2013 Annual Scholarly Activity Report

The Department of Mechanical and Aerospace Engineering
Dear Colleagues and Friends:

It is with great pleasure that I provide you with the scholarly achievements of the faculty and students of the Department of Mechanical and Aerospace Engineering for the 2013 calendar year. In keeping with the trend of the past few years, our graduate program continues to grow as does the productivity of our faculty. I am pleased to acknowledge the significant contribution of our new faculty to our productivity and to introduce you to four new faculty who have joined us during the year. Dr. Lian Duan whose expertise is in direct numerical and large-eddy simulations for several aerospace applications joined us from the National Institute of Aerospace at NASA-Langley and holds his PhD from Princeton University. Dr. Heng Pan who also joined us in the Fall 2013 semester, received his PhD in mechanical engineering at the University of California-Berkeley, specializing in advanced manufacturing. Heng comes to us after working three years as an R&D engineer at Applied Materials. After completing his PhD at Georgia Tech in 2012, Dr. Tansel Yucelen joined our department bringing an emphasis on control of dynamical systems and is quickly engaging the students in multidisciplinary control applications. Completing the new group of faculty is Dr. Cheng Wang from the University of Illinois at Urbana-Champaign whose expertise lies in thermal-fluid transport phenomena and microfluidics. Together these new faculty add to the department’s current research strengths, and are already contributing to the scholarly accomplishments of the department. Fitting with the continued growth of the department, we have just finished another successful faculty recruiting season and look forward to a couple new faculty joining us in the fall.

On a broader scale, our research efforts in manufacturing engineering received a boost this year as the Missouri University of Science and Technology chose four areas in which the campus aims to achieve best-in-class status as a research university. One of the Signature Areas chosen is Advanced Manufacturing whose multidisciplinary group of researchers is led by Dr. Ming Leu, Keith and Pat Bailey Missouri Distinguished Professor in the MAE department. With 23% of the Missouri workforce employed in manufacturing related occupations and advanced manufacturing ranking first in the Science and Technology Priorities for the FY 2014 Federal Budget, this is a perfect fit for Missouri S&T given the national importance of advanced manufacturing and the existing S&T strength in this area. The additional resources to be placed in the Signature Areas will build upon our excellent faculty and research facilities for additive manufacturing, laser processing, metal casting, composites manufacturing, and materials characterization and will bolster our activities in micro/nano manufacturing and sensor-enabled intelligent manufacturing. The other three Signature Areas named by the campus include: i) Advanced Materials for Sustainable Infrastructure centering on rehabilitation of the infrastructure for mass-transportation, ii) Enabling Materials for Extreme Environments focusing on developing new materials for applications involving extreme temperatures and fluxes, and iii) Smart Living, incorporating computing expertise with smart sensors and sophisticated analytics and intelligence to develop future smart homes, buildings and entire communities. Our faculty are involved in all these Signature Areas and will play an important role in their development.

Clearly we have much to be proud of and much to look forward to as our department grows and progressively changes. As you review our 2013 Annual Scholarly Activities Report, you will see that the faculty along with our outstanding staff form a department of significant strength and potential focused on bringing excellence to the education of our students.

Dr. Jim Drallmeier
Curators’ Teaching Professor and Chair of Mechanical and Aerospace Engineering
Missouri University of Science and Technology
Annual Scholarly Activities Report of the Department of Mechanical and Aerospace Engineering

Faculty Awards and Honors

MAE: by the Numbers

Facts and Figures

Graduate Seminar Series

New Faculty

Faculty

New Grants and Contracts

Other Active Grants

Professional & Scholarly Activities

Chairman, Co-Chairman of Technical Sessions

and Conferences

Service on Committees of Professional Organizations

Editors of Symposia, Proceedings and Journals

Journal Publications

Refereed Conference Papers

Contributions to Books and Books Published

Invited Talks

Conference Presentations

M.S. Thesis and Ph.D. Dissertations

Faculty Awards and Honors

Dr. A. Crosbie, ASME Heat Transfer Division’s 75th Anniversary Medal, Minneapolis, MN, July 15, 2013

Dr. H. Pernicka, 2012 President’s Recognition Award, presented by the American Astronautical Society, February 14, 2013.

Dr. D. Riggins, appointed Curators’ Teaching Professor of Aerospace Engineering, December 2013.

Global Learning Outstanding Teaching Award of Excellence

Dr. L. Dharani

Dr. R. G. Landers

2013 Achievement Award

Dr. N. Kumar

2013 Research Award

Dr. V. Birman

2013 Teaching Award

Dr. K. Homan

Professional Recognition


Publication Recognition and Awards

Patents


MAE - BY THE NUMBERS

UNDERGRADUATE

1. Undergraduate student enrollment 843
   • Aerospace Engineering 174
   • Mechanical Engineering 669
2. B.S. degrees awarded per full-time T-TT faculty 6.76
3. Starting salary
   • Aerospace Engineering $63,234
   • Mechanical Engineering $61,053

GRADUATE

1. Graduate student enrollment
   • Aerospace Engineering 39
   • Mechanical Engineering 141
   • Manufacturing Engineering 28
   Thesis
   - Aerospace Engineering M.S. 13
   - Aerospace Engineering Ph.D. 17
   - Mechanical Engineering M.S. 34
   - Mechanical Engineering Ph.D. 51
   - Manufacturing Engineering M.S. 15
   Non-Thesis
   - Aerospace Engineering M.S. 5
   - Mechanical Engineering M.S. 25
   - Manufacturing Engineering M.E. 5
   Certificates 43
2. Quantitative GRE of graduate students 159
3. Percentage of supported graduate students 81%
4. GRA/GTA ratio based on FTE 1.57
5. M.S. degrees (thesis) awarded per full-time T-TT faculty 1.32
6. M.S. degrees (non-thesis) awarded 0.62
   per full-time T-TT faculty
7. Ph.D. degrees awarded per full-time T-TT faculty 0.12

GENERAL

1. Full time T-TT/NTT faculty 34/3
2. Undergraduate to graduate student ratio 4.05
3. Undergraduate student to full-time T-TT faculty ratio 24.8
4. Journal articles per full-time T-TT faculty 3.03
5. Awarded funds per full-time T-TT faculty $137,300
6. Expenditures per full-time T-TT faculty $95,148
7. Professional society fellows 15
8. Minority and female faculty 2

* Fall 2013 enrollment records
FACTS & FIGURES

2013 RESEARCH FUNDING

ENROLLMENT GROWTH

Total Ph.D. Enrollment
- Mechanical Engineering
- Aerospace Engineering

Undergraduate Program Enrollment
- Mechanical Engineering
- Aerospace Engineering
Each semester the Mechanical and Aerospace Engineering department organizes seminars under the sponsorship of the Graduate Seminar Series and the Missouri S&T Academy of Mechanical and Aerospace Engineers (AMAE). One of the purposes of the seminar series is to broaden our students academically and to aid in their professional development by providing another connection with the world of industry, business and research. These seminars consist of exceptional speakers whose research spans the range of the Mechanical and Aerospace Engineering disciplines. Through these seminars we seek to expose our faculty and graduate students to a scale of topics in areas both related to and complementary of those areas investigated in the department.

September 20, 2013 - “Positioning and Measuring at the Nanometric Level over Macroscopic Distances,” by Dr. Robert Hocken, Norvin Kennedy Dickerson Jr. Distinguished Professor and Director, Center of Precision Metrology Department of Mechanical Engineering and Engineering Science, The University of North Carolina at Charlotte

October 3, 2013 - “Relative Spacecraft Dynamics Research at the Air Force Research Laboratory,” by Dr. T. Alan Lovell, Space Vehicles Directorate, Air Force Research Laboratory, Kirtland AFB, New Mexico

October 31, 2013 - “Heterogeneous Functional Integration and Manufacturing at the Micro and Nanoscales,” by Dr. Placid Ferreira, Department Head, Grayce Wicall Gauthier Professor, Mechanical Science and Engineering, University of Illinois Urbana-Champaign

November 14, 2013 - “Recursive RANSAC: Multiple Target Tracking with Outliers,” by Dr. Randy Beard, Professor of Electrical Engineering, Brigham Young University
Dr. Lian Duan joined the department as an Assistant Professor in the Fall of 2013. He received his Ph.D. and M.A. in mechanical and aerospace engineering from Princeton University in 2011 and 2008, respectively, and B.E. in engineering mechanics in Beihang University, China, in 2005. Prior to joining Missouri S&T, Dr. Duan was a research scientist at the National Institute of Aerospace based in NASA Langley Research Center. His research interests include direct numerical and large-eddy simulations of turbulent flows, laminar-turbulent transition, turbulent drag reduction, aeroacoustics, and high-performance computing. Dr. Duan has authored/coauthored more than 20 refereed journal/conference presentations. He is a winner of the 2012 AIAA Laurence J. Bement Award for Young Professional Paper Competition and a recipient of the 2008 Crocco Award for Teaching Excellence, Princeton University.

Dr. Heng Pan joined the Department of Mechanical and Aerospace Engineering at Missouri University of Science and Technology in the Fall of 2013. He received his Ph.D from Mechanical Engineering at UC-Berkeley (2009), M.S degree from Manufacturing Engineering at Missouri University of Science and Technology (2004), and B.S degree from Mechanical Engineering at Zhejiang University (2002). Prior to joining Missouri S&T, Dr. Pan was a Postdoctoral Fellow at Lawrence Berkeley National Lab (2009-2010), then a R&D engineer at Applied Materials (2010-2013). His research interests include additive manufacturing, printed electronics and photonics manufacturing, thermal/laser assisted manufacturing, laser annealing and crystallization, and high-throughput and low cost micro/nano-manufacturing. Dr. Pan has authored/coauthored 23 journal publications. His honors and awards include a Best Paper Award at the ASME 4th International Conference on Energy Sustainability (2011) and an Innovation Award at Applied Materials (2011).

Dr. Cheng Wang joined the department as an Assistant Professor in the Spring of 2014. He received his Ph.D. from the University of Illinois at Urbana-Champaign in 2013, and M.Eng. and B.Eng. degrees from Nanyang Technological University in Singapore in 2006 and 2004 respectively, all in mechanical engineering. Between 2006 and 2007, he worked as a researcher focusing on micro/nano fabrication in the Micromachining Center at Nanyang Technological University. His research interests include thermal-fluid transport phenomena, micro/nanofluidics, droplet dynamics, bubble dynamics, acoustic steady streaming flows, electro-hydrodynamics, and micro/nano fabrication and technologies. Dr. Wang has authored/coauthored more than 30 refereed journal/conference presentations. He was the recipient of the Best Student Paper Award at the Second International Conference on Advances in Microfluidics and Nanofluidics in 2011. He was a runner-up of Small Matters Video Contest, organized by Biomicrofluidics, American Institute of Physics, in 2012. He was on the lists of teachers ranked as excellent, University of Illinois at Urbana-Champaign, (spring 2010, spring 2011, spring 2012 and summer 2012).

Dr. Tansel Yucelen joined the Department of Mechanical and Aerospace Engineering at Missouri University of Science and Technology in the summer of 2013. He received his Ph.D. in aerospace engineering from the Georgia Institute of Technology (2012), his M.S. in electrical and computer engineering from SIU-Carbondale (2008), and his B.S. in control engineering from the Istanbul Technical University in Istanbul, Turkey (2006). Prior to joining Missouri S&T, Dr. Yucelen was a research engineer at the Georgia Institute of Technology within the school of aerospace engineering and the school of electrical and computer engineering, as well as serving as a research faculty member for the university. At Missouri S&T, Dr. Yucelen has been the director of the Advanced Systems Research Laboratory (ASRL) where his team is focused on the creation of new information, control, and decision algorithms that reveal advanced systems. His research interests include dynamical systems and controls, robotics, adaptive control of safety-critical systems, control of large-scale systems, multiagent systems, biologically inspired control and learning, and smart modular systems. Dr. Yucelen has authored/co-authored more than 100 archival journal and conference publications. He also is the creator of Missouri S&T’s Control Systems Forum which is a public forum dedicated to discussion of new research results and applications of automatic control, decision-making, and dynamical systems.
DR. S. N. BALAKRISHNAN  
CURATORS’ PROFESSOR OF AEROSPACE ENGINEERING

Education: Ph.D., University of Texas at Austin

Research Interests: Guidance, stability, control and estimation, pattern recognition, stochastic processes, optimization, neural network applications to control, numerical methods, design

DR. VICTOR BIRMAN  
PROFESSOR OF MECHANICAL ENGINEERING
DIRECTOR OF ENGINEERING EDUCATION CENTER
Fellow, ASME, 1996

Education: Ph.D., Technion (Israel)

Research Interests: Composite material structures, biomechanics, smart structures and materials, structural dynamics and vibration, buckling and dynamic stability

DR. DOUGLAS A. BRISTOW  
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING

Education: Ph.D., University of Illinois at Urbana-Champaign

Research Interests: Dynamic modeling and control of micro- and nano-positioning systems, atomic force microscopes and additive manufacturing systems; volumetric error compensation; iterative learning control; multi-dimensional control and signal processing

DR. K. CHANDRASHEKHARA  
CURATORS’ PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING
Fellow, ASME, 2002

Education: Ph.D., Virginia Polytechnic Institute and State University

Research Interests: Composite materials, smart structures, nanocomposites, biocomposites, structural dynamics, finite element analysis, damage monitoring, composite manufacturing, experimental characterization

DR. KIRK CHRISTENSEN  
ASSISTANT TEACHING PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING

Education: Ph.D., University of Missouri - Rolla

Research Interests: Development of propulsion system models using Matlab/Simulink and VBA software packages, development of pump-fed liquid rocket engine “power balance” calculation methodologies, model and hardware development of liquid and solid-fueled air-turbo rocket (ATR), thermodynamics, dynamics, and development of database document storage & retrieval systems for teaching applications

DR. AL CROSBIE  
CURATORS’ PROFESSOR OF MECHANICAL ENGINEERING
Fellow, ASME, 1987
Fellow, AIAA, 1988
Fellow, AAAS, 1998

Education: Ph.D., Purdue University

Research Interests: Multidimensional radiative heat transfer, laser processing of materials, radiative heat transfer in combustion processes, microscale heat transfer, biomedical optics, interaction of radiation with conduction and convection, multiple scattering and polarization of laser beams, solutions of integral equations, numerical heat transfer

DR. K. CHANDRASHEKHARA  
CURATORS’ PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING
Fellow, ASME, 2002

Education: Ph.D., Virginia Polytechnic Institute and State University

Research Interests: Composite materials, smart structures, nanocomposites, biocomposites, structural dynamics, finite element analysis, damage monitoring, composite manufacturing, experimental characterization

DR. LOKESWARAPPA R. DHARANI  
CURATORS’ PROFESSOR OF AEROSPACE ENGINEERING
Associate Fellow, AIAA, 1995
Fellow, ASME, 2000

Education: Ph.D., Clemson University

Research Interests: Aircraft structures, fracture mechanics, fatigue and failure analysis, micro mechanics, composite materials and structures, process modeling of ceramic matrix composites, friction and wear of composites, fracture of laminated glazing

DR. JAMES A. DRALLMEIER  
CURATORS’ TEACHING PROFESSOR OF MECHANICAL ENGINEERING
DEPARTMENT CHAIR

Education: Ph.D., University of Illinois at Urbana-Champaign

Research Interests: Combustion, laser based diagnostics for sprays and combustion, optical measurement systems, fuel injection, internal combustion engines

DR. XIAOPIING DU  
ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING

Education: Ph.D., University of Illinois at Chicago

Research Interests: Design optimization, multidisciplinary optimization design, probabilistic/statistical methods, system/structural reliability, robust design, kinematics, mechanism synthesis, petroleum machinery
DR. LIAN DUAN
ASSISTANT PROFESSOR OF AEROSPACE ENGINEERING
Education: Ph.D., Princeton University
Research Interests: Direct numerical simulation and large eddy simulation, high-speed transitional and turbulent flows, chemically reacting flows, laminar flow control and turbulent drag reduction, and large-scale, high performance computing

DR. WALTER EVERSMAN
CURATORS’ PROFESSOR OF AEROSPACE ENGINEERING
Fellow, AIAA, 2011
Education: Ph.D., Stanford University
Research Interests: Noise control, acoustics, vibrations, aircraft structural dynamics and aeroelasticity, systems and control

DR. FATHI FINAISH
PROFESSOR OF AEROSPACE ENGINEERING
Education: Ph.D., University of Colorado at Boulder
Research Interests: Aerodynamic testing, unsteady flows, vortex dynamics in separated flows, physical and numerical flow visualizations, variable density flows, flow control

DR. JIE GAO
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., Columbia University
Research Interests: Nanophotonics devices based on silicon photonics, plasmonics and metamaterials; light-matter interactions in photonic nanostructures; optical sensing; quantum dots; quantum optics and quantum information processing; solar energy harvesting; light emitting devices

DR. KAKKATTUKUZHY M. ISAAC
PROFESSOR OF AEROSPACE ENGINEERING
ASSOCIATE CHAIR FOR AEROSPACE ENGINEERING
Education: Ph.D., Virginia Polytechnic Institute and State University
Research Interests: Fluid dynamics, aero-structure interaction and control, intelligent aircraft, active flow control, unmanned air vehicles, electrochemical magnetohydrodynamics-based microfluidics and CFD simulations of transport phenomena

DR. SERHAT HOSDER
ASSISTANT PROFESSOR OF AEROSPACE ENGINEERING
Education: Ph.D., Virginia Polytechnic Institute and State University
Research Interests: Computational fluid dynamics (CFD), aerodynamics, micro/nano flows, stochastic CFD, uncertainty and error quantification in computational simulations, multidisciplinary design and optimization, robust design, numerical methods

DR. RYAN S. HUTCHESON
ASSISTANT TEACHING PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., Texas A&M University-College Station
Research Interests: Design theory and methodology, design of complex systems, behavioral modeling of complex systems, design of hybrid powertrain systems, engineering software development, graphical simulations of engineering systems

DR. EDWARD C. KINZEL
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., University of Michigan at Ann Arbor
Research Interests: Combustion, air pollutants, alternative fuels, fuel cells, hydrogen technologies, radiative transfer, flame diagnostics, nanoparticle characterization, fire safety, thermal/fluid engineering

DR. UMIT O. KOYLU
PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., New Mexico University
Research Interests: Nonlinear dynamics and vibrations, study of deterministic and random dynamical systems, model order reduction, theoretical modeling and numerical computation, structural dynamics
DR. ROBERT G. LANDERS  
PROFESSOR OF MECHANICAL ENGINEERING  
ASSOCIATE CHAIR FOR GRADUATE AFFAIRS  
Education: Ph.D., University of Michigan at Ann Arbor  
Research Interests: Manufacturing, systems, and control; modeling, analysis, monitoring, and control of manufacturing processes; metal cutting; laser metal deposition; freeze extrusion fabrication; friction stir processing; electro-hydraulics; analysis and control of alternative energy systems; digital control applications

DR. J. KEITH NISBETT  
ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING  
ASSOCIATE CHAIR FOR MECHANICAL ENGINEERING  
Education: Ph.D., University of Texas at Arlington  
Research Interests: Kinematics, mechanical design, synthesis of mechanisms

DR. ANTHONY OKAFOR  
PROFESSOR OF MECHANICAL ENGINEERING  
Education: Ph.D., Michigan Technological University  
Research Interests: Manufacturing including intelligent machining, high speed machining, machine tool dynamics and metrology, metal forming, sensors and signal processing, computer numerical control, virtual manufacturing, and neural network applications; smart structures including structural health monitoring, aging aircraft, damage assessment and repair of metallic and composite structures, non-destructive evaluation, and proton exchange membrane (hydrogen) fuel cells

DR. HENRY (HANK) PERNICKA  
ASSOCIATE PROFESSOR OF AEROSPACE ENGINEERING  
Education: Ph.D., University of Minnesota at Twin Cities  
Research Interests: Finite elasticity, viscoelasticity, liquid crystal hydrodynamics, solid and continuum mechanics

DR. GEAROID MACSITHIGH  
ASSOCIATE PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING  
Education: Ph.D., University of Minnesota at Twin Cities  
Research Interests: Fluid dynamics, computational fluid dynamics, hypersonic propulsion systems, computational analysis of jet mixing, flow losses and mixing enhancement in combustors, aircraft gas turbine ramjet propulsion systems, scramjet performance

DR. FUEwen (FRANK) LIOu  
MICHAEL AND JOYCE BYTNar PRODUCT INNOVATION AND CREATIVITY PROFESSOR OF MECHANICAL ENGINEERING  
DIRECTOR OF MANUFACTURING ENGINEERING PROGRAM  
Fellow, ASME, 1993  
Fellow, International Academy of Production Engineering (CIRP), 2008  
Education: Ph.D., University of California at Berkeley  
Research Interests: Rapid prototyping, intelligent manufacturing, virtual reality, CAD/CAM, robotics, mechatronics and automatic control

DR. DR. HENRY (HANK) PERNICKA  
ASSOCIATE PROFESSOR OF AEROSPACE ENGINEERING  
DIRECTOR, NASA-MISSOURI SPACE GRANT CONSORTIUM  
Education: Ph.D., Virginia Polytechnic Institute and State University  
Research Interests: Fluid dynamics, computational fluid dynamics, hypersonic propulsion systems, computational analysis of jet mixing, flow losses and mixing enhancement in combustors, aircraft gas turbine ramjet propulsion systems, scramjet performance

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Research Interests: Manufacturing, systems, and control; modeling, analysis, monitoring, and control of manufacturing processes; metal cutting; laser metal deposition; freeze extrusion fabrication; friction stir processing; electro-hydraulics; analysis and control of alternative energy systems; digital control applications

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ASSOCIATE PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING  
Education: Ph.D., University of Minnesota at Twin Cities  
Research Interests: Fluid dynamics, computational fluid dynamics, hypersonic propulsion systems, computational analysis of jet mixing, flow losses and mixing enhancement in combustors, aircraft gas turbine ramjet propulsion systems, scramjet performance
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Dr. Joshua L. Rovey

Assistant Professor of Aerospace Engineering

Education: Ph.D., University of Michigan

Research Interests: Plasma aerospace applications, advanced space propulsion, plasma aerodynamics and flow control, plasma-enhanced combustion, applications to energy systems, hypersonic/re-entry body plasma interactions, plasma physics, rarefied gas dynamics

Dr. Daniel S. Stutts

Associate Professor of Mechanical Engineering

Education: Ph.D., Purdue University

Research Interests: Dynamics, vibrations, modeling and development of piezoactuators and transducers-mechatronics, embedded systems and control

Dr. Hai-Lung TsaI

Professor of Mechanical Engineering

Education: Ph.D., University of California at Berkeley

Research Interests: Ultrashort laser pulse-material interaction, laser micromachining for micro-sensors and micro-devices, gas metal arc welding, laser welding and hybrid welding, Ab Initio MD modeling, multiscale modeling

New Grants and Contracts

Balakrishnan, S.


Birman, V.


Bristow, D.


Chandrashekhara, K.

Volz, J. (45%), Myers, J. (45%) and Chandrashekhara, K. (10%), Department of Transportation, “NUTC/The NASP Bond Test as a Predictor of Strand Bond, Transfer Length, and Development Length - Addendum,” $10,000, September 1, 2011 - May 1, 2013.


Landers, R. G. (30%), Bristow, D. (10%).


Dr. Xiaodong Yang

Assistant Professor of Mechanical Engineering

Education: Ph.D., Columbia University

Research Interests: Optical materials and devices in nanophotonics and plasmonics; physics and applications of optical meta-materials; nanoscale optomechanics, optical nanoelectromechanical systems (NEMS); integrated optofluidic devices and optical sensors; photon management for solar/thermal energy harvesting; optical device micro-/nano-fabrication

Dr. Tansel Yucelen

Assistant Professor of Mechanical Engineering

Education: Ph.D., Georgia Institute of Technology

Research Interests: Robust and adaptive control of safety-critical systems; resilient autonomous vehicles and robotics; distributed estimation and control of large-scale systems; collective motion and networked multiagent systems; biologically-inspired control and learning; smart modular systems

Chandrashekhara, K. (100%), Department of Transportation, “NUTC/Polyurethane Foam Infill for Fiber-Reinforced Polymer (FRP) Bridge Deck Panels,” $1,128, September 2 - December 31, 2013.


Liou, F. (100%), NASA Glenn Research Center, “National Aeronautics and Space Project,” supplement August 20, 2013, $120,000, June 13, 2011 - June 12, 2014.


Pernicka, H.


Riggins, D.


Rovey, J.


Tsai, H.

Wrow, R. (50%) and Tsai, H. (50%), Honeywell FED Manufacturing and Technology, “Glass Seals Via Local Heating,” $90,000, February 2 - September 30, 2013.


Yang, X.


Yucelen, T.


OTHER ACTIVE GRANTS

Balakrishnan, S.


Banerjee, A.


Birman, V.


Liou, F. (70%) and Newkirk, J. (30%), Rolls-Royce Corporation, “CAMT/Direct Metal Deposition of Functionally Gradient Materials,” $40,000, October 7, 2012 - October 6, 2013.

Pernicka, H.


Rovey, J.


Rovey, J. (100%), Lockheed Martin Corporation, “Characterization of Altitude Effect of Plasma Actuators,” $25,000, August 1, 2012 - August 31, 2013.


Sheffield, J.

Myers, J. (67%) and Sheffield, J. (33%), Department of Transportation, “NUTC (National University Transportation Center for Transportation) Infrastructure and Safety Year 1,” $1,560,000, July 1, 2006 - June 30, 2013.

Myers, J. (70%) and Sheffield, J. (30%), Department of Transportation, “NUTC (National University Transportation Center for Transportation) Infrastructure and Safety Year 2,” $3,010,000, July 1, 2007 - June 30, 2013.

Rolofs, A. (60%) and Sheffield, J. (50%), Department of Transportation, “FTA Grant - Research on Alternative Sources of Energy to Power Transit Vehicels,” $686,073, April 1, 2008 - October 1, 2013.

Myers, J. (70%) and Sheffield, J. (30%), Department of Transportation, “National University Transportation Center For Transportation Infrastructure and Safety - Year 3,” $2,858,100, July 1, 2008 - June 30, 2013.

Tsai, H.


Yang, X.


Yang, X. (100%), Oak Ridge Associated University, “Enhanced Bipolar Optical Forces and Optomechanics in Engineered Plasmonic Nanostructures,” $5,000, June 1, 2012 - May 31, 2013.

P ROFESSIONAL & SCHOLARLY ACTIVITIES

CHAIRMAN, CO-CHAIRMAN OF TECHNICAL SESSIONS AND CONFERENCES

Birman, V.

Session Chair, “Multi-Functional Smart Composites III,” 19th International Conference on Composite Materials, Montreal, Canada, July 30, 2013.

Bristow, D.


Du, X.


Session Chair, “Simulation-Based Design Under Uncertainty,” 2013 ASME International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), Portland, OR, August 4 - 7, 2013.

Kinzel, E.


Landers, R. G.

Program Committee Co-Chair, International Symposium on Flexible Automation

Leu, M.

Chair, 11th CAMT Industrial Advisory Board Meeting, Bell Helicopter Textron, Hurst, TX, May 20, 2013.


Chair, 12th CAMT Industrial Advisory Board Meeting, Missouri University of Science and Technology, Rolla, MO, October 24, 2013.

Liou, F.

Session Chair, “Materials II,” 24th Solid Freeform Fabrication Symposium, Austin, TX, August 12 - 14, 2013.

Mac Sithigh, G.

Session Chair, Thirteenth Pan-American Congress of Applied Mechanics, Houston, TX, May 22 - 24, 2013.

Rovey, J.


Yucelen, T.


SERVICE ON COMMITTEES OF PROFESSIONAL ORGANIZATIONS

Birman, V.


Congress Steering Committee Teleconference, ASME International Mechanical Engineering Congress & Exposition (IMECE-2013), San Diego, CA, December 18, 2013.
Technical Committee Member, ASME Aerospace Division Structures and Materials, International Mechanical Engineering Congress & Exposition (IMECE-2013), San Diego, CA, November 15 - 21, 2013.

Congress Steering Committee, Meeting on Congress Orientation, ASME International Mechanical Engineering Congress & Exposition (IMECE-2013), San Diego, CA, November 15 - 21, 2013.

Applied Mechanics Division Composites Committee Member, ASME International Mechanical Engineering Congress & Exposition (IMECE-2013), San Diego, CA, November 15 - 21, 2013.

Congress Steering Committee, ASME International Mechanical Engineering Congress & Exposition (IMECE-2013), San Diego, CA, November 15 - 21, 2013.

Crosbie, A.
AIAA Thermophysics Subcommittee Meeting, Grapevine, TX, January 8, 2013.
AIAA Thermophysics Technical Committee Meeting, Grapevine, TX, January 8, 2013.
AIAA Publications Committee Meeting, Grapevine, TX, January 10, 2013.
AIAA Editors-in-Chief Committee Meeting, Grapevine, TX, January 9, 2013.
AIAA Journals Committee Meeting, Grapevine, TX, January 9, 2013.
AIAA Publications Committee Meeting, teleconference, October 31, 2013.

Gao, J.
Judge, ISC Poster Presentation, Missouri University of Science and Technology, November 19, 2013

Homan, K.

Koylu, U.

Landers, R. G.
Secretary, ASME Dynamic Systems and Control Division, 2013.

Leu, M.
Scientific Committee, 17th CIIRP Conference on Electro Physical and Chemical Machining (ISEM), Leuven, Belgium, April 8 - 12, 2013.
Advisory Committee, 24th Annual International Solid Freeform Fabrication Symposium, Austin, TX, August 12 - 14, 2013.


Liou, F.

Mac Sithigh, G.
Arrangements Committee, Society for Natural Philosophy, Minneapolis, MN, November 2013.

Midha, A.

Riggins, D.
Co-Chairman of Fluids Search Committee, Missouri University of Science and Technology, 2013.
AIAA Hypersonics Technology and Space Planes Program Committee, 2013.

Yucelen, T.

Birman, V.
Associate Editor, International Journal of Aeronautical and Space Sciences
Associate Editor, Composites Theory and Practice
Associate Editor, Composites Part B: Engineering
Associate Editor, Journal of Thermal Stresses
Bristow, D.
Associate Editor, Mechatronics
Crosbie, A.
Associate Editor, Journal of Quantitative Spectroscopy & Radiative Transfer
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