Honors and Awards

Faculty Honors and Awards

Professional Recognition


Dr. L. Duan, Air Force Office of Scientific Research, Young Investigator Award, January 2014.

Dr. J. Gao, Ralph E. Powe Junior Faculty Enhancement Award, June 2014.

Dr. R. G. Landers, ASME Fellow, June 2014.

Dr. J. Rovey, AIAA Associate Fellow, October 2014.

Publication Recognition and Awards


Campus Recognition and Honors

2014 Faculty Research Award

Dr. J. Rovey

2014 Faculty Teaching Award

Dr. H. Pernicka

2014 Faculty Service Award

Dr. H. Pernicka

2014 Faculty Excellence Award

Dr. R. G. Landers

2013 - 2014 Outstanding Teaching Award

Dr. D. Bristow

Class of 1942 Excellence in Teaching Award

Dr. T. Yucelen

Student Honors and Awards

National Student Honors and Awards


NASA - Missouri Space Grant Consortium Awards


Matt Glascock (PhDAE), Advisor: Rovey, J., “Plasma Plume Characterization of Solid electric Propellant Thrusters,” NASA - Missouri Space Grant Consortium Fellowship, Fall 2014.


Campus Student Honors and Awards

John Schaefer (BSAE) and Emily Dierkes (BSAE), Opportunities for Undergraduate Research Experience (OURE) Fellowship, Advisor: Isaac, K. M., 3rd Place on poster presentation, “Applications of Active Aeroelastic Wing Technology,” Missouri University of Science and Technology 10th Annual Undergraduate Research Conference, Rolla, MO, April 16, 2014.

Amir Ghazanfari (PhDME) and Wenbin Li (PhDME), Advisor: Leu, M., 2nd Place for “Additive Manufacturing of Ceramic Liner Blocks with Embedded Sensors for Advanced Energy Systems,” Missouri University of Science and Technology 10th Annual ISC Poster Presentation, November 19, 2014.


Yiyu Shen (PhDME) and Chen Chen (PhDME), Advisor: Tsai, H., 1st Place for “Foil-Based Dual-Laser Additive Manufacturing Technology and its Application in Sensor Embedding,” Missouri University of Science and Technology 10th Annual ISC Poster Presentation, November 19, 2014.

Warner Meeks (PhDAE), Advisor: Rovey, J., Chancellor’s Fellowship Poster Competition, Honorable Mention, February 24, 2014.

Ryan Miles (MSME), Advisor: Yucelen, T., Opportunities for Undergraduate Research Experience (OURE) Fellowship, “Formation Control of Multiagent Systems,” Missouri University of Science and Technology, June 2014.
Graduate Seminar Series

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 25, 2014 - Dr. C. P. van Dam, “Wind Energy: Today, Tomorrow,” Warren and Leta Giedt Endowed Professor and Chair of the Department of Mechanical and Aerospace Engineering, Director of California Wind Energy Collaborative, University of California, Davis, California.


November 13, 2014 - Dr. Larry L. Howell, “Origami and Engineering?” Professor, Mechanical Engineering Department, Brigham Young University, Provo, Utah.
**New Faculty**

**Dr. Xian Huang** is an Assistant Professor in the Department of Mechanical and Aerospace Engineering in Missouri University of Science and Technology. He is working on developing epidermal and transient electronics for biophysical signal detection, drug delivery, and implantable monitoring. He conducted his postdoctoral research in Prof. John A. Rogers’ group in the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign (UIUC) from 2011 to 2014. He graduated with a Ph.D. degree in Mechanical Engineering from Columbia University in 2011. He holds B.S. and M.S. degrees in Measurement & Control Technology and Instrument from Tianjin University, Tianjin, China. In 2011, he received Juvenile Diabetes Research Foundation Gold Award from Diabetes Technology Society for his innovative work in developing implantable affinity glucose sensors for diabetes management. He also won best student paper award in the IEEE International Conference on Nano/Micro Engineered and Molecular Systems in 2009. He is the author of 30 peer-reviewed journal papers and 16 proceedings.

His research interests focus on developing biomedical devices for diagnosis, treatment, and monitoring of various diseases or facilitating people’s daily activities. These devices adopt formats that are inspired by the biological discoveries and can be integrated with human bodies in highly effective manners. One area investigates flexible biosensors capable of conformal attachment on human skin with optimized stretchability that adapts to skin motion. Another area exploits bioresorbable devices that are made of biodegradable materials and can dissolve away in biofluids after completion of their functions.

---

**Dr. Jonghyun Park** is an Assistant Professor in the Department of Mechanical and Aerospace Engineering at Missouri University of Science and Technology. Prior to this, he spent three years as a research scientist and two years as a post-doctoral research fellow in the Department of Mechanical Engineering at the University of Michigan, Ann Arbor. He was a project thrust leader at the GM/UM ABCD (Advanced Battery Coalition for Drivetrains). He finished his Ph.D. in the same department at the nanostructure laboratory in 2009. He spent 5 years with Hyundai Heavy Industry after finishing his B.S. and M.S. from Seoul National University in South Korea. He is the author of 24 peer-reviewed journal papers, six proceedings, and two magazine chapters. He was recently involved in an NSF I-Corps program as an Entrepreneurial Lead (2013). He has received recognition from the GM/UM ABCD institute (2011), an NSF Grant for a Civil, Mechanical and Manufacturing Conference (2009), an Outstanding Research Award from Hyundai Heavy Industries (2004), and Seoul National University Superior Academic Performance Scholarship (1998-1999).

His research focuses on the nano-/micro-mechanics of materials for application into energy storage systems and advanced nanomaterials such as nanodevices and biomedical systems. His research efforts have related to: energy storage systems focused on ‘Li-ion battery degradation’ and ‘advanced Li-ion batteries’, and mathematical descriptions of problems related to advanced nanomaterials such as electrowetting, self-assembly of nanoparticles, interaction of dendrimer nanoparticle with lipid bilayer, and mitochondria morphology. His research is based on theoretical and multiphysics/multiscale modeling coupled strongly with experimentation.
### Undergraduate

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Aerospace Engineering</th>
<th>Mechanical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate student enrollment</td>
<td>845</td>
<td>650</td>
</tr>
<tr>
<td>B.S. degrees awarded per full-time T-TT faculty</td>
<td>7.38</td>
<td></td>
</tr>
</tbody>
</table>

### Graduate

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Aerospace Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate student enrollment</td>
<td>239</td>
</tr>
<tr>
<td>B.S. degrees awarded per full-time T-TT faculty</td>
<td>44</td>
</tr>
<tr>
<td>B.S. degrees awarded per full-time T-TT faculty</td>
<td>164</td>
</tr>
<tr>
<td>B.S. degrees awarded per full-time T-TT faculty</td>
<td>31</td>
</tr>
</tbody>
</table>

### Starting Salary

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>$64,499</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>$63,085</td>
<td></td>
</tr>
</tbody>
</table>

### B. S. Degrees Awarded

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>650</td>
<td></td>
</tr>
</tbody>
</table>

### Thesis

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Aerospace Engineering Ph.D.</th>
<th>Mechanical Engineering M.S.</th>
<th>Mechanical Engineering Ph.D.</th>
<th>Manufacturing Engineering M.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td>15</td>
<td>17</td>
<td>39</td>
<td>62</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Mechanical Engineering M.S.</th>
<th>Manufacturing Engineering M.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Thesis</td>
<td>8</td>
<td>29</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Mechanical Engineering M.S.</th>
<th>Manufacturing Engineering M.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificates</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Non-Thesis

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Mechanical Engineering M.S.</th>
<th>Manufacturing Engineering M.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificates</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Quantitative GRE of Graduate Students

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Aerospace Engineering Ph.D.</th>
<th>Mechanical Engineering M.S.</th>
<th>Mechanical Engineering Ph.D.</th>
<th>Manufacturing Engineering M.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>162</td>
<td>87%</td>
<td>2.00</td>
<td>0.47</td>
<td>0.53</td>
</tr>
</tbody>
</table>

### General

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Aerospace Engineering Ph.D.</th>
<th>Mechanical Engineering M.S.</th>
<th>Mechanical Engineering Ph.D.</th>
<th>Manufacturing Engineering M.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditures per full-time T-TT faculty</td>
<td>$105,598</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Aerospace Engineering M.S.</th>
<th>Mechanical Engineering M.S.</th>
<th>Manufacturing Engineering M.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional society fellows</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority and female faculty</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

* Fall 2014 enrollment records
2014 Research Funding

Facts and Figures

Enrollment Growth

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

Undergraduate Program Enrollment
- Mechanical Engineering
- Aerospace Engineering
Other Fast Facts

- 82 Journal Articles Published
- 86 Conference Papers Published
- $4.1 M New Research Awards
- 3.12 Active Grants per T-TT Faculty

Faculty

**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**

Education: Ph.D., Technion (Israel)

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

**DR. K. CHANDRASHEKHARA**

**CURATORS’ PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING**

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. DOUGLAS A. BRISTOW**

**ASSOCIATE 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. 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

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. KYLE DEMARS  
ASSISTANT PROFESSOR OF AEROSPACE ENGINEERING

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

Research Interests: Stochastic estimation and control theory; information theory; nonlinear uncertainty propagation and rectification; autonomous guidance, navigation, and control of aerospace vehicles; orbit determination, data association, conjunction assessment, and collision avoidance; attitude dynamics, determination, and control; autonomous sensor management; high-fidelity dynamical and observational modeling

---

DR. LOKESWARAPPA R. DHARANI  
CURATORS’ PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING

Education: Ph.D., Clemson University

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

---

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. 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. XIAOPING DU  
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. KELLY HOMAN  
ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING

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

Research Interests: Fluid dynamics, heat transfer, and thermodynamics of energy systems, heat and mass transfer in buoyant flows, second-law and exergy analysis, numerical simulation of transport phenomena and experimental methods
DR. SERHAT HOSDER
ASSOCIATE 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. UMIT O. KOYLU
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. XIAN HUANG
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., Columbia University
Research Interests: Bioinspired and biointegrated devices and materials for healthcare, flexible and stretchable epidermal sensors, transient electronics, implantable multichannel affinity sensing devices, biochips for body fluid analysis

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. 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. 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. DR. FUEWEN (FRANK) LIOU
MICHAEL AND JOYCE BYTNAR PRODUCT INNOVATION AND CREATIVITY PROFESSOR OF MECHANICAL ENGINEERING DIRECTOR OF MANUFACTURING ENGINEERING PROGRAM Fellow, ASME, 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. MING C. LEU
KEITH AND PAT BAILEY DISTINGUISHED PROFESSOR OF MECHANICAL ENGINEERING DIRECTOR OF INTELLIGENT SYSTEMS CENTER (ISC) DIRECTOR OF CENTER FOR AEROSPACE MANUFACTURING TECHNOLOGIES (CAMT) 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. EDWARD C. KINZEL
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., Purdue University
Research Interests: Infrared/optical antennas applied to energy transport, sensing, and manufacturing, metamaterials/frequency selective surfaces for engineering radiation properties, near-field radiation heat transfer, direct energy conversion and energy harvesting and laser based micro/nanomanufacturing including electronics packaging

DR. XIAN HUANG
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., Columbia University
Research Interests: Bioinspired and biointegrated devices and materials for healthcare, flexible and stretchable epidermal sensors, transient electronics, implantable multichannel affinity sensing devices, biochips for body fluid analysis

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. 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. 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. DR. FUEWEN (FRANK) LIOU
MICHAEL AND JOYCE BYTNAR PRODUCT INNOVATION AND CREATIVITY PROFESSOR OF MECHANICAL ENGINEERING DIRECTOR OF MANUFACTURING ENGINEERING PROGRAM Fellow, ASME, 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. MING C. LEU
KEITH AND PAT BAILEY DISTINGUISHED PROFESSOR OF MECHANICAL ENGINEERING DIRECTOR OF INTELLIGENT SYSTEMS CENTER (ISC) DIRECTOR OF CENTER FOR AEROSPACE MANUFACTURING TECHNOLOGIES (CAMT) 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. EDWARD C. KINZEL
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING
Education: Ph.D., Purdue University
Research Interests: Infrared/optical antennas applied to energy transport, sensing, and manufacturing, metamaterials/frequency selective surfaces for engineering radiation properties, near-field radiation heat transfer, direct energy conversion and energy harvesting and laser based micro/nanomanufacturing including electronics packaging
DR. GEAROID MACSITHIGH
ASSOCIATE PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING

Education: Ph.D., University of Minnesota at Twin Cities

Research Interests: Finite elasticity, viscoelasticity, liquid crystal hydrodynamics, solid and continuum mechanics

DR. ASHOK MIDHA
PROFESSOR OF MECHANICAL ENGINEERING
DIRECTOR OF THE PRODUCT INNOVATION AND CREATIVITY CENTER
Fellow, ASME, 2003

Education: Ph.D., University of Minnesota at Twin Cities

Research Interests: Mechanical design, rigid-body and compliant mechanism design, high-performance machinery analysis and design, machine vibration and stability

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. HENG PAN
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING

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

Research Interests: Additive manufacturing, electronics and photonics manufacturing, thermal/laser assisted manufacturing, laser annealing and crystallization, high-throughput and low cost micro/nano-manufacturing, solution processing of nanomaterials, molecular dynamics simulation, transport phenomena in nanomanufacturing processes

DR. JONGHYUN PARK
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING

Education: Ph.D., University of Michigan - Ann Arbor

Research Interests: Advanced li-ion battery, beyond li-ion battery, energy storage systems, renewable energy systems, grid energy storage systems, nano-/macro-mechanics of materials, self-assembly of nanoparticles, nanostructures, multiphysics/multiscale experiment and simulations

DR. HENRY (HANK) PERNICKA
ASSOCIATE PROFESSOR OF AEROSPACE ENGINEERING

Education: Ph.D., Purdue University

Research Interests: Astrodynamics, orbital mechanics, spacecraft design, spacecraft mission design, satellite attitude dynamics, nonlinear analysis, dynamics and control, optimization

DR. DAVID W. RIGGINS
CURATORS’ TEACHING PROFESSOR OF AEROSPACE ENGINEERING
DIRECTOR, NASA-MISSOURI SPACE GRANT CONSORTIUM

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, hypersonics/re-entry body plasma interactions, plasma physics, rarefied gas dynamics

DR. JOSHUA L. ROVEY
ASSOCIATE PROFESSOR OF AEROSPACE ENGINEERING
Associate Fellow, AIAA, 2014

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, hypersonics/re-entry body plasma interactions, plasma physics, rarefied gas dynamics

DR. DANIEL S. STUTTS
ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING

Associate Fellow, AIAA, 2014

Education: Ph.D., University of Michigan

Research Interests: Advanced li-ion battery, beyond li-ion battery, energy storage systems, renewable energy systems, grid energy storage systems, nano-/macro-mechanics of materials, self-assembly of nanoparticles, nanostructures, multiphysics/multiscale experiment and simulations

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. HENG PAN
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING

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

Research Interests: Additive manufacturing, electronics and photonics manufacturing, thermal/laser assisted manufacturing, laser annealing and crystallization, high-throughput and low cost micro/nano-manufacturing, solution processing of nanomaterials, molecular dynamics simulation, transport phenomena in nanomanufacturing processes

DR. JONGHYUN PARK
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING

Education: Ph.D., University of Michigan - Ann Arbor

Research Interests: Advanced li-ion battery, beyond li-ion battery, energy storage systems, renewable energy systems, grid energy storage systems, nano-/macro-mechanics of materials, self-assembly of nanoparticles, nanostructures, multiphysics/multiscale experiment and simulations

DR. HENRY (HANK) PERNICKA
ASSOCIATE PROFESSOR OF AEROSPACE ENGINEERING

Education: Ph.D., Purdue University

Research Interests: Astrodynamics, orbital mechanics, spacecraft design, spacecraft mission design, satellite attitude dynamics, nonlinear analysis, dynamics and control, optimization

DR. DAVID W. RIGGINS
CURATORS’ TEACHING PROFESSOR OF AEROSPACE ENGINEERING
DIRECTOR, NASA-MISSOURI SPACE GRANT CONSORTIUM

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, hypersonics/re-entry body plasma interactions, plasma physics, rarefied gas dynamics

DR. JOSHUA L. ROVEY
ASSOCIATE PROFESSOR OF AEROSPACE ENGINEERING
Associate Fellow, AIAA, 2014

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, hypersonics/re-entry body plasma interactions, plasma physics, rarefied gas dynamics

DR. DANIEL S. STUTTS
ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING

Associate Fellow, AIAA, 2014

Education: Ph.D., University of Michigan

Research Interests: Advanced li-ion battery, beyond li-ion battery, energy storage systems, renewable energy systems, grid energy storage systems, nano-/macro-mechanics of materials, self-assembly of nanoparticles, nanostructures, multiphysics/multiscale experiment and simulations
New Grants and Contracts

Balakrishnan, S.

Bristow, D.


Chandrashekhara, K.


DeMars, K.


Drallmeier, J.

Du, X.

Duan, L.


Finaiish, F.

Gao, J.


December 31, 2014.

January 1 - December 31, 2014.


Liu, F.


Koylu, U.


Koylu, U.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.


Koziel, E.

Other Active Grants

Balakrishnan, S.


Banerjee, A.

Banerjee, A. (100%) and Allada, V. (10%), National Science Foundation, “Graduate Research Fellowship - Pamela Roach,” $42,000, June 1, 2012 - November 30, 2014.

Birman, V.


Bristow, D.


Drallmeier, J.


Du, X.


Du, X. (100%), National Science Foundation Division of Civil, Mechanical & Manufacturing Innovation, “Quantitative Reliability Prediction in Early Design Stages,” $190,265, August 1, 2013 - July 31, 2016.

Duan, L.


Eversman, W.


Finash, F.


Leu, M.


Liou, F.


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


Pernicka, H.


Riggins, D.


Rovey, J.


Tsai, H.


Yang, X.


Yucelen, T.

Professional & Scholarly Activities

Bristow, D.
Chair and Co-Organizer, “Manufacturing Process Modeling and Control,” American Control Conference, Portland, OR, June 4 - 6, 2014.

DeMars, K.
Session Chair, 24th AAS/AIAA Space Flight Mechanics Meeting, Santa Fe, NM, January 26 - 30, 2014.

Du, X.

Hosder, S.
Isaac, K.
Chair, Electronics, Materials and Nanotechnology 2014 Summer Meeting, Session 4 - Microfluidics and Nanofluidics, Cancun, Mexico, June 9 - 12, 2014.

Kinzel, E.

Landers, R. G.
Program Committee Co-Chair, International Symposium on Flexible Automation, Hyogo, Japan, July 14 - 16, 2014.

Leu, M.

Liou, F.

Pan, H.
Section Co-Organizer, Computational Modeling and Simulation for Advanced Manufacturing IV, ASME 2014 International Mechanical Engineering Congress & Exposition (IMECE), Montreal, Canada, October 14 - 20, 2014.

Rovey, J.
Session Chair, 52nd AIAA Aerospace Sciences Meeting (SciTech 2014), National Harbor, MD, January 13 - 17, 2014.
Yucelen, T.
Session Chair, “Robust Control II,” American Control Conference, Portland, OR, June 4 - 6, 2014.
Session Chair, “Uncertain Systems,” American Control Conference, Portland, OR, June 4 - 6, 2014.
Session Chair, “Adaptive Control II,” American Control Conference, Portland, OR, June 4 - 6, 2014.
Session Chair, “Multiagent Control I,” American Control Conference, Portland, OR, June 4 - 6, 2014.

Service on Committees of Professional Organizations

Birman, V.
ASME Congress Steering Committee, teleconference, April 28, 2014.
ASME Congress Steering Committee, teleconference, May 19, 2014.
ASME Congress Steering Committee, teleconference, June 23, 2014.
ASME Congress Steering Committee, teleconference, August 4, 2014.

Bristow, D.
Member, Best Student Paper Evaluation Committee, ASME Dynamic Systems and Control Conference, 2014.

Croisie, A.

Duan, L.
Associate Organizer, 52nd AIAA Aviation and Aeronautics Forum and Exposition (AVIATION 2014), Atlanta, GA, June 16 - 20, 2014.
Session Chair, 44th AIAA Fluid Dynamics Conference and Exhibit, June 16 - 20, 2014.
Associate Member, AIAA Fluid Dynamics Technical Committee, 2014.

Gao, J.

Hosder, S.
Subcommittee Member, 2015 AIAA Hypersonic Technologies and Aerospace Planes (HyTASP) Award Nomination, October 2014.

Koylu, U.

Landers, R. G.
Secretary, ASME Dynamic Systems and Control Division, 2014.

Leu, M.
Associate Chair, North American Manufacturing Research Institution (NAMRI) Scientific Committee, Society of Manufacturing Engineers (SME), 2014 - 2015.

Mac Sithigh, G.
Organizing Committee, 1st Annual SIAM Central States Section Meeting, December 2014.

Rovey, J.

Yucelen, T.
Editors of Symposia, Proceedings and Journals

Birman, V.

Editorial Board, Journal of Thermal Stresses
Associate Editor, Composites Theory and Practice
Associate Editor, Composites Part B: Engineering
Associate Editor, Member of Editorial Board, International Journal of Aeronautical and Space Sciences, Korean Society for Aeronautical and Space Sciences
Editorial Board, Journal of Sandwich Structures and Materials

Bristow, D.

Associate Editor, ASME Dynamic Systems and Control Conference
Associate Editor, Mechatronics

Crosbie, A.

Associate Editor, Journal of Quantitative Spectroscopy & Radiative Transfer
Editor-in-Chief, AIAA Journal of Thermophysics and Heat Transfer

Du, X.

Review Editor, Structural and Multidisciplinary Optimization

Yucelen, T.

Associate Editor, Acta Automatica Sinica
Associate Editor, Journal of Instrumentation, Automation and Systems

Journal Publications

Balakrishnan, S.


Birman, V.


Bristow, D.


Chandrashekhara, K.


Crosbie, A.


DeMars, K.


Dharani, L.


Contributions to Books and Books Published


Leu, M. C., "Computational Fluid Dynamics Simulations of Redox MHD-Based Microfluidics", Electronics, Materials and Nanotechnology 2014 Summer Meeting, Cancun, Mexico, June 9 - 12, 2014.


Birman, V., "Computational Fluid Dynamics Simulations of Redox MHD-Based Microfluidics", Electronics, Materials and Nanotechnology 2014 Summer Meeting, Cancun, Mexico, June 9 - 12, 2014.


Yang, X.

Yucelen, T.

Yucelen, T.

Yucelen, T.

Yucelen, T.

Yucelen, T.

Conference Presentations

Balakrishnan, S.


Birman, V.

Chandrashekhara, K.
Ilyibgin, O., Leu, M. C., Taylor, G., Li, H. and Chandrashekhara, K., “Investigation of Sparse-Build Rapid Tooling by Fused Deposition Modeling,” Solid Freeform Fabrication Symposium, Austin, TX, August 4 - 6, 2014.

Chandrashekhara, K.

DeMars, K.

DeMars, K.

Dharani, L.

Dharani, L.

Dharani, L.

Duan, L.

Duan, L.

Kinzel, E.

Kinzel, E.

Kumar, N.

Leu, M.

Leu, M.

Leu, M.

Liou, F.

Liou, F.

Liou, F.

Okafor, A.

Pan, H.

Rovey, J.

Wang, C.
M.S. Thesis and Ph.D. Dissertations

Balakrishnan, S.


Chandrashekhar, K.


Du, X.

Homan, K.

Kinzel, E.

Koylu, U.


Leu, M.


Liou, F.
Nanda Kumar Dey (MSME), Advisor: Liou, F., “Additive Manufacturing Laser Deposition of Ti-6Al-4V For Aerospace Repair Application,” May 2014.


Okafor, A.


Rovey, J.

Ryan Alan Pahl (PhDAE), Advisor: Rovey, J., “Energy Deposition into Heavy Gas Plasma via Pulsed Inductive Theta-Pinch,” October 2014.
MAE

2014 Annual Scholarly Activity Report

Department of Mechanical and Aerospace Engineering
Missouri University of Science and Technology
194 Toomey Hall
400 W. 13th Street
Rolla, MO 65409
(573) 341-4661 mae@mst.edu