H. Sadd, Journal of the Mechanics and Physics of Solids, Vol. 44, No. 8, pp. 1283-1303, 1996.
77. "A Critical Evaluation of the Performance of Optical Fiber Sensors for Monitoring Dynamic Strains," with R. Singh, Journal of Testing and Evaluation, Vol. 24, No. 5, pp. 295-301, 1996.
78. "Characterization of Isochromatic Fringe Patterns for a Dynamically Propagating Interface Crack," with R. Singh, International Journal of Fracture Mechanics , Vol. 76, pp. 293-310, 1996.
79. "A Comparison of Explosively Generated Pulse Propagation in Assemblies of Disks and Spheres," with Y.Zhu, F. Sienkiewicz and M.H. Sadd, the Journal of Engineering Mechanics, Vol 123, No. 10, pp. 1050-1059, 1997.
80. "A Study of the Dynamic Behavior of Elastomeric Materials Using Finite Elements," with G. Vallee, Journal of Engineering Materials and Technology, Vol. 118, No. 4, pp. 503-508, 1996.
81. "A Simple Fiber Optic Sensor for Use Over a Large Displacement Range," with F. Sienkiewicz, Optics and Lasers in Engineering, Vol. 28, pp. 293-304, 1997.
82. "Static and Dynamic Response of Elastomeric materials-An Insight into Design of Durable Elastomeric Materials," with G. Vallee, Journal of Engineering Design, Vol. 8, No. 3, 1997.
83. "Investigation of the Mechanics of Intersonic Crack Propagation Along a Bimaterial Interface Using Coherent Gradient Sensing and Photoelasticity," with R. Singh, J. Lambros and A. Rosakis, Proceedings of the Royal Society London, Vol. 453, pp. 2649-2667, 1997.

84. "Wave Propagational Behaviors Through Assemblies of Elliptical Particles," with J. Gao and M.H. Sadd, Computers and Geotechniques, Vol. 20, No. 3/4, pp. 323-343, 1997.
85. "Initiation, Propagation and Arrest of a Bimaterial Interface Crack Subjected to Controlled Stress Wave Loading," with K. Mahesh and R. Singh, the International Journal of Fracture, Vol. 83, pp. 291-304, 1997.
86. "Evaluation of Fracture Mechanics Parameters in Bimaterial Systems using Strain Gages," with V. Ricci and R. Singh, Engineering Fracture Mechanics, Vol. 58, No. 4, pp. 273-283, 1997.
87. "Dynamic Fracture of a Functionally Gradient Material Having Discrete Property Variations," with V. Parameswaran, Journal of Material Science, Vol. 33, pp. 3303-3311, 1998.
88. "Opening-Mode Dominated Crack Growth Along Inclined Interfaces: Experimental Observations," with M. Kavaturu, International Journal of Solids and Structures, Vol. 35, No. 30, pp. 3961-3975, 1998.
89. "Dynamic Fracture Criteria for Crack Growth Along Bimaterial Interfaces," with M. Kavaturu, Journal of Applied Mechanics, Vol. 65, pp. 293-299, June 1998.
90. "Intersonic Crack Propagation Along Interfaces : Experimental Observations and Analysis," with M. Kavaturu and A. J. Rosakis, Experimental Mechanics, Vol. 38, No. 3, pp. 218-225, 1998.
91. "Intersonic Crack Propagation in Bimaterial Systems," with A. J. Rosakis, O. Samudrala and R. Singh, Journal of Mechanics and Physics of Solids, Vol. 46, No. 10, pp. 1789-1814, 1998.
92. "A New Approach to Improving Ballistic Performance of Composite Armor," with V. Parameswaran, W. Bentley and R. Prosser, Experimental Mechanics, Vol. 39, No. 2, 1999, pp. 142-149.
93. "Crack Tip Stress Fields for Dynamic Fracture in Functionally Gradient Materials," with V. Parameswaran, Mechanics of Materials, Vol. 31, pp. 579-596, 1999.
94. "Rheological and Mechanical Properties of Blended Asphalt with Recycled Asphalt Pavement Binder," with N. Soupharth, K. W. Lee, C. Franco and F. Manning, Journal of the Association of Asphalt Paving Technologists, Vol. 68, pp. 89-128, 1999.
95. "Dynamic Fracture of Curved Interfaces," with M. Kavaturu, International Journal of Fracture, Vol. 100, L3-L8, 1999.
96. "Processing and Characterization of a Model Functionally Gradient Material," with V. Parameswaran, J. of Material Science, Vol. 30, pp. 21-29, 2000.
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130. "Performance of 3-D Woven Composites Under Shock Loading," with S Arjun Tekalur, Carl Rousseau, Alex Bogdanovich and James Le Blanc, Proceedings ICCM 16, Kyoto, Japan, July 2007.

130. "Dynamic Response of Sandwich Composite Materials at High Deformation Rates," with S. Tekalur and M. H. Mohamed, Proceedings IMPLAST 07, Bochum, Germany.
131. "Component and Combined Response of Sandwich Composites Subjected to Blast Loadings," with S.A. Tekalur, P.L. Ahire, C. Meyers, SEM Annual Conference, 5<sup>th</sup> June 2007.
132. "Dynamic Crack Propagation in Transparent Functionally Graded Material," with K.H. Lee, A. Kidane, and V. Parameswaran, SEM Conference, 5<sup>th</sup> June 2007.
133. "Interfacial failure of Concrete-Asphalt Bi-materials," with M. Sadd, W. Lee and V. Subramanian, SEM Conference, 5<sup>th</sup> June 2007.
134. "Performance of Marine composites and Sandwich Structures Under Blast Conditions," ONR meeting, College Park, MD, September 2007, pp. 131-140.
135. "Experimental Studies on Dynamic Failure and Shock Loading response of Composite Materials," XI International Congress on Experimental and Applied Mechanics, Orlando, 2008.
136. "Effect of Temperature on the Dynamic Crack Tip Stress Fields in Graded Materials," with A. Kidane and V. Chalivendra, XI International Congress on Experimental and Applied Mechanics, Orlando, 2008.
137. "Dynamic Constitutive Behavior and Fracture Toughness of Ti/TiB FGM under Thermomechanical Loading," with A. Kidane, Proceedings of the International Symposium on Advances in Mechanics, Materials and Structures, China 2008.
138. "Experimental study on the performance of sandwich composites with stepwise graded cores subjected to a shock wave loading", with E. Wang, N. Gardner SEM Annual Conference and Exposition on Experimental and Applied Mechanics, Albuquerque, New Mexico , June 1-4, 2009
139. "Blast performance of sandwich composites with discretely layered core", with N. Gardner , SEM Annual Conference and Exposition on Experimental and Applied Mechanics, Albuquerque, New Mexico , June 1-4, 2009 .
140. "Dynamic Fracture Initiation Toughness of Ti/TiB FGM Under Thermo-mechanical Loading, with A. Kidane , SEM Annual Conference and Exposition on Experimental and Applied Mechanics, Albuquerque, New Mexico , June 1-4, 2009 .
141. "Static and Dynamic Constitutive Behavior and Fracture of Titanium Based FGM under Thermo-mechanical Loading", with A. Kidane , Proceedings of SEM Annual Conference and Exposition on Experimental and Applied Mechanics, Albuquerque, New Mexico , June 1-4, 2009 .
142. "Dynamic Fracture of Nanocomposites and Response of Fiber Composite panels to Shock loading," Proceedings of APS SCCM, Nashville, July 2009.
143. "High Speed Imaging and Digital Image Correlation Studies on the Blast Resistance of Sandwich Composites with Graded Core and Polyurea Interlayer," with N. Gardner, ASME International Mechanical Engineering Congress and Exposition, Vancouver, Canada November 2010.
144. "Blast Response of Sandwich Composites Using Digital Image Correlation Technique," with E. Wang, 9<sup>th</sup> International Conference on Sandwich Structures, Pasadena, CA, 2010.
145. "Performance of Prestressed Sandwich Composite Subjected to Shock Wave Loading," with E. Wang, Proceedings of International Conference on Experimental Mechanics, Poitier, France, July 2010.

146. “The Blast Response of Sandwich Composites with a Functionally Graded Core and Polyurea Interlayer”, with N. Gardener, Proceedings of SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 7 - 9, Indianapolis, 2010.
147. “The Blast Response of Sandwich Composite with In-Plane Pre-Loading”, with E. Wang, Proceedings of SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 7 - 9, Indianapolis, 2010.
148. “Dynamic response of Glass Panels subjected to Shock Loadings,” with P. Kumar, Proceedings of IMPLAST 2010, Providence RI.
149. “Energy and Impulse Evaluation During a Shock tube Experiment,” with E. Wang, Proceedings of IMPLAST 2010, Providence RI.
150. “Dynamic Constitutive Behavior and Fracture Toughness of Hastelloy X under Thermo-mechanical Loadings,” with S. Abotula and R. Chona, Proceedings of IMPLAST 2010, Providence RI.
151. “Blast Mitigation properties of Damaged Sandwich Composites,” with M. Jackson, Proceedings of IMPLAST 2010, Providence RI.
152. “Effect of Temperature on the Dynamic Performance of the Core Material, Face Sheets and the Sandwich Composites,” with S. Gupta, Proceedings of IMPLAST 2010, Providence RI.
153. "Response of Curved E-Glass / Vinyl-Ester Plates to Underwater Explosive Loading Conditions: Experimental and Computational Comparisons", with LeBlanc, J. M., 82nd Shock and Vibration Symposium, November 2011, Baltimore, MD
154. "Response of Curved Aluminum Panels Subjected to Shock Loading Conditions: Experimental and Computational Comparisons", with LeBlanc, J. M., Kumar, P., 82nd Shock and Vibration Symposium, November 2011, Baltimore, MD
155. “Blast Response of Sandwich Structures with Graded Core: Equal Core Layer Mass vs. Equal Core Layer Thickness,” with N. Gardner, SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13 - 16, 2011, Uncasville, Connecticut, USA.
156. “Blast Response of Core Shell Rubber (CSR) Infused Sandwich Composites”, Student Poster Session, with N. Gardner, SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13 - 16, 2011, Uncasville, Connecticut, USA.
157. “Effects of High and Low Temperature on the Dynamic Performance of the Core Material, Facesheets and the Sandwich Composite,” with S. Gupta, SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13 - 16, 2011, Uncasville, Connecticut, USA.
158. “The Impulse Imparted Upon Free-Standing Monolithic Plates during an Air Blast,” with J. Wright, E. Wang SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13 - 16, 2011, Uncasville, Connecticut, USA.
159. “The Blast Response of Sandwich Composites with Bi-axial In-plane Compressive Loading,” with E. Wang, SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13 - 16, 2011, Uncasville, Connecticut, USA.
160. “Electrical Response of Carbon nano tubes Reinforced Nano composites under Static and Dynamic Loading”, SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13 - 16, 2011, Uncasville, Connecticut, USA.

161. "Effect of Strain-Rate and Temperature on Dynamic Deformation of Nanolaminated Ti<sub>2</sub>AlC," with Abotula, S., Basu, S., Radovic, M, SEM International Congress & Exposition on Experimental & Applied Mechanics, June 11-14, Costa Mesa, CA, 2012
162. "Response of Curved Carbon Composite Panels to Shock Loading," SEM International Congress & Exposition on Experimental & Applied Mechanics. June 11-14, Costa Mesa, CA, 2012
163. "Fluid Structure Interaction During Shock Loading in a Compressible Fluid," with E. Wang and J. Wright, SEM International Congress & Exposition on Experimental & Applied Mechanics. June 11-14, Costa Mesa, CA, 2012.
164. Cardoso, S., Mooney, C., Pivonka, R., Chalivendra, V.B., Shukla, A. and Yang, S. (6/12/12). Proceedings of SEM Annual Conference & Exposition on Experimental & Applied Mechanics. *Detection of Damage of Epoxy Composites Using Carbon Nanotube Network*. Costa Mesa, CA.
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166. "High-Speed Imaging and 3-D Digital Image Correlation (DIC) Analysis on the Blast Response of Nano-scaled Core-shell Rubber (CSR) Toughened Sandwich Composites," with N. Gardner and S. Nolet, ASME, November 2012.
167. "Dynamic Response of Hastalloy and High Temperatures," with S. Abotula, Drucker Symposium, ASME Houston, November 2012.
168. V. Phadnis, P. Kumar, A. Shukla, A. Roy, V. Silberschmidt, "Blast Performance of Curved Composite Panels of Carbon Fiber/Epoxy: Experiments and FEA, A Joint Sheffield-Cambridge-Manchester Conference, April 8-11, 2013.
169. S. Gupta, J. LeBlanc and A. Shukla, "Implosion of a Tube within a Closed Tube: Experiments and Computational Simulations," SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 2 - 5, 2013, Lombard, Illinois, USA.
170. S. Gupta, J. LeBlanc, C. Shillings and A. Shukla, "Recent Studies on Hydrostatic and Shock Initiated Implosions Occurring within a Confining Tube," SES 50<sup>th</sup> Annual Meeting, July 28 – 31, 2013, Providence, Rhode Island, USA.
171. N. Heeder, I. Chakraborty, F. Guo, M. Godfrin, R. Hurt, A. Tripathi, A. Bose, A. Shukla, "Electrical Response of Graphene Reinforced Composites Under Static and Dynamic Loading", 2013 International Conference on Composite Materials, July 28 – August 2, 2013, Montreal, Canada.
172. "Underwater Response of Composite Panels subjected to Near-Field Blast Loading," F. LiVolsi, D. Gracia: J. LeBlanc, A. Shukla, 19<sup>th</sup> ICCM Conference, Montreal, July 2013.
173. Prathmesh Naik Parrikar, Sandeep Abotula, Anil Rajesh Kumar, Arun Shukla,, "Dynamic Response of Hastelloy X plates subjected to oblique shock wave loading at high temperatures," SES 50<sup>th</sup> Annual Meeting, July 28 – 31, 2013, Providence, Rhode Island, USA.
174. A. Shukla, S. Abotula, S. Gupta, P. Parrikar, C. anil and C. Shillings, "Recent Experiments on Dynamic Failure of Novel Materials and Structures under Extreme Conditions," 17<sup>th</sup> International Workshop on Advances in Experimental Mechanics, Au. 18-24, Portoroz Slovenia, 2013.
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179. P. Naik Parrikar, H. Gao, M. Radovic, and A. Shukla, (2014), "Static and Dynamic Thermo-mechanical Behavior of Ti<sub>2</sub>AlC MAX Phase and Fiber Reinforced Ti<sub>2</sub>AlC Composites", Society for Experimental Mechanics (SEM) Annual Conference and Exposition on Experimental and Applied Mechanics, June 2-5, Greenville, SC, USA
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182. LeBlanc, J., Shukla, A., "Effects of Polyurea Coatings on the UNDEX Response of Composite Plates: Experiments and Computational Simulations", 85th Shock and Vibration Symposium, October 2014, Reston, VA
183. Guzas, E., LeBlanc, J., Gupta, S., Shukla, A., "Computational Modeling of Shock Initiated Implosion of a Tube within a Closed Tube", 85th Shock and Vibration Symposium, October 2014, Reston, VA
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185. M. Pinto and A. Shukla, "Buckling of Composite Cylinders Under Combined Hydrostatic and Explosive Loading", Society for Experimental Mechanics Annual Conference, 8-11 June 2015, Costa Mesa, CA.
186. M. Pinto and A. Shukla, "Differences in the Hydrostatic Implosion of Metallic and Composite Tubes Studied Using Digital Image Correlation.", Society for Experimental Mechanics Annual Conference, 8-11 June 2015, Costa Mesa, CA.
187. M. Pinto and A. Shukla, "Dynamic Hydrostatic Implosion of Carbon/Epoxy Composite Tubes: Shock Energy and Failure Modes", ASME 2014 International Mechanical Engineering Congress & Exposition, 14-20 November 2014, Montreal, CAN.
188. M. Pinto and A. Shukla, "Failure Mechanisms and Fluid-Structure Interactions in the Hydrostatic Implosion of GRP Composite Tubes Studied by High-Speed Photography," Mechanics of Composites, 8-12 June 2014, Stony Brook, NY

189. M. Pinto and A. Shukla, " Experimental Investigation of Free-Field Implosion of Filament Wound Composite Tubes," Society for Experimental Mechanics Annual Conference, 3-5 June, 2014, Greenville, SC
190. S. Gupta, V. Parameswaran, M.A. Sutton, and A. Shukla, " Application of 3-D Digital Image Correlation Technique to Study Underwater Implosion," Society for Experimental Mechanics Annual Conference, 3-5 June, 2014, Greenville, SC
191. Carlos Javier, James LeBlanc, Arun Shukla. "Shock Response of Composite Materials Subjected to Aggressive Marine Environments" iDICs/SEM Fall Conference. November 08 2016, Philadelphia, PA.
192. Shyamal Kishore, Michael Pinto, Arun Shukla "Shock-Structure Interaction Using Background Oriented Schlieren and Digital Image Correlation" iDICs/SEM Fall Conference. November 08 2016, Philadelphia, PA.
193. Carlos Javier, James LeBlanc and Arun Shukla. "Unidirectional Carbon-Epoxy Composite Plates Subjected to Extreme Marine Environments" SEM Annual Conference and Exposition on Experimental and Applied Mechanics. **June 12, 2017**, Indianapolis IN.
194. Arun Shukla, Helio Matos, and Carlos Javier. "Underwater Nearfield Blast Performance of Hydrothermally Degraded Carbon-Epoxy Composite Structures" SEM Annual Conference and Exposition on Experimental and Applied Mechanics. **June 12, 2017**, Indianapolis IN.
195. Arun Shukla, "Structural Response Under Extreme Loading Conditions," International Conference on Composite Materials and Structures, December 2017, Hyderabad, India,
196. Monica Black, Carlos Javier, James LeBlanc, Arun Shukla. "Shock Response of Composite Materials Subjected to Aggressive Marine Environments" Society of Engineering Science 2017, 54th Annual Technical Meeting. July 25, 2017. Boston MA.
197. Carlos Javier, James LeBlanc, Arun Shukla. "Effect of Prolonged Ultraviolet Radiation Exposure on the Blast Response of Fiber Reinforced Composite Structures" Society for Experimental Mechanics Annual Conference, June 04, 2018, Greenville, SC.
198. Arun Shukla, "DIC under Extreme Loading Conditions," Society for Experimental Mechanics Annual Conference, June 04, 2018, Greenville, SC.
199. J. LeBlanc, A. Shukla, C. Javier and H. Matos, "Effects of Long Term Seawater Immersion on the Shock Response of Carbon-Epoxy Composite Materials", Navy Materials COI, May 2018, Carderoc, MD.
200. A. Shukla, "Implosion of Advanced Composite Structures Within Complex Underwater Environments," Draf 2018, Ischia Italy June 2018.
201. S. Kishore and A. Shukla, "Hydrostatic implosion phenomena in sandwich composite structures," International Conference on Composite Structures, Lausanne, Switzerland, August 2018.
202. Koray Senol, Arun Shukla "Underwater Mechanical Response of Closed-Cell PVC Foams at Low and High Strain Rates Using 3D-DIC", SEM Annual Conference. June 2019, Reno, NV.
203. Shyamal Kishore, Arun Shukla "Dynamic Underwater Response of a Composite Cylinder to a Proximal Implosion", SEM Annual Conference. June 2019, Reno, NV.
204. Irine Neba Mforsoh, James LeBlanc, and Arun Shukla, "Constitutive Compressive Behavior of Polyurea with Exposure to Aggressive Marine Environments", ASME IMECE (International Mechanical Engineering Congress and Exposition). Nov 2019, Salt Lake City, UT

205. C. Fox, S. Kishore, and A. Shukla, “Underwater Shock Tube for Dynamic Constitutive Response of Soft Materials”, Michael Sutton International Student Paper Competition, SEM,2021
206. Piyush Wanchoo, Shyamal Kishore, Arun Shukla, “Characterization of dynamic hydrostatic constitutive response of closed-cell PVC foams using water filled shock tube and 3D DIC”, February 27–March 3, 2022, Anaheim Convention Center & Anaheim Marriott, Anaheim, California, USA |
207. Piyush Wanchoo\* and Arun Shukla\* “Dynamic Interlaminar Fracture Toughness of Rubber Infused Composite Laminates”, Michael Sutton International Student Paper Competition, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13–16, 2022, Pittsburgh, PA
208. Piyush Wanchoo, Shyamal Kishore, and Arun Shukla, “Effect of strain rate on polymeric porous media as a function of pore density under complex loading conditions”, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13-16, Omni William Penn Pittsburgh, Pittsburgh, PA
209. Akongnwi Nfor Ngwa, Helio Matos, Arun Shukla “Underwater Implosion of Glass/Carbon Fiber Hybrid Composite Tubes”, Michael Sutton International Student Paper Competition, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13–16, 2022, Pittsburgh, PA
210. Tyler Chu, Arun Shukla, “Effects of Long-term Seawater Exposure at Seafloor Depth Pressures on Burst Behavior of Carbon Fiber Epoxy Pressure Vessels”, Michael Sutton International Student Paper Competition, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13–16, 2022, Pittsburgh, PA
211. Akongnwi Ngwa, Valentina Rossell, Helio Matos, Arun Shukla “Effects of Ring Stiffeners on the Underwater Collapse Behavior of Carbon/Epoxy Composite Shells”, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13-16, Omni William Penn Pittsburgh, Pittsburgh, PA
212. Tyler Chu, Dillon Fontaine, Arun Shukla, “Collapse Behavior of Carbon-Fiber Epoxy Cylinders Subjected to Long-term Seawater Exposure at Seafloor Depth Pressures”, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13-16, Omni William Penn Pittsburgh, Pittsburgh, PA
213. Michael Papa, Michael Galuska, Carlos Javier, James LeBlanc, Helio Matos, Arun Shukla, “Interaction Between Underwater Explosive Gas Bubbles and Adjacent Curved Structures”, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13-16, Omni William Penn Pittsburgh, Pittsburgh, PA
214. Michael Galuska, Carlos Javier, Michael Papa, James LeBlanc, Helio Matos, Arun Shukla, “Explosive Bubble Interaction with an Adjacent Underwater Structure”, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13-16, Omni William Penn Pittsburgh, Pittsburgh, PA
215. Carlos Javier, James LeBlanc, Michael Galuska, Michael Papa, Helio Matos, Arun Shukla, “Underwater Explosive Bubble Interaction with an Adjacent Flexible Structure”, 2022 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 13-16, Omni William Penn Pittsburgh, Pittsburgh, PA
216. Piyush Wanchoo, Koray Senol, and Arun Shukla “Hydrostatic and underwater shock response of sandwich core materials using 3D-DIC technique”, 13th International Conference on Sandwich Structures (ICSS-13), Knoxville - USA, 23–26 October 2022

217. Tyler Chu, Philip Keppel, Paul Cavallaro, Helio Matos, Arun Shukla, ‘Air-Blast Response of Drop-Stitch Inflatable Structures’, Michael Sutton International Student Paper Competition, Annual SEM Conference 2023, Orlando, FL
218. Victoria Reilly, Dillon Fontaine, Arun Shukla, ‘Efficient Mitigation of Implosion Pressure Pulses Using Shrouds’, Annual SEM Conference 2023, Orlando, FL
219. Victoria Reilly, Dillon Fontaine, Arun Shukla, ‘Novel Strategy for Dissipating Energy Released by Underwater Collapse of Structures’, Michael Sutton International Student Paper Competition, Annual SEM Conference 2023, Orlando, FL
220. Matthew leger, Helio Matos, Arun Shukla, ‘Dynamic Behavior of Curved Aluminum Structures Subjected to Underwater Explosions’, Annual SEM Conference 2023, Orlando, FL
221. Akash Pandey, Piyush Wanchoo, Helio Matos and Arun Shukla, "Response of Curved Sandwich Composite Panels to Shock Loading," SEM 2023 Annual Conference (2023) , Orlando, FL
222. Akash Pandey, Helio Matos, and Arun Shukla, "Experimental Investigation of a Human Torso Subjected to Underwater Explosions," SEM 2023 Annual Conference (2023), , Orlando, FL
223. Piyush Wanchoo, Akash Pandey, Arun Shukla, ‘Stress Wave Propagation and Force Transmission through Porous Polymeric Media under air Blast Loading’, Michael Sutton International Student Paper Competition, Annual SEM Conference 2023, Orlando, FL
224. Piyush Wanchoo, Birendra Chaudary, Helio Matos, Arun Shukla, ‘Effect of Matrix Rubber Infusion on the Structural Response of Carbon-Fiber Composite Panels Subjected to Shock Loading’, Annual SEM Conference 2023, Orlando, FL
225. Akongnwi Nfor Ngwa, Helio Matos, Arun Shukla, Mitigation of Implosion Pressure Wave using Foam Filler, Michael Sutton International Student Paper Competition, Annual SEM Conference 2023, Orlando, FL
226. Vikranth Reddy M, Helio Matos, Carl-Ernst Rousseau, Arun Shukla, Energy Distribution in Foam Chains during Low-Velocity Impact, Annual SEM Conference 2023, Orlando, FL
227. Arun Shukla, Shyamal Kishore, Carlos Javier, Korey Senol, Chelsea Fox. Dynamic Underwater Response of Composite Plates to Implosion of Submerged Shells, ICCM 2023, Belfast, Ireland.

### **TEXT BOOKS**

1. “Practical Fracture Mechanics in Design,” Marcel Dekker, 2<sup>nd</sup> Edition, 509 pages, December 2004, ISBN 0-8247-5885-4.
2. “Experimental Solid Mechanics,” with J.W. Dally, College House Enterprises, 1<sup>st</sup> Edition, 684 pages, May 2010, ISBN is 978-0-9792581-8-3.
3. “Instrumentation and Sensors for Engineering Measurements and Process Control,” with J. W. Dally, College House Enterprises, 1<sup>st</sup> Edition, 466 pages, November 2012, ISBN: 978-1-935673-06-4.
4. “Experimental Solid Mechanics,” with J.W. Dally, College House Enterprises, 2<sup>nd</sup> Edition, 675 pages, June 2014, ISBN 978-1-935673-19-4.

### **BOOKS EDITED AND JOURNAL SPECIAL ISSUES**



1. JDBM Special Issue on " Dynamic Failure of Composite Materials," Volume 4, Issue 3, September 2018 ISSN: 2199-7446 (Print) 2199-7454.
2. "Blast Mitigation: Experimental and Numerical Studies," with Y.D.S. Rajapakse and Mary Ellen Hynes, Springer, ISBN 978-1-4614-7266-7, 2013.
3. "Dynamic Failure of Materials and Structures," with G. Ravichandran and Y. D.S. Rajapakse, Springer, ISBN 978-1-4419-0445-4, 2009.
4. "Dynamic Fracture Mechanics," World Scientific, ISBN 981-256-840-9, 2006.
5. "Failure of Heterogenous Materiald," Special Issue of Experimental Mechanics, with Y. Rajapakse, A. J. Rosakis and H. Tippur, Springer, 2006.
6. "Photomechanics Applied to Dynamic Response of Materials," Special Issue of Optics and Lasers in Engineering, Elsevier Applied Science, 1993.
7. "Novel Experimental Techniques in Fracture Mechanics," Applied Mechanic Division Volume 176, 1993, American Society of Mechanical Engineers.
8. "Dynamic Failure Mechanics of Modern Materials", Special Issue of International Journal of Solids and Structures", with A.J. Rosakis and Y.D.S. Rajapakse, Pergamon Press, 1995.

#### **CHAPTERS IN BOOKS**

1. "Fiber Optic Sensors and Fracture Mechanics," with S. Letcher, R. Singh and N. Narendran, Application of Fiber Optic Sensors in Engineering Mechanics, published by ASCE, Editor F. Ansari, 1993.
5. "Processing, Characterization and Fracture Mechanics of Functionally Graded Materials - A Review," with V. Parameswaran,, Recent Research Developments in Materials Science, Published by: Research Sign Post 37/661, Trivandrum, India, December 2002, ISBN: 81-7736-141-4.
6. "On the Use of Strain Gages in Dynamic Fracture," with V. Parameswaran, IIT Kanpur, "Dynamic Fracture Mechanics," World Scientific, ISBN 981-256-840-9, 2006.
7. "Dynamic Fracture of Functionally Graded Materials," with N. Jain, "Dynamic Fracture Mechanics," World Scientific, ISBN 981-256-840-9, 2006.
8. "Dynamic Fracture of Nanocomposites," with V. Evora and N. Jain, "Dynamic Fracture Mechanics," World Scientific, ISBN 981-256-840-9, 2006.
9. "Failure of Polymer Based Sandwich Composites under Shock loading," with Arjun Tekalur, Dynamic Failure of Materials and Structures, Springer, 2008.
10. Performance of Novel Composites and Sandwich Structures Under Blast Loading, with Srinivasan Arjun Tekalur, Nate Gardner, Matt Jackson, and ErhengWang, Major accomplishments in composite materials and sandwich structures, Springer, edited by I. Daniel, E. Gdoutos and Y.D.S. Rajapakse, 2009.
11. "Underwater Explosive Response of Submerged, Air-backed Composite Materials: Experimental and Computational Studies." With J. LeBlanc, Blast Mitigation: Experimental and Numerical Studies, Editors A. Shukla, Y.D.S. Rajapakse and Mary Ellen Hynes, Springer, 2013.

12. "Blast Response of Sandwich Composites: Effect of Core Gradation, Pre-Loading and Temperature." With N. Gardner, E. Wang and S. Gupta, Blast Mitigation: Experimental and Numerical Studies, Editors A. Shukla, Y.D.S. Rajapakse and Mary Ellen Hynes, Springer, 2013.
13. H. Matos, M. Pinto, A. Shukla, "Mitigation of Energy Emanating from Imploding Metallic and Composite Underwater Structures", S. Gopalakrishnan, Y D S Rajapakse: Editors, "Blast Mitigation Strategies in Marine Composites and Sandwich Structures", 2017.
14. M. Pinto, A. Shukla, "Instabilities in Underwater Composite Structures: Hydrostatic and Shock Loading", Adrian P. Mouritz, Y D S Rajapakse: Editors, "Explosion Blast Response of Composites", ISBN: 978-0-08-102092-0, 2017
15. Shukla, A., Salazar C.J., Kishore, S., Matos. H., *Dynamic Response of Composite Structures in Extreme Loading Environments*. Advances in Thick Section Composite and Sandwich Structures. Springer. (2019), ISBN: 978-3-030-31064-6

### **INVITED LECTURES**

1. "Study of Energy Losses During a Fracture Event," University of Rhode Island, Dec. 1980.
2. "Application of Dynamic Photoelasticity to Crack Propagation, Wave Propagation and Crack Wave Interaction Problems," University of Connecticut, 1983.
3. "Recent Research in Dynamic Mechanics Problems," Cold Region Research Engineering Laboratory, 1983.
4. "Characterization of Dynamic Fracture," University of Rhode Island, Oct. 1984.
5. "Dynamic Photoelastic Studies of Crack Propagation and Wave Propagation Problems," IIT Kanpur, Dec. 1984.
6. "Dynamic Photoelastic Studies of Fracture," Brown University, Oct. 1985.
7. "High Speed Photography and Fracture Mechanics," ASME Meeting, Newport, RI, Nov. 1985.
8. "Experimental Investigation of Wave Propagation and Fracture Problems," University of Rhode Island, Physic Department, 1986.
9. A series of FOUR SEMINARS presented at the Indian Institute of Technology at Kanpur on Composite Materials, Wave Propagation and Dynamic Fracture, Sept. 1987 to Dec. 1987.
10. "Crack Initiation, Propagation, Arrest and Branching," Indian Institute of Technology at New Delhi, Nov. 1987.
11. "Wave Propagation and Load Transfer in Materials With Micro structure-An Experimental Study," International Conference on Computational Engineering Science, Atlanta 1987.
12. "On The Dynamic Fracture of Opaque Materials," Thirty Third National Congress of Applied Mechanics, India Dec. 1988.
13. "Theoretical and Experimental Study of Wave Propagation and Dynamic Load Transfer in Granular Media," University of Rhode Island, Mechanical Engineering, Sept. 1988.
14. "Dynamic Fracture Studies," Lehigh University, Mechanical Engineering, October, 1989.

15. "Dynamic Load Transfer in Granular Materials," Bhatnagar Memorial Lecture, Indian National Congress of Applied Mechanics, Dec. 1989.
16. "Dynamic Photoelastic Studies of Wave Propagation in Granular Assemblies," Rensselaer Polytechnic Institute, Civil Engineering, March 1990.
17. "Dynamic Load Transfer in Granular Media", University of Connecticut, Mechanical Engineering, 1991.
18. "Some Recent Experiments in Fracture Mechanics", State University of New York at Stony Brook, Mechanical Engineering, 1992.
19. "Dynamic Response of Particulate Materials Subjected to Impact and Explosive Loadings", IMPLAST'93, Indian Institute of Technology, New Delhi, India.
20. "Smart Structure Technology", University of Rhode Island, Mechanical Engineering, 1994.
1. "Effect of Flaws on Wave Propagation in Particulate Aggregates", Dynamic Failure Symposium, California Institute of Technology, 1994.
2. "Fiber Optic Sensors and Their Applications to Physical and Chemical Problems", California Institute of Technology, Texas A&M University and IIT Kanpur India, 1995.
3. Seminar at IIT Kanpur, India 1995.
4. Seminar at Texas A&M University 1995.
5. Seminar at the California Institute of Technology, 1995.
26. "On the Dynamic Fracture of Interfaces: Subsonic and Intersonic Regime," IMPLAST'96, New Delhi, 1996.
27. Delivered The Seth Memorial Lecture, "Interfacial Fracture Mechanics," at Indian National Congress of Applied Mechanics, India 1997.
28. "Dynamic Decohesion of Bimaterial Systems," Seminar at the Mechanical Engineering Department, The University of Maryland, 1997.
29. "Dynamic Fracture of Interfaces," Seminar at the Mechanical Engineering Department, The University of Delaware, April, 1998.
30. "Rapid Interfacial Fracture - Experimental Observations," Seminar at the Stanford University, Geophysics Department, November, 1998.
31. Delivered the Keynote Address at The 43<sup>rd</sup> Congress of Indian Society of Theoretical and Applied Mechanics, Coimbatore, 1998.
32. Delivered the Keynote Lecture at the International Conference on Advanced Technology in Experimental Mechanics, 1999, Ube City, Yamaguchi, Japan.
33. "Processing, Mechanical Characterization and Dynamic Fracture of Model FGM's," Seminar at the Graduate Aeronautical Laboratories, California Institute of Technology, 2000.
34. "Dynamic Behavior of Materials," Seminar at the University of New Mexico, Dept. of Mechanical Engineering, 2000.

- 35 “Dynamic Failure of FGM Materials,” Seminar at the Louisiana State University, Dept. of Mechanical Engineering, 2000.
- 36 “Interfacial Fracture Mechanics,” Seminar at the University of Connecticut, Dept. of Mechanical Engineering, 2000.
- 37 “Processing, Characterization and Fracture of Graded Materials “ Seminar at IIT Delhi, Applied Mechanics Department, 2001. Also at IIT Kanpur 2002.
- 38 Delivered The Taylor Memorial Lecture at The Indian National Congress of Applied Mechanics, India 2001.
- 39 “Graded Materials and Other Research Projects at DPML at URI,” Seminar at Case Western Reserve University, 2002.
- 40 “Dynamic Failure of Layered and Graded Materials”, Seminar at Brown University, 2003.
- 41 “Dynamic Failure of Interfaces and Graded Materials,” Invited talk at Max Planck Institute, Ringberg, Germany, July 2003.
- 42 “Nanocomposites : Fabrication and Properties,” Center for Nanomaterials, University of Alaska, Fairbanks, 2003.
- 43 “Experiments with Graded and Layered Materials,” Department of Mechanical Engineering, University of Alaska, 2003.
- 44 “Nano and Micro Composites,” Seminar IIT Kanpur, India, 2003.
- 45 “Dynamic Damage Growth in Particle Reinforced Graded Materials,” Plenary Lecture, ISIE 04, University of Cambridge.
- 46 Seminar at the University of Illinois, Urbana, Champaign, 2004.
- 47 Seminar at the Massachusetts Institute of Technology, 2005.
- 48 “Failure of Nano and Micro Particulate Composites,” Invited Lecture, Ostrach Symposium, Case Institute of Technology, 2005.
- 49 “Dynamic Crack Propagation in Particle Reinforced Nanocomposites and Graded Materials,” Plenary Lecture, European Conference on Fracture, Greece, July 2006.
- 50 “Dynamic Crack Initiation and Propagation in Nanocomposite Materials,” Invited Lecture, Russian Academy of Sciences, St. Petersburg, Russia, August 2006.
- 51 “Dynamic Mechanics Investigations – Experiments,” Bhatnagar Memorial Lecture, ISTAM 2006.
- 52 “Functionally Graded Materials for Space Access Vehicles,” Mid Western Structural Mechanics Center, University of Illinois, February 2007.
- 53 Seminar at Cornell University, 2007.
- 54 Keynote Lecture, Photomechanics, Loughborough, UK, July 2008
- 55 Keynote Lecture, UK Institute of Physics, 7<sup>th</sup> International Conference on Stress and Vibration Analysis, Cambridge University, 2009.

- 56 Plenary Lecture, XI International Congress on Experimental Mechanics, Orlando, June'08
- 57 Keynote Lecture, Interquadrennial Conference of International Congress on Fracture, Bangalore India, August 2008.
- 58 Seminar at IIT Kanpur, December 2008.
- 59 Invited Lecture, Nanjing Institute of Aeronautics and Astronautics, China 2008.
- 60 Invited Lecture, Heijang University, China 2008.
- 61 Invited Lecture, Office of Naval Research seminar to Program Managers, 2009.
- 62 Invited Lecture, APS Shock Physics of Condensed Matter, 2009.
- 63 Seminar at University of Connecticut, 2010.
- 64 Seminar at University of Illinois Urbana-Champaign, 2010.
- 65 Seminar at Boston University, 2010.
- 66 Seminar at Texas A&M, 2011.
- 67 Seminar at Caltech, 2011.
- 68 Seminar at UC San Diego, 2011.
- 69 Seminar at IIT Kanpur, 2011, 2013.
- 70 Seminar at University of Southern California, 2012.
- 71 Seminar at Zhejiang University, Northwestern Polytechnic University and Tsinghua University, China, 2013.
- 72 Seminar at Tsinghua University, China, 2014.
- 73 Seminar at Virginia Tech, 2015.
- 74 Plenary Lecture at International Conference on Sandwich Structures, Boca Raton, FL, 2016.
- 75 Invited Talk at IUTAM, Madrid Spain.
- 76 Invited talk, Melbourne Australia, 2016.
- 77 Plenary Lecture IMPLAST 2016, Delhi India
- 78 Plenary Lecture, International Conference on Composite Structures, Hyderabad, India 2017
- 79 Seminar, Indian Institute of Sciences, 2017
- 80 Plenary Lecture, Draf 2018, Ischia Italy
- 81 Keynote Lecture, NewMech 2018, Brown University, 2018
- 82 Invited Lecture, California Institute of Technology, 2019

- 83 Keynote Lecture, ICMAT Singapore 2019
- 84 Keynote Lecture, ICCM22, Australia, 2019
- 85 Seminar at IISc Bangalore, 2019
- 86 Seminars at University of Illinois, Urbana 2019
- 87 Seminar at Purdue University, 2019
- 88 Seminar at Iowa State University, 2019
- 89 Seminar at University of Minnesota, 2019
- 90 Plenary Talk at SICE2020, IIT Bombay, 2020
- 91 Plenary Talk at the Symposium on Experimental Solid Mechanics, IISc Bangalore, 2020
- 92 Plenary Talk at the 4<sup>th</sup> Structural Integrity Conference and Exhibition, IIT Hyderabad, 2022
- 93 Seminar at Johns Hopkins University, 2023

#### **PROFESSIONAL SOCIETY ACTIVITIES**

Chair, Applied Mechanics Division, ASME 2016.

Member SEM Honors Committee, 2015-2018

Member SEM Finance Committee, 2003- Present

Organizer, ASME Conference, Applied Mechanics Division, November 2013

Member, Board of Visitors, Army research Office, May 2013.

Co-organizer, ASME Conference, Applied Mechanics Division, November 2013.

ASME-AMD Executive Committee, 2012-2017.

ASME Applied Mechanics Honors Committee, 2012-2022.

Review Team Member, ONR Ship Hull Program, 2011.

Served on National Research Council, on the United States National Committee on Theoretical and Applied Mechanics and also as the chairman of US, IUTAM committee, 2003-2011.

Organized International Conference IMPLAST 2010, Providence RI.

Panel Member on Junior Faculty Career Development, SEM 2008, 2009.

Co-organizer of George Irwin 100<sup>th</sup> Anniversary Conference, University of Maryland, March 2007.

Guest Co-Editor, Experimental Mechanics, Vol. 46, No. 2, April 2006.

Chairman Nominating Committee, Society for Experimental Mechanics, 2005-2006.

Chairman Honors Committee, Society for Experimental Mechanics, 2005-2006.

International Advisory Board Member, Experimental Mechanics, (2004-2007).

Advisory Board Member, Experimental Techniques, 2004 - 2006.

Technical Editor, International Journal, Experimental Mechanics 1997 to 2000.

Associate Technical Editor, International Journal, Experimental Mechanics 1987 to 1996.

Member Editorial Board, Journal of Strain 2006-Present.

Associate Technical Editor International Journal, Lasers and Optics in Engineering, 1997 to 2011.

Member Editorial Advisory Board, Key Engineering Materials, Trans Tech Publications, 1997 - Present.

Member Editorial Board, International Journal, Lasers and Optics in Engineering, 1993 to 1996.

National Research Council (NRC), the United States National Committee on Theoretical and Applied Mechanics (USNC/TAM), 2002-2006.

Chair of the USNC/TAM Sub-committee on International Union on Theoretical and Applied Mechanics (IUTAM) Symposia, 2002-2004, 2005-2007.

President, Society for Experimental Mechanics, 2002-2003.

President-Elect, Society for Experimental Mechanics, 2001-2002.

Vice-President, Society for Experimental Mechanics, 2000-2001.

Chairman, Editorial Council, SEM 2003-2006.

Chairman, National Meetings Council, SEM 2000-2003.

Member, Executive Board, Society for Experimental Mechanics, 1994-1996.

Chairman, Technical Divisions Council, Society for Experimental Mechanics, 1995-1996.

Chairman, Fellow's Committee, SEM, 1996-1997, 2012.

Vice Chairman, Fellow's Committee, SEM, 1995-1996.

Member Fellow's Committee, SEM, 1994-1996, 2009-2011, 2020-22.

Member Finance Committee, SEM, 2002-Present.

Member, SEM Education Committee, 2009-Present.

Chairman Fracture Mechanics Committee, American Society for Mechanical Engineers, 1992 to 1995.

Chairman, Fracture and Fatigue Division, Society for Experimental Mechanics, 1992-1993.

Chairman of Fracture Division, Society for Experimental Mechanics (SEM) 1990-1992.

Vice Chairman, Fracture Division of SEM, 1988-1990.

Member, Honors Committee, SEM 1991 to 1994 and 2003-2006.

Chairman of Dynamic Fracture Sub Committee of SEM 1984-1988.

Reviewer for National Science Foundation, AFOSR, US Navy, served on many panels over the years.

Reviewer for Journals and STP's of ASTM, International Journal of Fracture, Experimental Mechanics, for Mechanics Research Communications, Journal of Applied Mechanics, International Journal of Solids and Structures, Journal of the Mechanics and Physics of Solids, Journal of Engineering Materials and Technology, Mechanics of Materials, Mechanics Research Communications etc.

Member Women in Engineering Program and Advocates Network, 2000

Member American Society for Engineering Education, since 2000.

Life Member Society for Experimental Mechanics, since 1979.

Life Member Indian Society of Theoretical and Applied Mechanics.

Member American Academy of Mechanics, since 1982.

Member American Society of Mechanical Engineers, since 1985.

Member Pi Tau Sigma , 1982.

Organized SEVERAL SESSIONS on Dynamics of Fracture at various SEM meetings including a Symposium at SEM Fall meeting at Savannah Georgia, 1987.

Chaired and Co-Chaired SEVERAL sessions and symposiums at the National and International meetings.

Reviewed Book Manuscripts for McGraw Hill and Macmillan Publishing Companies.

Guest Editor for the Journal Optics and Lasers in Engineering, special issue on "PhotoMechanics Applied to Dynamic Response of Materials".

Organized sessions on High Speed Phenomenon with Japanese collaborators at the SEM Spring Conference, Las Vegas , 1992.

Organized a Symposium on Novel Experimental Techniques in Fracture Mechanics, ASME Winter Annual Meeting, New Orleans, 1993.

Organized a Symposium on Experiments on Smart Materials and Structures, ASME Winter Annual Meeting, New Orleans, 1993.

Organized a Symposium on Dynamic Failure of Modern Materials, with Ares J. Rosakis of California Institute of Technology, February 3 to 5, 1994. Funded by NSF and ONR.

Organized the 1997 Northeast Graduate Students Symposium on Mechanics, University of Rhode Island.

Organized the Dynamic Failure Symposium, 1998 International Conference on Experimental Mechanics, Oxford, England.

Organized a symposium on Experiments in Fracture Mechanics, at the 1999 ASME summer meeting at VPI Blacksburg to honor Professor C. W. Smith.



Organized the 2001 and 2002 SEM Annual Conference on Experimental and Applied Mechanics.

Served on Scientific Committees of several National and International Conferences.

Served as External Examiner for Graduate Students at Universities Abroad.

### **SERVICE AT THE UNIVERSITY OF RHODE ISLAND**

Director, NIUVT URI, 2017 to 2023.

Building Planning Committee, 2012-13.

Member, Several Search Committees 2012-13.

Scholarly Excellence Award Committee, 2013.

Panel Member, URI Research Funding Awards.

Co-organizer of the Honors Colloquium “Demystifying India” 2009.

Chair, College of Engineering Research Council, 2009.

Chair, Search Committee Assistant Vice-President for Research Administration, 2008.

Member, Search Committee Vice-Provost Academic Affairs, 2005.

Panelist, Advance Program Panel on Mentoring, 2004.

Member, URI Faculty Excellence Award Committee, 2004. 2005.

During Interim Dean Tenure served on several Boards including International Engineering Program, URI Transportation Center, etc. 2002-2003

Chair of two Department Faculty Search Committees

Chairman, COE Awards Committee, 1999-2000

Member COE Awards Committee, 1998-1999

Chairman, COE Research Committee, 1998-1999

Member, COE 2000 Advisory Committee, 1998.

Chairman, URI Foundations Scholarly Excellence Award Committee, 1996.

Vice-Chairman, URI Foundations Scholarly Excellence Award Committee, 1996.

Member, Chairman Search Committee, Civil Engineering Department, 1996.

Member, College of Engineering Deans Search Committee, 1991-92.

Member, College of Engineering Graduate Affairs Committee, 1991 to 1994.

Member, University Faculty Senate, 1991 to 1993.

Director Graduate Studies, Department of Mechanical Engineering 1991 to 1994.

Chairman, Department Solid Mechanics Committee 1984 to 1990.

Member, Department Solid Mechanics Committee 1981 to Present.

Chairman of Design Faculty Search Committee 1989-90.

Chairman, Department Staffing Review Committee, 1989-90.

Member, Department Staffing Review Committee, 1987 to 1994.

Faculty Advisor for Pi Tau Sigma 1983-1985.

Chairman, Department Laboratory and Space Committee, 1990, 1992, 1999.

Member, Department Laboratory and Space Committee, 1982 to Present.

Member of Solid Mechanics Faculty Search Committee, 1988-89.

Director of Dynamic Photomechanics Laboratory, 1981 to Present.

Faculty Advisor, SEM Student Chapter, 1996 - Present.

### **COURSES TAUGHT AT THE UNIVERSITY OF RHODE ISLAND**

Theory of Elasticity, Fracture Mechanics, Advanced Experimental Techniques in Fluids and Solids, Advanced Topics in Mechanical Engineering, Graduate Special Problems Courses, Mechanics of Composite Materials, Experimental Mechanics, Advanced Strength of Materials, Mechanical Engineering Experimentation I and II, Undergraduate Senior Project Courses, Statics and Dynamics.

### **WORKSHOPS ATTENDED**

Sexual Harassment, Mentor and Mentoring, Decision Making, Gender Equity in Workplace, ADVANCE Program Workshops, Diversity Training Workshop, ITAR/IMEX, CITI Trainings

### **CONSULTING**

Tround International, New York, 1983, Influence of Nose Shape of Ceramic Projectiles on Damage in Granite Rocks.

E.G. and G. Sealol, 1983, Stress Analysis of Laminated Shells at Room and Elevated Temperatures.

IPEC Industrial Products and Engineering Company, 1985, Analysis of Composite Materials.

General Dynamics, 1986 and 1987, Stress analysis of Flexible Diaphragm Coupling.

Raytheon, 1988, Fatigue Crack Propagation in Metal Alloys.

Also Consulted for Law Firms on Shattering of Tempered Glass, 1989.

RanDemo Inc., Characterization of Flexible Composites, 1991.

Grinnel Corporation, Fracture of Glass Bulbs, 1994.

Delphi, General Motors Corporation, Characterization of Elastomers, 1995.

General Electric, Analysis of Endcover Weld Joints, 1997.

Precision Handling Devices, Inc., Car Crash Impact Equalizer, 1997,1998,1999.

U.S. Naval Underwater Warfare Center, Composite Materials, 1999-2000.

Thielsch Engineering and US Navy 2004.

Air Force Research Lab, Dayton Ohio, 2004-2008.

Naval Underwater Warfare Center, 2004, 2005. 2012.

University of Mississippi, 2007, 2008, 2009.

3 TEX Inc. 2009. 2010, 2011.

Textron, 2011.

Penn State Applied Research Labs, 2012.

SIAC 2013.

Naval Undersea Warfare Center, 2013.

NUWC, 2014

Navy, 2016

Navy, 2017

US Army, 2018

NSMRL, 2018, 2019, 2020

NUWC 2020

NUWC 2022

APS 2022

NUWC 2023

PacMar 2023

## **PATENTS**

“Lightweight Particulate Composite Materials with Cenospheres as Reinforcements and Method for Making the Same,” with V. Parameswaran, US Patent No. 6,506,819, Issue Date Jan. 14, 2003.

“Systems and Methods for Providing Highly Flexible and Conductive Composite Material with Tunable Properties” with N. Heeder US Patent No. 10079079, Issue Date 9-18-18.

“Structures and Methods for Mitigating Implosion Pressure Spikes,” with D. Fontaine, U.S. Provisional Patent

Application Serial No. 63/110,988, filed November 07, 2021, US Patent App. 17/515,933.

“System for Elevated Temperature High Pressure Accelerated Life Testing using Seawater,” with D. Fontaine  
U.S. Patent No. 11662298, Issue Date May 30, 2023.