Energy, Environmental & Chemical Engineering

Phone: 314-935-5545  
Website: https://eece.wustl.edu/academics/undergraduate-programs/index.html

Faculty

Department Chair and Professor
Joshua Yuan (https://engineering.wustl.edu/faculty/Joshua-Yuan.html)  
Professor, Energy, Environmental & Chemical Engineering  
PhD, University of Tennessee  
Design-based engineering to address challenges in energy, the environment and health

Endowed Professors
The Stifel & Quinette Jens Professor of Environmental Engineering Science  
PhD, University of California, Davis  
Combustion, advanced energy systems, clean coal, aerosols, nanoparticle synthesis, rechargeable battery materials, thermal science

Walter E. Browne Professor of Environmental Engineering  
PhD, California Institute of Technology  
Aquatic chemistry, environmental engineering, water quality, water treatment

Randall Martin (https://engineering.wustl.edu/faculty/Randall-Martin.html)  
Raymond R. Tucker Distinguished Professor  
PhD, Harvard University  
Characterizing atmospheric composition to inform effective policies surrounding major environmental and public health challenges ranging from air quality to climate change

Vijay Ramani (https://engineering.wustl.edu/faculty/Vijay-Ramani.html)  
Vice Provost for Graduate Education  
Roma B. and Raymond H. Witcoff Distinguished University Professor  
PhD, University of Connecticut  
Electrochemical engineering, energy conversion

Vice Dean for Education  
James McKelvey Professor of Engineering Education  
DSc, Washington University  
Air quality planning and management, aerosol science and engineering, green engineering

Professors
Zhen (Jason) He (https://engineering.wustl.edu/faculty/Zhen-Jason-He.html)  
Director of Graduate Studies  
PhD, Washington University  
Environmental biotechnology, bioenergy production, biological wastewater treatment, resource recovery, bioelectrochemical systems, sustainable desalination technology, anaerobic digestion, forward osmosis, membrane bioreactors

PhD, Harvard University  
Aquatic processes, molecular issues in chemical kinetics, environmental chemistry, surface/physical chemistry, environmental engineering, biogeochemistry, nanotechnology

Xinhua Liang  
PhD, University of Colorado Boulder  
Gas-phase synthesis, surface science and catalysis, nanostructured films and devices, energy and environmental applications

PhD, University of Washington  
Metabolic modeling, fermentation engineering, algal bioprocesses

Director of the Center for Aerosol Science and Engineering (CASE)  
PhD, California Institute of Technology  
Aerosol properties and processes, nucleation and new particle formation, aerosols in the marine environment, effects of aerosols on cloud microphysical properties and macrophysical structure

Fuzhong Zhang (https://engineering.wustl.edu/faculty/Fuzhong-Zhang.html)  
PhD, University of Toronto  
Metabolic engineering, protein engineering, synthetic and chemical biology
**Associate Professors**

Rajan Chakrabarty ([https://engineering.wustl.edu/faculty/Rajan-Chakrabarty.html](https://engineering.wustl.edu/faculty/Rajan-Chakrabarty.html))
PhD, University of Nevada, Reno
Characterizing the radiative properties of carbonaceous aerosols in the atmosphere, researching gas-phase aggregation of aerosols in cluster-dense conditions

Marcus Foston ([https://engineering.wustl.edu/faculty/Marcus-Foston.html](https://engineering.wustl.edu/faculty/Marcus-Foston.html))
Director of Diversity Initiatives
PhD, Georgia Institute of Technology
Utilization of biomass resources for fuel and chemical production, renewable synthetic polymers, development of advanced aerosol instruments

Tae Seok Moon ([https://engineering.wustl.edu/faculty/Tae-Seok-Moon.html](https://engineering.wustl.edu/faculty/Tae-Seok-Moon.html))
PhD, Massachusetts Institute of Technology
Metabolic engineering, synthetic biology

Elijah Thimsen ([https://engineering.wustl.edu/faculty/Elijah-Thimsen.html](https://engineering.wustl.edu/faculty/Elijah-Thimsen.html))
PhD, Washington University
Gas-phase synthesis of inorganic nanomaterials for energy applications, novel plasma synthesis approaches

Brent Williams ([https://engineering.wustl.edu/faculty/Brent-Williams.html](https://engineering.wustl.edu/faculty/Brent-Williams.html))
PhD, University of California, Berkeley
Aerosols, global climate issues, atmospheric sciences

**Assistant Professors**

Peng Bai ([https://engineering.wustl.edu/faculty/Peng-Bai.html](https://engineering.wustl.edu/faculty/Peng-Bai.html))
PhD, Tsinghua University, China
Develop next-generation batteries; probe the in situ electrochemical dynamics of miniature electrodes down to nanoscales; capture the heterogeneous and stochastic nature of advanced electrodes; identify the theoretical pathways and boundaries for the rational design of materials, electrodes, and batteries through physics-based mathematical modeling and simulation

Jenna Ditto
PhD, Yale University
Chemical composition of indoor and outdoor air, indoor air chemistry, health impacts of air pollution exposure

Fangqiong Ling ([https://engineering.wustl.edu/faculty/Fangqiong-Ling.html](https://engineering.wustl.edu/faculty/Fangqiong-Ling.html))
PhD, University of Illinois at Urbana-Champaign
Microbial ecosystem analysis and modelling, process modelling, machine learning, NextGen sequencing bioinformatics, environmental microbiology, bioreactor design

Kimberly M. Parker ([https://engineering.wustl.edu/faculty/Kimberly-Parker.html](https://engineering.wustl.edu/faculty/Kimberly-Parker.html))
PhD, Stanford University
Investigation of environmental organic chemistry in natural and engineered systems

**Research Assistant Professor**

Benjamin Kumfer ([https://engineering.wustl.edu/faculty/Benjamin-Kumfer.html](https://engineering.wustl.edu/faculty/Benjamin-Kumfer.html))
DSc, Washington University
Advanced coal technologies, biomass combustion, aerosol processes and health effects of combustion-generated particles

**Senior Lecturers**

Director of Undergraduate Studies
PhD, Purdue University
Chemical engineering education, biomaterials

Raymond Ehrhard ([https://engineering.wustl.edu/faculty/Ray-Ehrhard.html](https://engineering.wustl.edu/faculty/Ray-Ehrhard.html))
BS, Missouri University of Science and Technology
Water and wastewater treatment technologies, process energy management

**Lecturers**

Trent Silbaugh ([https://engineering.wustl.edu/faculty/Trent-Silbaugh.html](https://engineering.wustl.edu/faculty/Trent-Silbaugh.html))
PhD, University of Washington
Chemical engineering education, catalysis, carbon capture and conversion

Kristen Wyckoff
PhD, University of Tennessee
Environmental engineering education, stormwater runoff, environmental microbiology

**Affiliated Faculty**

Gary Moore
Senior Lecturer for the Joint Engineering Program
MS, Missouri University of Science and Technology
Environmental management

**Adjunct Faculty**

Mangesh Bore
PhD, University of New Mexico
Process engineering

Keith Tomazi
PhD, University of Missouri-Rolla
Process development engineering

Grigoriy Yablonsky
PhD, Boreskov Institute of Catalysis
Chemical reaction engineering and heterogeneous catalysis
Senior Professor

Milorad P. Dudukovic
Laura and William Jens Emeritus Professor
PhD, Illinois Institute of Technology
Chemical reaction engineering, multiphase reactors, visualization
of multiphase flows, tracer methods, environmentally benign
processing