



SCHOOL OF  
**CHEMICAL ENGINEERING**  
College of Engineering, Architecture and Technology

**OKLAHOMA STATE UNIVERSITY**

## GRADUATE PROGRAMS

M.S. and Ph.D. Programs in Chemical Engineering  
M.S. and Ph.D. Programs in Petroleum Engineering

## RESEARCH AREAS



Batteries



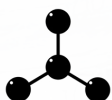
Drug  
Delivery



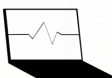
Colloids



Petroleum  
Engineering



Polymers



Modeling/  
Simulation



Nanomaterials



Tissue  
Engineering

## FACULTY

**Clint Aichele:** Interfacial Phenomena; Emulsion Formation and Stability; Flow Assurance; Separations; Reservoir Wettability Alteration

**Mohammed F. Al Dushaishi:** Drilling Vibrations and Drilling Mechanics; Drilling Fluids and Hydraulics; Lost Circulation Events and Treatments; Bit Rock Interactions; Fluid Structure Interaction; Wellbore Integrity; Data Analytics

**Marimuthu Andiappan:** Plasmonic Photocatalysis; Heterogeneous Catalysis; Homogeneous Catalysis; Process Modeling and Simulation

**Prem Bikkina:** Interfacial Phenomena Relevant to Geological Sequestration and Enhanced Oil Recovery (EOR); Macro and Microfluidics Based EOR Using ASP, WAG, CO<sub>2</sub>, and CO<sub>2</sub> Foams; Wettability-Based Dissolved Gas Separation and Nucleate Boiling

**Ömer Özgür Capraz:** Electrochemical Energy Storage and Conversion Devices; In Situ Characterization Techniques; Advanced Materials; Porous Anodic Oxide Nanofilms; Corrosion

**Heather Fahlenkamp:** Tissue Engineering; Advanced Tissue-Equivalent Models to Study Inflammation Associated with Vascular Complications, Allergens, and Infectious Agents; Drug Delivery; Nanoparticles and Biomembranes for Controlled Delivery

**Yu Feng:** Computational Fluid-Particle Dynamics and Advanced Numerical Methods; Physiologically Based Pharmacokinetic (PBPK) Modeling; Particulate Matter Transport Phenomena; Lung Aerosol Dynamics; Pulmonary Health Risk Assessment; Pulmonary Drug Delivery Optimization; Non-invasive Pulmonary Disease Diagnosis

**Geir Hareland:** Working closely with all aspects of the drilling and completion industry including contractors, service companies and operators

**Shohreh Hemmati:** Green and Sustainable Metal Nanostructure Synthesis; Millifluidic Continuous Reactors for Nanomaterial Synthesis; VLPs Expression and their Application as Biotemplate for Metal Nanostructure Synthesis; *In-situ* UV-vis and FTIR Spectroscopy; Transparent Conductive Film (TCF) Manufacturing

**Zheyu Jiang:** Process systems engineering: Developing advanced mathematical modeling, optimization, and artificial intelligence tools to solve challenges in separations, pharmaceutical and agrochemical R&D and manufacturing, digital agriculture, and Food-Energy-Water Nexus

**Seok-Jhin Kim:** Membranes and Thin Films of Nanostructured Materials; Controlled-Pore-Size Membranes for Water Purification and Gas Separation; Gas Transport and Diffusion Study in Modified-Pore Membranes

**Hunjoon Lee:** Hydraulic Fracturing; Natural Fractures; Rock Fracture Mechanics; Reservoir Geomechanics; Induced Seismicity

**Sundar V. Madhally:** Molecular Bioengineering: Understanding the mechanisms at the molecular level that trigger cellular processes in stem cell differentiation and proliferation, growth inhibition using various engineering tools, and medical science

**Mileva Radonjic:** Interdisciplinary science and engineering approach to clean and responsible energy production based on geomimicry; Microstructural characterization of Portland cement, graphene, clays and zeolite-based materials for protection of air, water and soil

**Josh D. Ramsey:** Gene Delivery Vectors; Macromolecular Drug Delivery; Directed Evolution of Enzymes; Process Engineering

**Jindal Shah:** Monte Carlo and Molecular Dynamics Simulations; Electronic Structure Calculations; Machine Learning; Phase Equilibria; Biodegradation; Ionic Liquids

**Alan Tree:** Research Administration; Materials Science; Mechanics and Rheology; International Education; Research in the Land Grant Movement

**Jeffery L. White:** Heterogeneous Catalysis; Catalyst Design; Fundamental Understanding of Reaction Mechanisms; Heterogeneous Polymeric Materials, Copolymers, Composites, and Blends; Nuclear Magnetic Resonance Spectroscopy; Diffusometry

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