

# Mechanical Engineering & Materials Science

Website: <https://mems.wustl.edu/academics/graduate/index.html>

## Faculty

### Chair

#### **Philip V. Bayly**

The Lee Hunter Distinguished Professor of Mechanical Engineering  
PhD, Duke University  
Nonlinear dynamics, vibrations, biomechanics

### Associate Chairs

#### **David A. Peters (Mechanical Engineering)**

McDonnell Douglas Professor of Engineering  
PhD, Stanford University  
Aeroelasticity, vibrations, helicopter dynamics, aerodynamics

#### **Katharine M. Flores (Materials Science)**

Christopher I. Byrnes Professor of Engineering  
PhD, Stanford University  
Mechanical behavior of structural materials

### Endowed Professors

#### **Ramesh K. Agarwal**

William Palm Professor of Engineering  
PhD, Stanford University  
Computational fluid dynamics, computational physics

#### **Guy M. Genin**

Harold & Kathleen Faught Professor of Mechanical Engineering  
PhD, Harvard University  
Solid mechanics, fracture mechanics

#### **Jianjun Guan**

Earl E. & Myrtle E. Walker Professor of Engineering  
PhD, Zhejiang University  
Biomimetic biomaterials synthesis, scaffold fabrication

#### **Mark J. Jakiela**

Lee Hunter Professor of Mechanical Design  
PhD, University of Michigan  
Mechanical design, design for manufacturing, optimization, evolutionary computation

#### **Srikanth Singamaneni**

Lilyan and E. Lisle Hughes Professor of Mechanical Engineering  
PhD, Georgia Institute of Technology  
Microstructures of cross-linked polymers

### Professors

#### **Amit Pathak**

PhD, University of California, Santa Barbara  
Cellular biomechanics

#### **Jessica E. Wagenseil**

DSc, Washington University  
Arterial biomechanics

### Associate Professors

#### **Spencer P. Lake**

PhD, University of Pennsylvania  
Soft-tissue biomechanics

#### **Xianglin Li**

PhD, University of Connecticut  
Multiphase heat and mass transfer in energy systems; computational fluid dynamics

#### **J. Mark Meacham**

PhD, Georgia Institute of Technology  
Micro-/nanotechnologies for thermal systems and the life sciences

#### **Rohan Mishra**

PhD, The Ohio State University  
Computational materials science

#### **Patricia B. Weisensee**

PhD, University of Illinois at Urbana-Champaign  
Thermal fluids

### Assistant Professors

#### **Sang-Hoon Bae**

PhD, University of California, Los Angeles  
Materials growth, optoelectronics, renewable energy

#### **Matthew R. Bersi**

PhD, Yale University  
Biomedical engineering

### Professor of the Practice

#### **Swami Karunamoorthy**

DSc, Washington University  
Helicopter dynamics, engineering education

### Teaching Professors

#### **Emily J. Boyd**

PhD, University of Texas at Austin  
Thermofluids

#### **Ruth J. Okamoto**

DSc, Washington University  
Biomechanics, solid mechanics

## Research Professor

### **Anders E. Carlsson**

PhD, Harvard University  
Biophysical Modeling, Mechanobiology

## Joint Faculty

### **Richard L. Axelbaum (Energy, Environmental & Chemical Engineering)**

Stifel & Quinette Jens Professor of Environmental Engineering Science  
PhD, University of California, Davis  
Combustion, nanomaterials

### **Christopher Cooper (Energy, Environmental & Chemical Engineering)**

PhD, Stanford University  
Responsive, soft materials for applications in energy storage, environmental sustainability and human health

### **Elliot L. Elson (Biochemistry & Molecular Biophysics)**

Professor Emeritus of Biochemistry & Molecular Biophysics  
PhD, Stanford University  
Biochemistry, molecular biophysics

### **Michael D. Harris (Physical Therapy, Orthopaedic Surgery, and Mechanical Engineering & Materials Science)**

PhD, University of Utah  
Whole body and joint-level orthopaedic biomechanics

### **Kenneth F. Kelton (Physics)**

Arthur Holly Compton Professor of Arts & Sciences  
PhD, Harvard University  
Study and production of titanium-based quasicrystals and related phases

### **Eric C. Leuthardt (Neurological Surgery and Biomedical Engineering)**

MD, University of Pennsylvania School of Medicine  
Neurological surgery

### **Lori Setton (Biomedical Engineering)**

Lucy and Stanley Lopata Distinguished Professor of Biomedical Engineering  
PhD, Columbia University  
Biomechanics for local drug delivery, tissue regeneration specific to the knee joints and spine

### **Matthew J. Silva (Orthopaedic Surgery)**

Julia and Walter R. Peterson Orthopaedic Research Professor  
PhD, Massachusetts Institute of Technology  
Biomechanics of age-related fractures and osteoporosis

### **Simon Tang (Orthopaedic Surgery and Biomedical Engineering)**

PhD, Rensselaer Polytechnic Institute  
Biological mechanisms

## Senior Professors

### **Phillip L. Gould**

PhD, Northwestern University  
Structural analysis and design, shell analysis and design, biomechanical engineering

### **Kenneth L. Jerina**

DSc, Washington University  
Materials, design, solid mechanics, fatigue, fracture

### **Shankar M.L. Sastry**

PhD, University of Toronto  
Materials science, physical metallurgy

### **Barna A. Szabo**

PhD, State University of New York at Buffalo  
Numerical simulation of mechanical systems, finite-element methods

## Senior Lecturer

### **J. Jackson Potter**

PhD, Georgia Institute of Technology  
Senior design

### **Louis G. Woodhams**

BS, University of Missouri–St. Louis  
Computer-aided design

## Lecturers

### **Chiamaka Asinugo**

MS, Washington University  
Mechanical engineering design

### **Sharniece Holland**

PhD, University of Alabama  
Additive manufacturing, mathematics

### **Jeffery Krampf**

MS, Washington University  
Fluid mechanics, modeling, design

### **H. Shaun Sellers**

PhD, Johns Hopkins University  
Mechanics, materials

## Adjunct Instructors

### **Ricardo L. Actis**

DSc, Washington University  
Finite element analysis, numerical simulation, aircraft structures

### **Robert G. Becnel**

MS, Washington University  
FE review

### **Andrew W. Cary**

PhD, University of Michigan  
Computational fluid dynamics

**Richard S. Dyer**

PhD, Washington University  
Propulsion, thermodynamics, fluids

**Timothy W. Jackson**

PhD, University of Washington  
Structural analysis, dynamics

**Richard R. Janis**

MS, Washington University  
Building environmental systems

**Gary D. Renieri**

PhD, Virginia Polytechnic Institute and State University  
Structural applications, composite materials

**Krishnan K. Sankaran**

PhD, Massachusetts Institute of Technology  
Metallic materials

**Michael C. Wendl**

DSc, Washington University  
Mathematical theory, computational methods in biology and  
engineering