Executive Summary

Dr. Gillespie has served the University of Delaware Center for Composite Materials (UD-CCM) in several roles since 1981, achieving the position of Director in 1996. Dr. Gillespie is also the Donald C. Phillips Professor of Civil and Environmental Engineering, and holds joint appointments in the Department of Materials Science and Engineering and the Department of Mechanical Engineering.
As Director, Professor Gillespie has established an internationally recognized center of excellence in composites. He has created an intellectually stimulating and highly interdisciplinary research environment for affiliated faculty, research professionals, graduate and undergraduate students, postdoctoral fellows, visiting scholars and industry partners to collaborate among themselves as well as with the Center’s government and industrial sponsors. Dr. Gillespie has established a dedicated state-of-the art composites facility and maintains an open-lab philosophy to encourage participation in research and educational activities. Under his leadership, he has nearly doubled the size of UD-CCM with 58,000 sq ft of laboratory space housed in two facilities housing more than $25M in equipment. On campus, basic and applied research is conducted in our Composites Manufacturing Science Laboratory. Off-campus, larger scale manufacturing and prototyping is conducted at his Application and Technology Transfer Laboratory. As Director, Dr. Gillespie directly supervises approximately 40 research professionals, administration and technical support staff and manages an annual research expenditures of $8-10M derived from contracts and grants.

Building on traditional strengths and by funding new initiatives, Dr. Gillespie has engaged more than 45 affiliated faculty from 5 colleges that advise undergraduate, graduate and post-doctoral students in exciting new composite research areas of basic research. Dr. Gillespie has maintained a commitment to undergraduate education and research by continuing the CCM undergraduate research program with more than 50 students involved this summer. In 2017, more than 150 researchers have been involved in CCM activities.

In 1996, Dr. Gillespie assumed leadership of the Center’s University-Industry Consortium, “Application of Composite Materials to Industrial Products,” with only three members. Today, membership exceeds 40 companies. To meet the needs for applied research and technology transfer, Dr. Gillespie has hired a full-time research professional staff with a wide range expertise in composites to work closely with our industrial and government sponsors as well as the faculty and students. Dr. Gillespie has worked diligently to maintain an optimum balance of basic and applied research to ensure that CCM is not only at the forefront of the science of composites but also able to solve real-world engineering problems to benefit the Center’s sponsors. Dr. Gillespie has established major research programs through numerous university-industry-government partnerships.

Dr. Gillespie is also an accomplished researcher and educator. Dr. Gillespie has been the Principal Investigator (PI) or co-PI on five prestigious Centers of Excellence since 1996. He was the PI of two Army Research Laboratory (ARL) Centers of Excellence (1996-2014), one in multifunctional composite materials and the other in mechanics and performance of composites. He was also co-PI on an Office of Naval Research (advanced materials and intelligent processing) established in 1997-2014. The second was funded by the Federal Aviation Association (advanced composite materials for commercial aircraft) as part of the Wichita State University team. In 2012, ARL established a Cooperative Research Alliance with Hopkins, Rutgers and Cal Tech and UD on Materials Under Extreme Dynamic Environments of which Dr. Gillespie is a member of the core management committee and UD’s PI. This major center was renewed this year through 2022. Overall, Dr. Gillespie has received over $190 million from industry and government sources to support his research and Center activities.

Dr. Gillespie has an impressive record of scholarship conducting high quality basic and applied research in collaboration with his students and colleagues from academia, government and industry. He has authored/co-authored more than 852 publications in composites science and
technology including 19 book/book chapters, 22 patents, 336 refereed journal papers and 475 proceeding papers (also presented at the conferences). His work has been highly cited by his peers with more than 15,272 citations and an h-index of 62 (Google Scholars).

As a teacher and mentor, he has advised more than 41 PhD and 56 master’s students. His former students have gone on to successful careers in academia (19 teaching at other universities), government, and industry. He was chosen as the recipient of the Faculty Advisors Award from SAMPE in 2001. He has also been proactive as a mentor to Historically Black Colleges and Universities as a Member of the National Science Foundation Task Force for Development of the first Doctoral Program at Tuskegee University (an HBCU). Today, he is an adjunct faculty member at Tuskegee. He also served as Chair of the external advisory board for the NSF CREST program for Southern University (a Minority Institution). He has hosted faculty and students from both of these HBCU schools at UD-CCM. In addition to his graduate students, Dr. Gillespie’s research group also includes 15 research faculty, professionals and technicians.

Dr. Gillespie has served as a member of the prestigious and influential National Research Council Board on Manufacturing and Engineering Design, and Chair of the National Materials Advisory Board Committee on High-Performance Structural Fibers for Advanced Polymer-Matrix Composites. Dr. Gillespie has been Editor of the Journal of Thermoplastic Composite Materials since 1993, and he serves on numerous editorial boards. Over the past few years, Dr. Gillespie was the Co-Chair of the 24th Technical Conference of the American Society for Composites and the Canadian Association for Composite Structures and Materials, Chair of the International Advisory Committee for the Second World Conference on 3D Fabrics and Their Applications, Co-Chair, TEXCOMP9, International Conference on Textile Composites and International Co-Chair of the 13th US-Japan Conference on Composite Materials, held in Tokyo, Japan. He has been a member of Society of Plastics Engineers since 1991 as member and secretary of the Steering Committee of the Special Interest Group on Joining of Plastics and Composites (1991-2002) and currently serves on the Board of Directors for SPE Composites Division.

Dr. Gillespie’s contributions have been recognized through a number of honors and awards. He was a co-recipient of the U.S. Army’s Paul A. Siple Memorial Award, announced at the 21st Army Science Conference in 1998, for his research on processing of multifunctional armor materials. His work on diffusion-enhanced adhesion for improved ballistics was cited in 1997 in the Department of Defense (DOD) booklet, Defense Basic Research-Rapid Transition from the Laboratory to the Field. The technology was one of only 17 examples of basic research recognized throughout the entire DOD. He was the first academic recipient of the prestigious Jud Hall Composites Manufacturing Award bestowed in 2000 by the Composites Manufacturing Association of the Society of Manufacturing Engineers. His research team was selected in 2004 by the American Composites Manufacturing Association for the Best of Show Award recognizing projects that are superior to all others in manufacturing, design, process innovation and use of composite materials. In 2008, he was acknowledged as the Most Cited Author (2005-2008) by the International Journal of Solids and Structures. In 2009, he was selected by the American Society for Composites as the recipient of the Outstanding Research Award and acknowledged with the Department of Mechanical Engineering Distinguished Career Alumni Award. In 2012, he was selected as a fellow of the American Society for Composites. In 2013
he was recognized as the co-recipient of the American Society for Civil Engineers Charles Pankow Award for Innovation. He was also one of only six individuals elected to the 2013 Society of Manufacturing Engineers College of Fellows. In 2015, he was one of four elected as a Fellow of SAMPE. In 2016, he received the Wayne W. Stinchcomb Memorial Award from the American Society for Testing and Materials. At CAMx 2016, his UD-CCM team and industry (BMW, NCMS) and government partners (National Highway Transportation Safety Administration) was selected as a Finalist for Unsurpassed Innovation Category for their project on Carbon Fiber Thermoplastic B-Pillars. Dr. Gillespie has also received numerous best paper and best presentation awards over the years.

*Specialty Areas:* Composites, processing, mechanics, design, interphase science, adhesion, joining, experimental methods.

**Five Most Important Achievements**

1) To meet the needs of industry, Dr. Gillespie led his research group to develop the co-injection resin transfer molding process. In this process, vacuum assisted resin transfer molding process was advanced to allow for the infusion and control of multiple resins through thickness of a composite preform in single step. The original application was the need for fire retardant resin such as phenolic to be infused with structural resins such as epoxy and vinyl ester to meet the flammability requirements for Navy topside structures and Army ground vehicle applications. A key to the success of the process was the incorporation of an impermeable barrier layer in the preform and the retention of excellent bonding of the dissimilar resins with this layer. This led to the invention of diffusion-enhanced adhesion, where thermosetting resins diffuse into thermoplastic barrier layers and cure leading to outstanding damage tolerance. These inventions were transferred to Navy industrial subcontracts and used in full-scale manufacturing demonstrations of the Director Room on Navy ships. These technologies were also transitioned to United Defense and used in Tank Automotive Research and Development Center’s Composite Armored Vehicle Advanced Technology Demonstrator (a 22-ton all-composite combat vehicle). In this program, the damage tolerance of the interface was proven out through ballistic testing and 6,000 miles of durability testing of the vehicle. These two technologies were recognized by Assistant Secretary of the Army Anita Jones in Defense Basic Research—Rapid Transition from the Laboratory to the Field. This technology was one of only 17 examples of basic research recognized throughout the entire DoD. The science associated with these inventions led to many journal papers as well as receipt of the U.S. Army’s Paul A. Siple Memorial Award, announced at the 21st Army Science Conference, for our research on processing of multifunctional armor materials.

2) A second highlight of successful transition of research and development into practice was Dr. Gillespie’s research into induction processing of thermoplastic composite materials. In this project, basic research established the three important volumetric heat generation mechanisms resulting from the interaction of electromagnetic fields with continuous fiber thermoplastic prepreg. These studies established the foundation for the invention of new induction based lamination processes. Process models were developed allowing for coil design to promote uniform heating in arbitrary laminate stacking sequences. Process models established in UD-CCM’s thermoplastic tape placement process (another highlight) were adapted to optimize the consolidation
process and to design the manufacturing equipment including sensors and control systems. Laboratory-scale equipment was built, and the process was proven out. The process was then hardened and transitioned to our industrial partner (Alliant Tech Systems) and integrated into their automated factory. Our automated induction-based laminator produced autoclave quality at production rates of 20ft/min leading to labor cost savings of nearly 40% by replacing more than 20 hand-lay-up vacuum debulk stations. This process has been a commercial success producing thick-section composites for the US Army for nearly a decade. This project resulted in multiple patents and many high quality publications in materials, processing and manufacturing. This project is an excellent example of bridging basic research to commercial success (TRL 1-9)

3) A third highlight of success transition of research and development was the development of the thermoplastic composite tow placement manufacturing for aerospace structures. This effort was funded as part of a DARPA program on affordable composites manufacturing and brought DuPont, Hercules, NASA, Cincinnati Milacron and UD together. In this project UD-CCM was the prime, and Dr. Gillespie provided overall program management for the team as well as leading his research group. The original need was to develop a new manufacturing process for large-scale aerospace wing and fuselage structures using high-temperature thermoplastic composites to meet the demanding service environment of the high speed transport. Today this process is highly desirable as an affordable out-of-autoclave manufacturing process. The vision was to marry DuPont’s thermoplastic filament winding technology with Hercules thermoset fiber placement equipment. The technical challenge was to develop and commercialize new head technology with heating, consolidation and cooling capability to produce aerospace quality laminates without secondary processing. Dr. Gillespie’s group focused on understanding the relationship between the process physics to final material part quality and properties. Comprehensive modeling and simulation of the tape placement process was conducted incorporating the effects of multiple passes on void reduction within tapes, the interdiffusion between tapes required to achieve full interlaminar properties and the final residual stress states including part-tool interactions. This project led to the design and fabrication of a laboratory-scale robotic head for processing trials and model validation. Later these models were used to optimize the head configuration for maximum throughput and over time this has culminated in a series of commercial heads sold originally by Cincinnati Milacron and more recently Accudyne Systems.

4) A fourth highlight was the development of composites for bridge infrastructure renewal that was funded by DARPA. Our team consisted of DelDOT, FHWA, DuPont Hardcore Composites and HCB. Dr. Gillespie and Dr. Mertz were the UD co-PI’s. The project design and erected one of the first all-composite bridge on the federal highway system that met all State and Federal bridge requirements. The project received the State of Delaware Project of the Year Award in 1998. The project continued with the development of affordable manufacturing methods for composite girders for rail and bridge systems. Dr. Gillespie’s research group worked closely with a bridge designer and inventor to turn a concept into full scale projection process for bridge girders up to 70 ft in length. The girders were tested at various length scales in the laboratory and proven out in the field on the nation’s rail test track. The bridge systems have now passed all federal requirements and are commercially products. This project was
selected as the recipient of the prestigious ASCE Charles Pankow Award for Innovation in 2013.

5) The fifth achievement is related to the management, leadership, impact and sustainment of the Center for Composite Materials at the University of Delaware. UD-CCM has achieved international recognition as a leader in composites education and research. Under Dr. Gillespie’s leadership, UD-CCM has been designated a Center of Excellence by DOD (1996-2022) through multiple competitions throughout his tenure as Director and PI/co-PI of those programs. He has tripled the size of the research enterprise and nearly doubled the size of the laboratory space. He has successfully created a center where long term basic research by faculty and students and industry relevant applied research by research professionals are further matured leading to successful innovation and product development within a single organization. Dr. Gillespie has established over the past decade a shared research and development facility that spans TRL1-9. Our government funded Centers of Excellence combined with our strategic industry (University-Industry Consortium Application of Composite Materials to Industrial Products) and our academic partnerships with our collaborative research environment has resulted in a highly successful university-industry-government partnerships and successful transitions and commercialization of technology. This has been the key to long term sustainment of UD-CCM as a soft-funded research center for more than 40 years.

Publications: Summary
19 Book and Book Chapters
22 Patents
475 Conference Proceedings (also presented at Meetings): 1978-2018
83 Invited Presentations: 1986-2018

Specialty Areas: Composites, processing, mechanics, design, interphase science, adhesion, experimental methods.

Education
Ph.D., 1985, Mechanical and Aerospace Engineering, University of Delaware
M.M.A.E., 1978, Mechanical and Aerospace Engineering, University of Delaware
B.M.E., 1976, Mechanical and Aerospace Engineering, University of Delaware
Experience

2013 to Present
Professor, Department of Mechanical Engineering, University of Delaware

2005 to Present
Named Donald C. Phillips Professor, Department of Civil & Environmental Engineering, University of Delaware

1999 to Present
Professor, Department of Civil & Environmental Engineering, University of Delaware
Professor, Department of Materials Science & Engineering, University of Delaware

1996 to Present
Director, Center for Composite Materials, University of Delaware

1998 to Present
Adjunct Faculty, Materials Science and Engineering Program, Tuskegee University

March 1989 to Present
Senior Scientist, University of Delaware

1996 to 1999
Associate Professor, Department of Civil & Environmental Engineering, University of Delaware

1994 to 1999
Associate Professor, Department of Materials Science & Engineering, University of Delaware

1990 to 1996
Associate Director and Member of Board of Directors, Center for Composite Materials, University of Delaware

February 1989 to 1994
Research Faculty Member, Materials Science Program, University of Delaware
Research Faculty Member, Department of Mechanical Engineering, University of Delaware

August 1986 to 1990
Assistant Director for Research, Center for Composite Materials, University of Delaware

September 1986 to July 1989
Research Assistant Professor of Mechanical Engineering, University of Delaware

January 1986 to March 1989
Scientist, University of Delaware

July 1983 to December 1985
Associate Scientist, Center for Composite Materials, University of Delaware

October 1981 to June 1983
Research Associate III, Center for Composite Materials, University of Delaware

Scholarship
Awards:

1. Elected in May 2018 as SPE Fellow.
2. CAMX Finalist for Unsurpassed Innovation Category: Carbon Thermoplastic B-Pillars.
4. SAMPE Fellow Award in recognition of your extensive history of research support, technology advancement, individual mentoring and support of the society, June 2015.
5. Elected in 2013 to the SME College of Fellows.
6. Selected as co-recipient of the American Society for Civil Engineers 2013 Charles Pankow Award for Innovation.
7. Elected in 2012 as Fellow of the American Society for Composites.
8. 2009 ASC Outstanding Research Award; Quoting the Society guidelines: A nominee for the ASC Outstanding Research Award shall have made contributions to the science and technology of composite materials by way of analytical modeling, numerical modeling, design methodologies, and/or experimental work that have led to a greater understanding of the behavior of composite materials.
9. Distinguished Career Alumni Award, Department of Mechanical Engineering, University of Delaware, May 1, 2009.
10. 2004 American Composites Manufacturing Association Best of Show Award recognizing projects that are superior to all others in manufacturing, design, process innovation, and use of composite materials, November 2004.
13. J. H. “Jud” Hall Composites Manufacturing Award of the Composites Manufacturing Association, Society of Manufacturing Engineers, 2000 Award recognizing outstanding contributions to the advancement of composites manufacturing.
15. Paul A. Siple Memorial Award: “Co-Injection Resin Transfer Molding for Optimization of Integral Armor,” (with B. K. Fink and S. H. McKnight), 21st Army Science Conference, Science and Technology for Army After Next, Norfolk, VA, June 15–17, 1998 recognizes best basic research contributions in U.S. Army.
16. “Defense Basic Research-Rapid Transitions from the Laboratory to the Field” recognized notable achievements by world-class scientists and engineers. Dr. Gillespie’s research
on Diffusion Enhanced Adhesion was selected as one of only 17 examples throughout the entire Department of Defense, May 1997.

Best Paper Awards:


5. Best Paper Award 1st Place SAMPE 2005 Symposium & Exhibition (50th ISSE), Long Beach, CA, May 1-5, 2005 with B. A. Gama, S. M. W. Islam, M. Rahman, T. A. Bogetti, B. A. Cheeseman, C-F. Yen, and C. P. R. Hoppel, “Punch Shear Behavior of Thick-Section Composites under Quasi-Static, Low Velocity, and Ballistic Impact Loading.”


Books and Book Chapters


**Patents**


Refereed Publications

2018

Submitted


Accepted
Published


2017


2016


2015


2014


2013


2012


2011


2010


2009


2008


2007


2006


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2004


2003


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1989


1988


Compression Test Method for Stiffness and Strength Determination,” Composites

Delamination Growth,” Journal of Composite Materials, Vol. 22, No. 5, p. 459,


Delamination Growth in Thermoset and Thermoplastic Composites,” ASTM STP

1987

Interlaminar Crack Growth Mechanisms in Graphite/Epoxy and Graphite/PEEK,”

Effect Upon Thermoelastic Properties of Short Carbon Fiber Reinforced

Fracture of Graphite/Epoxy and Graphite/PEEK,” Journal of Reinforced Plastics

1986

the End Notched Flexure Specimen for Measuring Mode II Fracture Toughness,”

of the End Notched Flexure Specimen for Mode II Testing,” Journal of Composite

1985

Orientation: Numerical Simulation with Experimental Verification,” Polymer

1978-1984


**Conference Proceedings (also presented at Meetings)**

2018


2017


13. Heider, D., J. W. Gillespie, Jr., University of Delaware; L. Keuthage, A. Campbell, and D. Rinehardt, BMW; R. Myers, National Center for Manufacturing Sciences, “Demonstrating Computational Design Capabilities for Thermoplastic Carbon Fiber Reinforced Body-in-


2016


2015


2014


2013


2012


2011


2009


2008


2007


2006


154. Gama, B. A. and J. W. Gillespie, Jr., “A New Experimental Technique to Characterize the Fiber Crush and Fiber Shear Behavior of Composites at Quasi-Static and High Rates of


2005


164. Amouroux, S. C., D. Heider, S. Lopatnikov, and J. W. Gillespie, Jr., “Membrane-Based VARTM: Membrane and Resin Interactions,” submitted to SAMPE Fall 2005, Materials and


2004


2003


240. Vaidyanathan, R., C. Green, L. Brack, R. Cipriani, S. Yarlagadda, J. Gillespie, Jr., M. Effinger, K. Cooper, “Solid Freeform Fabrication of Continuous Fiber Reinforced C/ZrC and


2001


2000


1998


1997


1996


1995


1994


1993


1992


1991


1990


1989


1988


1987


1978–1986


**Technical Reports (Final Reports and ARL Technical Reports)**


Invited Presentations


17. Panelist, “Creating Knowledge-Based Partnerships: Challenges and Opportunities”; Advanced Materials, Clayton Hall, U of D, November 2, 2007


Division of ASME, First SES-ASME-ASCE Joint Meeting, Charlottesville, VA, June 6–9, 1993.


Other Presentations


Service

University of Delaware

Member, Board of Advisors, Tau Beta Pi, Delaware Alpha Chapter, 2017

Member, Mentors Committee (Zubaer Hossain), 2017-2018

Member, Awards Committee, 2017-2018

Member, Committee for Director for Additive Manufacturing, 2016

Member, UD Interdisciplinary Manufacturing Program, 2016

Member, Committee for UD Energy Institute, 2016

Member, Institute of Energy Conversion Working Group, 2016

Member, University Research Council, 2014-2015

Member, ME Alumni Relations Planning Team, 2013

Professor, Department of Mechanical Engineering, 2013

Member, Dean’s Search Committee, 2012-2013

Member, College of Engineering Financial Levers Taskforce, 2012


Member, Chief Financial Officer Search Committee, 2010

Member, Deans’ Cluster Search Committee on National Security, 2010.

Member, Dean’s Cluster Search Committee on Composites, 2010.

Member, Organizing Committee for the Second Joint American – Canadian Conference on Composites - 2011

Member, Committee of Named Professors on Classified Research, July 2009

Member, Classified Research Task Force, June 2009

Member, Dean’s Chair’s Advisory Committee (DCAC), July 2008 - Present

Member, College of Engineering Strategic Planning Committee, July – Present
Member, Research Council, May 2008 - Present

Member, Dean’s Search Committee, 2007-08

Director, Center for Composite Materials, 1996 – Present

Chair of the College Promotion and Tenure Committee, 2007 - 2009

Member, CEE Faculty Search Committee, 2006

Member, College P&T Committee, 2006-07

Coordinator, Science & Engineering Scholars Program Center for Composite Materials, 1982–Present

Member, Civil & Environmental Engineering Advisory Committee, 2001 – Present

Member, College of Engineering Dean’s Advisory Committee, 2000 – Present

Department of Materials Science & Engineering representative, Educational Activities Committee, 1998 –Present

Member, Responsible Conduct of Research (RCR) Council, Office of Vice Provost, 2005

Member, Department of Civil & Environmental Engineering Undergraduate Committee, 2003-2004

Member, ad hoc Committee, Independent Review of Department Chair (Materials Science and Engineering), 2003

Member, College of Engineering Promotion and Tenure Committee, 1999 – 2003

Member, Search Committee, Director, Delaware Transportation Institute, 1999

Member, Technical and Scientific Advisory Group (TSAG), Delaware Transportation Institute, 1998 – 1999

Member, Search Committee, College of Engineering Dean's position, 1998 – 1999

Member, Department of Civil & Environmental Engineering Undergraduate Recruitment and Scholarship Committee, 1998–1999

Member, ABET Implementation Committee/Subcommittee on Civil Engineering, 1998 – 1999

ABET Review Committee, Department of Civil and Environmental Engineering, 1997–1998

Graduate Student Academic Advisor, Department of Materials Science and Engineering, 1997–1998
Member of the Center for Composite Materials Executive Advisory Board, 1995–1998

Chair, Administrator of Intellectual Property Search Committee, University of Delaware Office of the Vice Provost for Research, 1996

Member, Project Manager Search Committee, University of Delaware Office of the Vice Provost for Research, 1996

Associate Director, Center for Composite Materials, 1990–1996

Member, College of Engineering Dissertation Committee and Search Committees

Member Dissertation Committee:
  Erich Weigert
  Dan Su

Member, Tau Beta Pi - 1976

External


Member, Consortium Management Committee for Materials for Extreme Dynamic Environment 2013 - Present

Member, Mach Scientific Committee, 2017

Member, Science Advisory Board, Mach Conference, 2016

Member, Board of Directors of the Composites Division of SPE, 2015 -

Session Chair, “Micro-scale models of polymers and composites”, Mach Conference, Annapolis, MD, April 8-10, 2015.

Member, Science Advisory Board, Mach Conference, 2015

Chair of the International Advisory Board for the Sixth World Conference on 3D Fabrics and Their Applications, North Carolina State University, Raleigh, NC, May 26-27, 2015.

Member, Science Advisory Board, Mach Conference, 2014

Member, Editorial Board of Fibers, 2013

Member, Science Advisory Board, Mach Conference, 2013

Member of Advanced Manufacturing Innovation and Skills Accelerator, Delaware Industrial Resource Center, 2013.

Member International Advisory Committee, Fifth World Conference on 3D Fabrics and Their Applications, Indian Institute of Technology, Delhi, India, December 16-17, 2013.

Member of Scientific Committee, Mechanics of Composites, Atlanta Georgia, June 8-11, 2014.

Member of Editorial Board of Journal of Materials, July 2012.


Member International Advisory Committee, Fourth World Conference on 3D Fabrics and Their Applications, RWTH Aachen, Germany, September 10-11, 2012.

Session Chair, 2011 International Fiber Symposium, sponsored by the Fiber Society, AATCC, and the National Textile Center, Charleston, South Carolina, October 11-13, 2011

Co-Chair of International Science Advisory Committee, Third World Conference on 3D Fabrics and Their Applications, Wuhan Textile University, Wuhan, China, April 20-21, 2011.


Member of Organizing Committee of Symposium on New Frontiers in Fiber Materials Science, Clemson University, 2011

Chair, External Advisory Board for NSF Next Generation Composite CREST Center, Southern University, 2010-2014

Member of Advisory Committee, Second Joint US-Canada Conference on Composite, 2010

External Advisory Group for the Composites CREST Center at Southern University, 2010

Member of Editorial Board, Journal of Materials Processing Technology, xxxx-2009

Member of External Advisory Board to the President of Owens Corning Ventures, 2009-.

Co-Chair, 24th Technical Conference, American Society for Composites and the Canadian Association for Composite Structures and Materials, September 15-17, 2009.

Chair of the International Advisory Committee for the Second World Conference on 3D Fabrics and Their Applications, Greenville, South Carolina, April 2009.


Co-Chair, TEXCOMP9, International Conference on Textile Composites, October 13-15, 2008, University of Delaware.

International Co-Chair, 13th US-Japan Conference on Composite Materials, Nihon University, Tokyo, Japan, June 6-7, 2008

Session Co-Chair, Multi-functional Composites, 13th US-Japan Conference on Composite Materials, Nihon University, Tokyo, Japan, June 6-7, 2008

Member of International Advisory Committee for the First World Conference on 3D Fabrics and Their Applications, Weston Conference Centre, University of Manchester, UK, April 3-4, 2008.

Member of Independent Review Team for Future Combat Systems, March 08.


Sugar Bowl Steering Committee for the Friends of Wilmington Parks and The Delaware Division of Parks and Recreation, 2005-2007.


Past President of the Technical Program Committee, Secretary and Member of the Steering Committee, Society of Plastics Engineers Special Interest Group on Joining of Plastics and Composites, 1990–2002.

Chair, Workshop of the National Academies, High Performance Structural Fibers for Advanced Polymer Matrix Composites, Washington DC, April 5-6, 2004


Session Chair, Commercial Needs, Workshop of the National Academies, High Performance Structural Fibers for Advanced Polymer Matrix Composites, Washington DC, April 5-6, 2004.

Member, Scientific Committee Meeting on Mesomechanics, Montreal, Canada, August 1-4, 2005.

Chair, Materials, Composites and Nanotechnology Working Group, Strengthening the Mid-Atlantic Region for Tomorrow (SMART), Oct 2003 to present

Served as Member of Grey Beard Panel for Weight Reduction in Future Combat System NLOS Cannon and Mortar Vehicles - 2003


Faculty Advisor, SAMPE, 2000 – Present.

Member, Selection Committee, Jud Hall Composites Manufacturing Award, SME, 2000 – Present.

Member, Executive Committee, ASEE Postdoctoral Fellowship Programs, 1999 – Present.

Adjunct Faculty, Materials Science and Engineering Program, Tuskegee University, 1998 – Present.


Member, National Research Council (Transportation Research Board), National Cooperative Highway Research Program (NCHRP), Project D10-55, *Fiber Reinforced Polymer Composites for Concrete Bridge Decks*, 1998 – 2003.


Member, Organizing Committee, *Sixth International Conference on Sandwich Constructions*, Fort Lauderdale, FL, March 31 – April 2, 2003.


Co-chair, SME Third Composites Manufacturing and Tooling 2001 Conference.


Member, Programme Committee, 32nd International Symposium on Automotive Technology and Automation (ISATA), Vienna, Austria, June 14–18, 1999.

Member, International Advisory Board, Polymer Composites 99: International Symposium on Polymer Composites Science and Technology, Quebec, Canada, October 6-8, 1999.

Member, Programme Committee, 31st International Symposium on Automotive Technology and Automation (ISATA), Dusseldorf, Germany, June 2–5, 1998.


Member, Programme Committee, 30th International Symposium on Automotive Technology and Automation (ISATA), Florence Italy, June 16–19, 1997.

Member, Executive Committee and Editor, American Society for Composites, 1990–1997.

Member, Militarily Critical Technology TARDEC Committee Composites for Ground Vehicles, 1995–1996.

Member, Programme Committee, 29th International Symposium on Automotive Technology and Automation (ISATA), Florence Italy, June 3–7, 1996.


Session Chairman, Joining, ANTEC 96, Indianapolis, IN, 1996.

Session Chairman, Composites for Infrastructure, Eleventh Technical Meeting of the American Society for Composites, Atlanta, GA, October 1996.

Session Chairman, Joining, ANTEC 95, Boston, MA, 1995.

Co-Chairman of the Technical Committee, ENERCOMP 95, International Conference on Composite Materials and Energy, Quebec, Canada, 1995.

Session Chairman and Organizer on Thermoplastic Composite Materials, Second International Conference on Composites Engineering, New Orleans, LA, August 1995.


Member of the Program Committee, 150th Anniversary of the State University Lvivska Polytecnica International Symposium, “Polymers at the Phase Boundary,” Lviv, Ukraine, October 25–29, 1994.


Session Chairman, Joining, ANTEC 93, New Orleans, LA, May 9–13, 1993.

Member of the U.S. Army Armament Research, Development and Engineering Center (ARDEC) Independent Design Review Panel of the 9 MJ Range Gun Compulsator Program at the Institute for Advanced Technology, University of Texas at Austin, Austin, TX, 1993.

Session Chairman, Joining, ANTEC 92, Detroit, MI, May 4–8, 1992.


Session Chairman, Processing, American Society for Composites Seventh Technical Conference, Penn State University, October 13–15, 1992.


Session Chairman, Center for Composites Annual Research Symposium, September 16–17, 1992.

Session Chairman, American Society for Composites Sixth Technical Conference, RPI, Troy, NY, October 7–9, 1991.


Reviewer for Promotion and Tenure Committees:
- Professor Hassan Mahfuz, Florida Atlantic University (Oceans Engineering Department)
- Professor Anwar Haque, University of Alabama (Department of Mechanical Engineering)
- Professor Adel Hammami, United Arab Emirates University (Department of Mechanical Engineering).
- Professor Raghavan Jayaraman, University of Manitoba (Department of Mechanical & Industrial Engineering).
- Professor John Henshaw, University of Tulsa.
- Professor Mehrdad Ghasemi Nejad, University of Hawaii.
- Professor Su-Seng Pang, Louisiana State University.
- Professor John Whitcomb, Texas A&M.
- Professor Ranga Pitchumani, University of Connecticut.

Examiner on Ph.D. Committees:
- Bijan Derisi, Concordia University, “Development of Thermoplastic Composite Tubes for Large Deformation,” Department of Mechanical and Industrial Engineering.
- T. Thomas, Tuskegee University, “Effects of Temperature and Strain Rate on Impact Response of Foam Core Sandwich Structures,” MSE03.
- J. Wang, University of Buffalo, Department of Mechanical Engineering
- S. Mazumder, Concordia University, Department of Mechanical Engineering, Montreal, Canada.
- Christophe Ageorges, University of Sydney, “Resistance Welding of Thermoplastic Matrix Composite Materials.”

Reviewer

1. Science
2. Acta Materialia
3. ACS Applied Materials & Interfaces
4. ACS Nano
5. ACS Petroleum Research Fund
6. Aerospace Science and Technology
7. Advances in Polymer Technology
8. Air Force Office of Scientific Research
9. American Chemical Society
10. American Institute of Aeronautics and Astronautics
11. American Institute of Biological Sciences
13. American Society of Mechanical Engineers
14. Applied Surface Science
15. Analytical Chemistry
16. Applied Composite Materials
17. Applied Mathematics and Mechanics
18. Arabian Journal for Science and Engineering
19. Army Research Office
20. Australian Research Council
21. Austrian Science Fund
22. Board of Regents
23. Carbon
24. Chemical Engineering Science
25. Christian Doppler Research Association, Austria
26. Clean Products and Processes
27. Colloid and Polymer Science
28. Composites
29. Composites Engineering
31. Composites Part B: Engineering
32. Composites Science and Technology
33. Computational Materials Science
34. Computer Methods in Applied Mechanics and Engineering
35. Computers and Structures
36. Department of Energy
37. Deutsche Forschungsgemeinschaft (German Research Foundation)
38. DOE
39. Engineering Fracture Mechanics
40. Engineering Structures
41. European Journal of Mechanics – A/Solids
42. Experimental Mechanics
43. Express Polymer Letters
44. Freund Publishing House Ltd.
45. International Journal of Applied Ceramic Technology
46. International Journal of Computational Methods
47. International Journal of Environmental Technology and Management
48. International Journal of Fracture
49. International Journal of Material Forming
50. International Journal of Mechanical Sciences
51. International Journal of Multiphase Flow
52. International Journal of Multiphase Materials
53. International Journal of Precision Engineering and Manufacturing
| 91. | Journal of Structural Engineering and Mechanics |
| 92. | Journal of the Textile Institute |
| 93. | Journal of Thermoplastic Composite Materials |
| 94. | Journal of the Royal Society Interface |
| 95. | Journal of Textile Science & Engineering |
| 96. | Journal of Vibration and Control |
| 97. | Journal of Vinyl and Additive Technology |
| 98. | Langmuir |
| 99. | Macromolecules |
| 100. | Mechanics of Materials |
| 101. | Mechanics Research Communications |
| 102. | Materials Characterization |
| 103. | Materials Chemistry and Physics |
| 104. | Materials Science and Engineering A |
| 105. | Nebraska EPSCoR |
| 106. | National Materials Advisory Board |
| 107. | National Science Foundation |
| 108. | NIST Monograph on Technological |
| 109. | Office of Naval Research |
| 110. | Onodon-Tel-Aviv |
| 111. | Opportunities in Composite Materials |
| 112. | Physica E |
| 113. | Polymer |
| 114. | Polymer & Polymer Composites |
| 115. | Polymer Composites |
| 116. | Polymer Engineering and Science |
| 117. | Royal Society, Proceedings A |
| 118. | Reviews in Chemical Engineering |
| 119. | Shock (The) and Vibration Digest |
| 120. | Sensors and Actuators |
| 121. | Smart Materials and Structures |
| 122. | Society of Plastic Engineers |
| 123. | Steel and Composite Structures |
| 124. | Strain |
| 125. | Structural Engineering and Mechanics |
| 126. | Superlattices and Microstructures |
| 127. | Surface and Interface Analysis Foundation |
| 128. | Swiss National Science Foundation |
| 129. | The Journal of Adhesion |
| 130. | The Textile Institute |
| 131. | Thin Solid Films |
| 132. | Wear |

**Consulting**

1. 3TEX, Research Triangle Park, NC
2. Accudyne, Newark, DE
3. Advanced Ceramics Research, Tucson, AZ
4. A.O. Smith Corp., Milwaukee, WI
5. A.I. Technology, Princeton Junction, NJ
6. Alcoa, Alcoa Center, PA
7. Alliant TechSystems, Rocket Center, WV
8. Alliant TechSystems, Hopkins, MN
9. American Cyanamid, Stanford, CT
10. Anholt Technologies, Newark, DE
11. Atlantic Research Company, Gainsville, VA
12. BP North End Advanced Products, LLC
13. CASDE Corp., Alexandria, VA.
14. DE Technologies, Inc., King of Prussia, PA
15. DuPONT Company, Wilmington, DE
16. EdgeCraft Corp., Avondale, PA
17. Foster Miller, Inc., Boston, MA
19. Hercules Inc., Wilmington, DE
20. ISC Education Systems, Lancaster, PA
21. Johnson & Johnson Orthopedics, Raynham, MA
22. Kenetech Windpower, Livermore, CA
23. Keystone Helicopter Corp., Phoenixville, PA
24. Lanxide Armor Products, Inc., Newark, DE
25. Leeds & Northrup Co., North Wales, PA
26. Lockheed, Marietta, GA
27. Lord Corp., Cary, NC
28. Martin Marietta, Baltimore, MD
29. Martin Marietta Composites, Raleigh NC
30. Materials Science Corp., Fort Washington, PA
31. Micro Contacts, Hicksville, NY
32. National Academies Commission on Engineering and Technical Systems
33. Naval Surface Warfare Center, Annapolis, MD
34. NVF Company, Kennett Square, PA
35. Owens Corning, Granville, OH
36. Pacific Northwest National Laboratory
37. P² Inc., Aberdeen, MD
38. Product Design Center, Newark, OH
39. Rogers Corp., Rogers, CT  
40. Solectria Corp., Woburn, MA  
41. Sorvall, Newtown, CT  
42. Southwest Research Institute, San Antonio, TX  
43. TDA Associates, Wayne, PA  
44. Textron, Providence, RI  
45. Thiokol, Brigham City, UT  
46. Tension Technology Internatl, Morristown, NJ  
47. Triton Systems, Inc., Chelmsford, MA  
48. United Defense, San Jose, CA  
49. United States Army  
50. University of Texas at Austin  
51. Versar, Inc., Springfield, VA  
52. VALCOR Engineering Corp., Springfield, NJ  
53. Westinghouse, Lima, OH  
54. West, Bethlehem, PA  
55. Xerox Corp., Brewster, NY

Teaching and Advisement

Education Courseware


Courses Taught


Current & Completed Ph.D. Students
1. Sandeep Tamrakar, PhDCEE
2. Preston McDaniel, PhDMSE
3. Danning Zhang, PhDMSE Munetaka Kubota, PhDME
4. Albraa Ali Jaber, PhDME
5. Christopher Scott Meyer, PhDME
6. Raja Ganesh, PhDME
7. Colin Cwalina, PhDCHE
23. William M. Edberg, “Behavior of Orthotropic Fiber Reinforced Polymer Bridge Decks on Traditional Girders,” 01PhDCEE.

24. Douglas Eckel II, “An All Fiber-Reinforced-Polymer-Composite Bridge: Design Analysis Fabrication Full Scale Experimental Structural Validation Construction and Erection,” 01PhDCEE.

25. Metin Tanoglu, “Investigation of the Fiber/Matrix Interphase under High Loading Rates,” 00PhDMSE.


27. Gopalakrishnan Rajagopalan, “Diffusion of Reacting Thermosets into Thermoplastics,” 99PhDMSE.


30. Steven H. McKnight, “Influence of Surface Modification on the Processing and Performance of Aluminum Adhesive Joints Bonded with Thermoplastic Polymers,” 96PhDMSE.

31. Ulrich Hansen, “Transverse Cracking of Laminated Composite Materials with Interleaves,” 96PhDMSE.

32. David L. Fecko, “In-Situ Ultrasonic Porosity Monitoring for the Thermoplastic-Matrix Pultrusion Process,” 96PhDMSE.

33. Suranjana Roychowdhury, “Void Formation and Growth in Amorphous Thermoplastic Polymeric Materials,” co-advised with S. G. Advani, 95PhDMAT.

34. Mehrdad Ghasemi-Nejhad, “Three-Dimensional Thermal and Residual Stress Analysis of In-Situ Thermoplastic Filament Winding,” co-advised with R. Cope and S. I. Güçeri, 92PhDME.

35. Bruce Fink, “Heating of Continuous Carbon-Fiber-Reinforced Thermoplastics by Magnetic Induction,” co-advised with R. L. McCullough, 91PhDMAT.


38. Scott Gilmore, “Thermal and Residual Stress Analysis in Processing of Thermoplastic Composites,” co-advised with S. I. Güçeri, 91PhDME.


40. Travis A. Bogetti, “Process-Induced Stress and Deformation in Thick-Section Thermosetting Composites,” 89PhDME.

41. Bruce R. Trethewey Jr., “Mechanics and Performance of Composite Laminates with Discontinuous Internal Plies,” co-advised with D. J. Wilkins, 89PhDME.
Current & Completed Master’s Degree Students

1. Alex Michael Vanarelli, MME
2. Christopher Scott, MME
3. Brian Allik, MMSE
4. Connor Keenan, MMSE
5. Gregory Kelly, MSE
6. Maxime Dempah, MMSE
7. William Chance Malkin, CEE
8. Jeff Rockwell, CEE
11. Evan Brodsky, “Composite Sandwich Structure Subjected to Blast”, MCEE
24. Nathaniel Johnson, 02MECE.
25. Anuya Harkare, “In-situ Barrier Layer Formation for CIRTM,” 02MMSE.

27. Jeffrey A. Acheson, “The Role of Vacuum Pressure, Dual Scale Media, and Fiber Compaction in VARTM,” 02MME.


29. Todd West, “Enhancements to the Bond between Advanced Composite Materials and Steel for Bridge Rehabilitation,” 01MCEE. **Also published as DCT-140 December 2002. Delaware Center for Transportation.

30. Franklin L. Moon II, “Large-Scale Experimental Validation of an All-Composite Bridge Deck and Deck Connections,” 00MCEE.


34. Kanu P. Singh, “Characterization of Phenolic Resins and Their Co-Cure with Other Matrix Resins,” 99MMSE.

35. Emanuele F. Gillio, “Co-Injection Resin Transfer Molding of Hybrid Composites,” co-advised with S. G. Advani, 98MME.


37. Steven M. Andersen, “Development of Joint Designs and Design Methodology for Composite Pressure Hulls,” 98MME.

38. Molly A. Stone, “Thermochemical and Thermomechanical Response of Reacting Polymers,” co-advised with B. K. Fink, 97MMSE.


40. Kristie M. Immordino, “Characterization of the Polysulfone/Epoxy Interphase for Bonding Thermoplastic Composites,” co-advised with S. H. McKnight, 96MMSE.

41. Michael A. Sasdelli, “A Methodology for the Design and Manufacture of RTM Composites with Molded-In Metal Inserts,” co-advised with V. M. Karbhari, 96MME.

42. Nouredine Ammar, “Rehabilitation of Steel Bridge Girders with Graphite Pultrusion,” co-advised with D. R. Mertz, 96MCE.

43. Thomas Miller, “Characterization and Constitutive Modeling of Flexible Polyurethane Matrix Continuous Fiber Composites,” 96MMSE.

44. Scott T. Holmes, “A Study of the Processing and Performance of Large-Scale Resistance Welded Thermoplastic Composite Joints,” 96MME.

45. Min Chao, “Non-Isothermal Strength Model Including Healing and Bondline Thickness Effect for Fusion Bonding of Thermoplastic Composites,” 93MMSE.

47. Laurent J. Bastien, “Nonisothermal Model for Fusion Bonding of Thermoplastic Composites Using an Amorphous Film Technique,” 90MMSE.


53. Travis A. Bogetti, “Process Induced Stress and Deformation in Thick-Section Thermosetting Composites,” co-advised with R. B. Pipes, 87MME.


56. Jean Vanderschuren, “Prediction of the Strength of Short Fiber Composites with Molded-In-Holes,” co-advised with R. B. Pipes, 83MME.
<table>
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<tr>
<th>Last Name</th>
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<td>John</td>
<td>NCMS</td>
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Scarborough Stephen ILC Dover Collaborator/Co-Author
Simacek Pavel University of Delaware Collaborator/Co-Author
Sahin O. Selcuk University Collaborator/Co-Author
Sherwood Jim University of Massachusetts Collaborator/Co-Author
Sun Z. Rice Collaborator/Co-Author
Tierney John. University of Delaware Collaborator/Co-Author
Thostenson Erik University of Delaware Collaborator/Co-Author
VanLandingham Mark Army Research Laboratory Collaborator/Co-Author
Wagner Norm University of Delaware Collaborator/Co-Author
Wetzel Eric Army Research Laboratory Collaborator/Co-Author
Xiao John University of Delaware Collaborator/Co-Author
Yarlagadda Shridhar University of Delaware Collaborator/Co-Author
Zangenberg Jens Technical University of Denmark Collaborator/Co-Author
Zheng James US Army Collaborator/Co-Author
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Allik Brian Synchron, LLC Graduate Student
Armouroux Solange Dassault Graduate Student
Bogetti Travis Army Research Laboratory Graduate Student
Brodsky Evan Delaware Dept. of Transportation Graduate Student
Cicchetti Nicole Unknown Graduate Student
Cromer Kevin TCOM Graduate Student
Cwalina Colin Unknown Graduate Student
Crepin Maxime Meggitt Graduate Student
Eckel Douglas Unknown Graduate Student
Ederberg William HNTB Graduate Student
Eduljee Rushad Citi Graduate Student
Fecko David Penn State Graduate Student
Fink Bruce Deceased Graduate Student
Foley Maureen Naval Surface Warfare Center Graduate Student
Ganesh Raja University of Delaware Graduate Student
Gao Xiao Army Research Laboratory Graduate Student
Gilmore Scott Unknown Graduate Student
Gopalakrishnan Rajagopalan United Technologies Graduate Student
Guron Amanda Kate University of Delaware Graduate Student
Hansen Jens LM Wind Graduate Student
Hansen Ulrich Imperial College London Graduate Student
Haque Bazle University of Delaware Graduate Student
Haque Bazle University of Delaware Graduate Student
Heider Dirk University of Delaware Graduate Student
Keenan Connor Hexcel Graduate Student
Kelly Gregory First Quality Enterprises Graduate Student
Koellhoffer Stephen Terumo Cardiovascular Systems Graduate Student
Leal Angel Empa – Swiss Federal Laboratories for Materials Science and Technology Graduate Student
Malkin Chance Pennoni Assoc. Graduate Student
<table>
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<tr>
<th>Name</th>
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</tbody>
</table>

**Past Students Now Teaching**

1. Tong-Earn Tay – National University of Singapore
2. Ahmad Abu Obaid – Zarqa University, Jordan
4. Ranga Pitchumani – University of Connecticut
7. Franklin Moon - 2000 – Drexel University
8. Metin Tanoglu - 2000 – Izmir Institute of Technology, Turkey
9. William Edberg - 2001 - University of Massachusetts Dartmouth
10. Guowei Ma, 2002 – Nanyang Technological University, Civil and Environmental Engineering
11. Bazle Zahurul (Gama) Haque – 2004 - University of Delaware – Mechanical Engineering
12. Myung-Keun Yoon, 2005 – South Dakota School of Mines
13. Francis Aviles, 2006 – Center of Scientific Research of Yucatan (CICY)
15. Nuri Ersoy, 2011 – Assoc. Professor, Mechanical Engineering Dept. Bogazici University, Istanbul, Turkey
16. Steven H. McKnight – 2014 – Professor, Virginia Tech
17. Shridhar Yarlagadda – Electrical and Computer Engineering
18. Ray Dagastine, Dept. of Chemical and Biomolecular Engineering, University of Melbourne, Australia
19. Subramani Sockalingam – 2017 – Mechanical Engineering, University of South Carolina

**Science & Engineering Scholars**

2. Eric Busillo, 2004

Current (2007) Research Professionals in Gillespie Group

Dr. Abu Obaid Limited Term Researcher
Mr. Andersen Assistant Director for Military Programs
Dr. Deitzel Associate Scientist
Dr. Doherty Limited Term Researcher
Dr. Gama Scientist
Dr. Gawandi Limited Term Researcher
Dr. Heider Assistant Director for Technology
Dr. Jadhav Limited Term Researcher
Dr. Kang Limited Term Researcher
Dr. Kissounko Limited Term Researcher
Dr. Lopatnikov Associate Scientist
Mr. Molligan Research Associate
Dr. Nayak Limited Term Researcher
Mr. Scott Limited Term Researcher
Dr. Shevchenko Associate Scientist
Dr. Tierney Scientist
Dr. Yarlagadda Assistant Director for Research

Mr. Hobbs Manager of Operations
Mrs. Stratton Assistant to the Director
Mrs. Fiore Graphic Designer
Mrs. Green Administrative Assistant
Mrs. Hamed Staff Assistant
Ms. Mack Sr Secretary
Mrs. O’Donnell Sr Secretary
Mr. Roach Laboratory Coordinator
Ms. Sheffield Sr Records Specialist
Mr. Thiravong Sr Research Technician II


1. Dan Molligan
2. Stephen M. Andersen
3. Dr. Joseph Deitzel
4. Dr. Bazle A. Gama
5. Dr. Dirk Heider
6. Len Hobbs
7. Dr. Hee-June Kim
8. Dr. Sergey Lopatnikov
9. Dr. Crystal H. Newton
10. Philip J. Roach
11. Dr. Nicholas B. Shevchenko
12. Anthony Thiravong
13. Dr. Shridhar Yarlagadda
14. Dr. Amit Chatterjee
15. Dr. Ahmed Abu-Obaid
16. Dr. John Tierney
17. Dr. Aurimas Dominauskas
Postdoctoral Fellows

1. Wei Li, Post Doctoral Fellow, Production Products, ONR and Anholt, 2001-2004
8. Feiyi Pang, Post Doctoral Fellow, School of Engineering and Technology, Deakin University, Australia, “Environmentally Friendly Repair and Remanufacturing of Composites,” January 1999–

Visiting Scholars and Interns

1. Leif A. Carlsson, Visiting Professor, Florida Atlantic University, Summer 2003-2008
7. Stephan Pressler, Visiting Scholar, Fachhochschule fuer Technik Esslinger, MANTECH, 2001-present.


31. Ismail Dagli, Visiting Student from Esslingen, Germany, VARTM Control, 1999–


33. Lijun Han, Visiting Scholar, China, VARTM Processing, February 1999–


35. Christoph Hoffmann, Visiting Student, Aachen, Germany, completing master’s thesis on complex flow pattern analysis, February 1999–


41. Juergen Wuest, Visiting Student from Esslingen, Germany Acousto-Ultrasound Measurements and NDE, March 1999–
47. Andreas Eggert, University of Kaiserslautern, Germany, “Activity-Based Cost Analysis of Manufacturing Processes for the Composite Armored Vehicle,” 1996.
61. Nuri B. Ersoy, Ph.D. candidate, Department of Mechanical Engineering, Bogazici University, 1995.


Undergraduate Research Assistants and Summer Interns

2. Yanmin Zhang, Research Technician, 2002-present.
11. Ashiq A Quabili, Research Technician-present.
32. David Henderson, Summer Intern, (DelDOT 896), 1998.
34. Sean Wells, Summer Intern (CMR), Induction-Based Repair, 1998.
38. Caroline Hurst, Summer Intern (CMR), 1998.
44. Alyson Radel, Research Technician, Composite Infrastructure, 1996.
45. Brian Revels, Research Technician, Composite Infrastructure, 1996.
46. Darin Triolo, Research Technician, Composite Infrastructure, 1996.
47. David Conway, Research Technician, Joining, 1996.
49. Raymond Foulk, Research Technician, Robotics (FP/Induction), 1996.
50. Michael Rosner, Research Technician, SW/Sensor Data Visualization, 1996.
53. Allyson Wilkes, Research Technician, Specimen Fab/Signature, 1996.
57. Frank Puchino, Lab Technician, 1996.
60. Helen Yen, Lab Technician, 1995–96.
64. Christopher Lawler, Lab Technician, 1994–95.
86. Scott Holmes, Lab Technician, 1989–90.
87. Eric Tu, Lab Technician, 1989–90.
93. Mark Savarese, Lab Technician, 1988–89.
94. Catherine Baron, Lab Technician, 1986.

**Undergraduate Research Projects (in addition to Honors Students/Engineering Scholars)**

2. Raymond Foulk, “Intelligent Control of Induction Heating,” Senior Thesis/Degree with Distinction Candidate, 99BSME
3. Z. Z. Wong, “Ultraviolet Curing of a GFRP Composite Based on Vinyl-Ester,” Imperial College of the University of London, 1997
4. Zeenab Razak, Imperial College of the University of London, 1996
5. Ahmed Monib, “Repair and Residual Strength of Thick Section Composites,” 96BSME
7. Composites et Polymeres, Ecole Polytechnique Federale de Lausanne, Switzerland, 1994
9. Clint Weslager, “Mine-Blast Resistant Sandwich Structures,” 95BSME


12. Eric Wetzel, “Induction Bonding of Composites,” 95BSME

13. Paul Franco, “Joining of Glass/Polypropylene and Anodized Aluminum,” 94BSME


15. Ian Howie, “Resistance Welding of Dual Polymer Radel 8320/Polysulfone Composites,” 92BSME


17. Scott Holmes, “Three-Dimensional Reinforcement for Composite Structures,” 90BSME

18. Roderic Don, “Fusion Bonding of Thermoplastic Composites,” 90BSME


20. Tom Chapman, “Temperature and Strain Rate Effects on Mode II Interlaminar Fracture,” co-advised with R. B. Pipes, 86BSME

21. Ed Ashmead, “In-Situ Mode I Interlaminar Fracture,” 86BSME


**Design Projects**


**Continuing Education**


“Joining of Thermoplastic Composites,” Tenth Annual CCM Composites Workshop, University of Delaware, Newark, DE, April 22–24, 1991.


Research Funding

Total Funding: $155M
Industrial Gift Funding: 1996-2009
Estimate: $7M
<table>
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<th>Project Title</th>
<th>Code</th>
<th>Start Date</th>
<th>End Date</th>
<th>PI(s)</th>
<th>Co-PI(s)</th>
<th>Sponsor(s)</th>
<th>Total Funding</th>
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**Notes:**
- Projects listed are representative of the researcher's contributions and funding over time.
- Funding amounts are approximate and may vary.
- Dates reflect the period of the project.