
**Graduate Studies in Engineering and
Computer Science
at the
University of Central Florida**

*Department of
Mechanical and Aerospace Engineering*



**College of Engineering
and Computer Science**

UNIVERSITY OF CENTRAL FLORIDA

Department of Mechanical and Aerospace Engineering (MAE)

Faculty and Students	Faculty	Lecturers	Doctoral Students	Master Students
Number	35	5	131	156

Research Areas

- Advanced Manufacturing
- Structures and Materials
- Thermal fluids
 - Two-Phase Flow and Heat Transfer
 - Fluids
- Turbomachinery
 - Structural integrity
 - Propulsion and Combustion
 - Heat transfer
 - Aerodynamics
- Control Systems

Research Areas

- Astrodynamics
- Bio-Engineering
 - Rehabilitation
 - Robotics
 - Cell mechanics
 - Acoustics
 - Fluids
- MEMS, Nanomanufacturing, Sensors
- Thermal Management of Optical/Electronic Devices

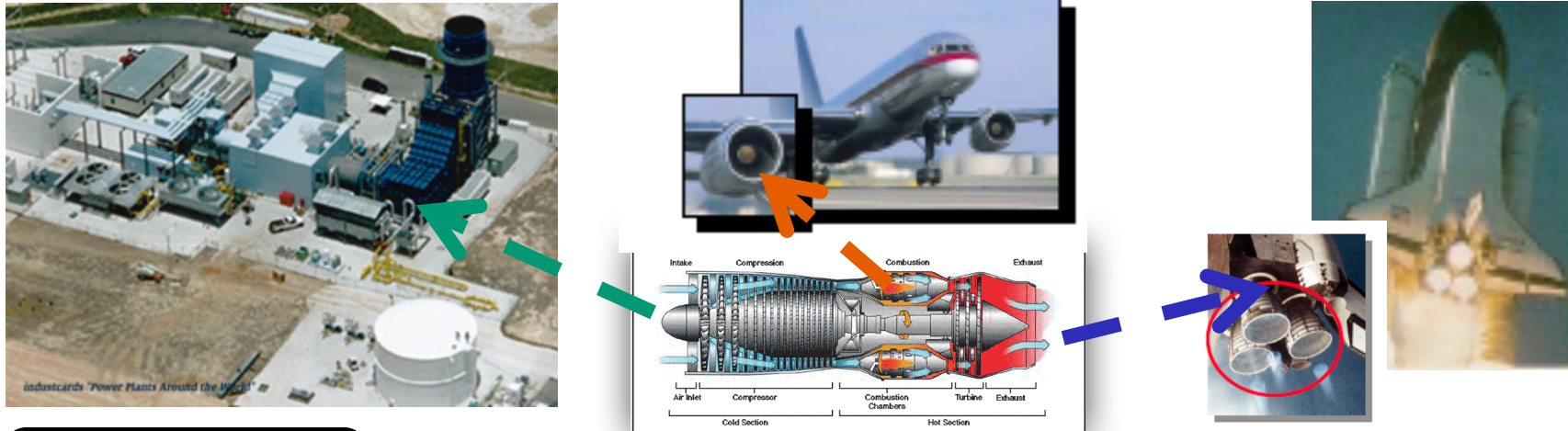


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*Department of
Mechanical and Aerospace Engineering (MAE) – Center for Advanced Turbomachinery and
Energy Research (CATER)*



**Aerodynamics &
Heat Transfer**

**Combustion &
Emissions**

**Alternative
Fuels**

**Cycle
Innovation**

**Dynamic
Integrity**

**9 faculty members; 50 Graduate
and 40 UG Students**

**Plant & Grid
Transients**

**Extreme Temp
Materials**

**Mechanical
Integrity**

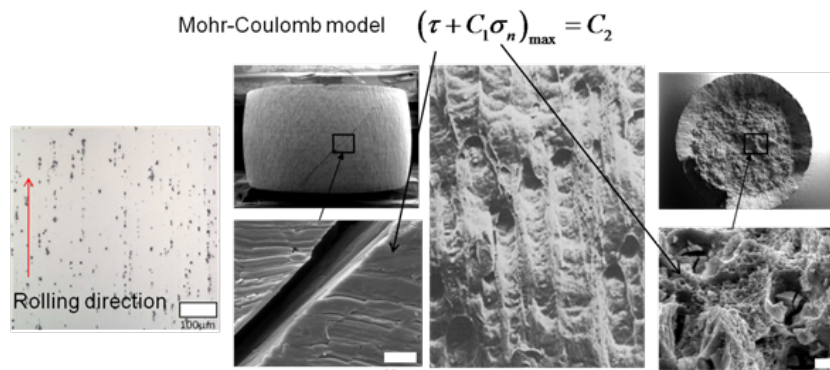
**Design &
Manufacturing**

**Polymer/Ceramic
Composites**

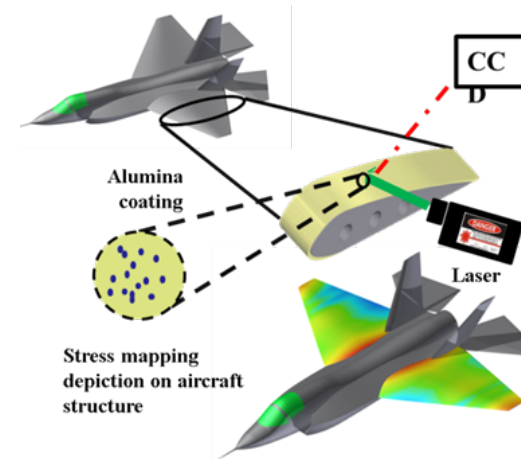
Department of Mechanical and Aerospace Engineering (MAE)

□ Composite Materials and Structures

- Jihua Gou, Yuanli Bai, Suryanarayana Challapalli, Olusegun Ilegbusi, Nina Orlovskaya, Seetha Raghavan, Kawai Kwok, Ranajay Ghosh



Multi-axial plasticity and ductile fracture analysis, testing and finite element modeling



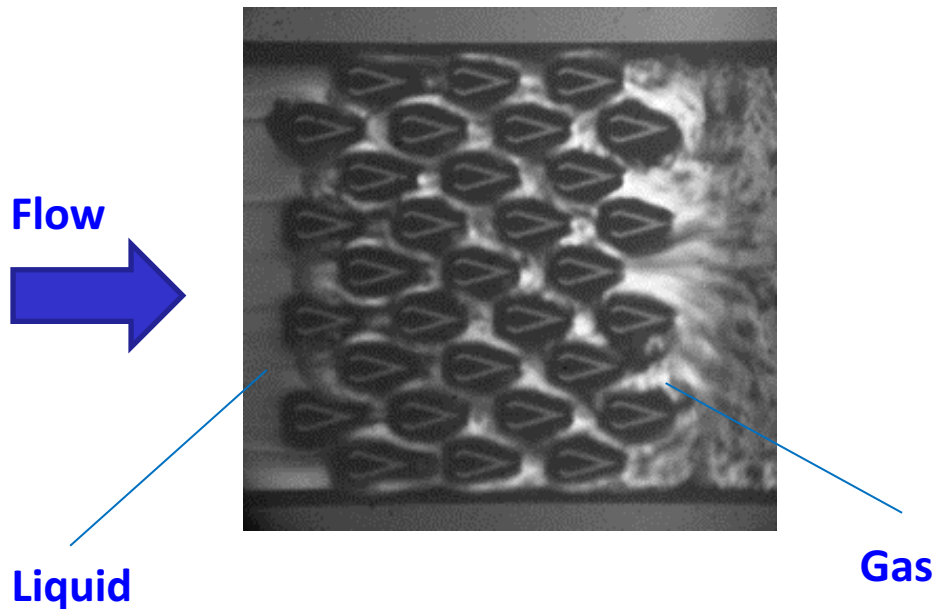
High-Temperature Coatings

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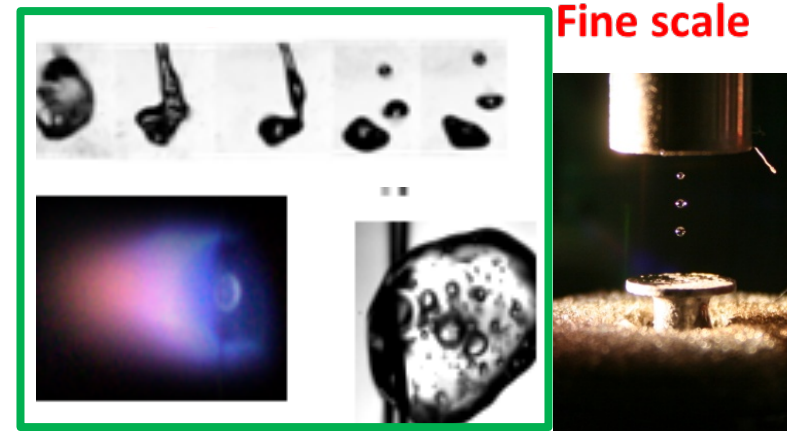
□ Multiphase Heat Transfer and Fluid Flow

- Shawn Putnam, Subith Vasu, Kareem Ahmed, Yoav Peles, Ranganathan Kumar, Louis Chow, Andrew Dickerson, Samik Bhattacharya

Flow boiling heat transfer at the micro scale



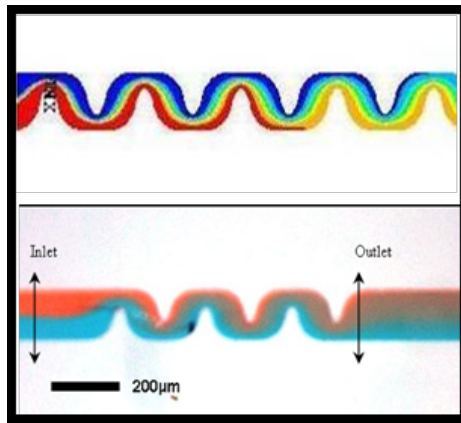
Instabilities in burning droplets



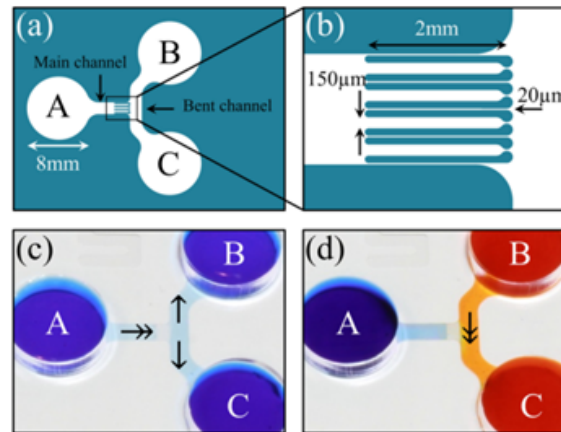
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□ Microelectromechanical Systems (MEMS) and Advanced Sensing

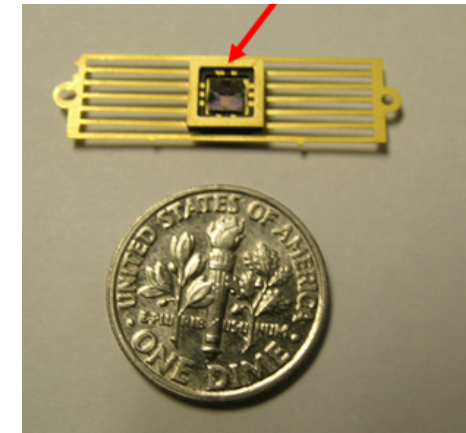
- Hyoung Jin Cho, Quanfang Chen, Jihua Gou, Olusegun Ilegbusi, Ranganathan Kumar, Seetha Raghavan



Microfluidic Components



Design and Fabrication

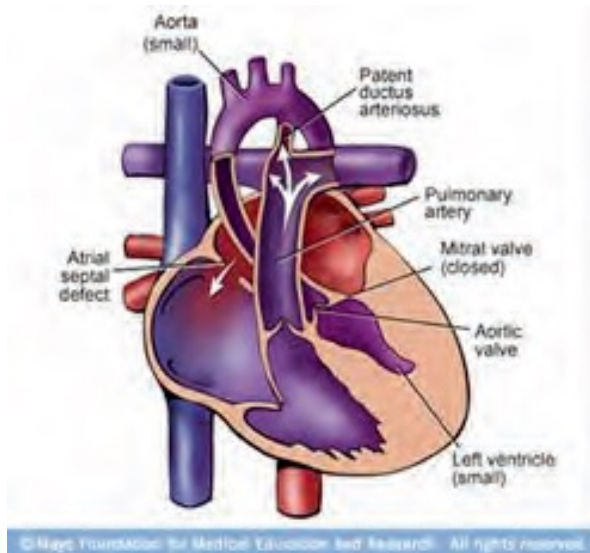


Miniaturized sensor

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□ Bio-Engineering

- Alain Kassab, Olusegun Ilegbusi, Hansen Mansy, Sang-Eun Song, Robert L. Steward, Helen Huang, Qiushi Fu



**Advanced simulation of
cardiovascular systems**

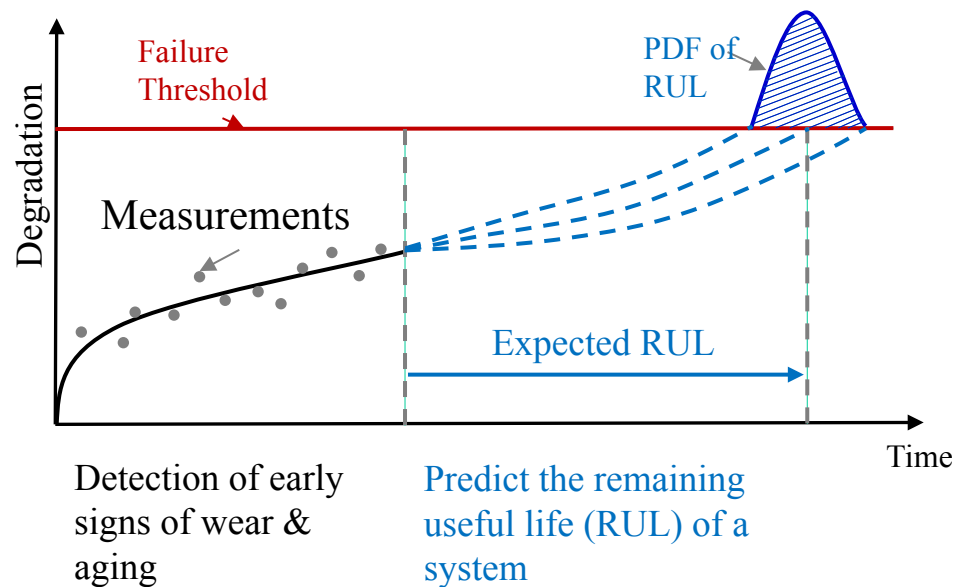


**-Biomedical Acoustics Research
-Vibrations / Sounds Emanating from the
Human Body**

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□ Advanced Manufacturing

➤ Dazhong Wu, Quanfang Chen, Jihua 'Jan' Gou



Fracture



Wear



Excessive load



Bending fatigue

Scholarly Textbooks Authored by MAE Faculty



CECS Graduate Students Entering the Workforce
Potential Jobs in Industry, Government and Academia

Department of Mechanical and Aerospace Engineering (MAE)

- Siemens Power Generation
- Siemens Energy
- Lockheed Martin
- Harris
- Mitsubishi Power Generation
- Walt Disney World
- NASA Kennedy Space Center
- NAVAIR
- Piper Aircraft
- Local HVAC companies



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