MECHANICAL ENGINEERING

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M.S., M.Phil., Ph.D.

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Senior Lecturer Beth Anne Bennett

Lecturers Lawrence Wilen, Joseph Zinter

* A joint appointment with another department.

† A secondary appointment with primary affiliation in another department or school.

FIELDS OF STUDY

Fluids and Thermal Sciences Electrospray theory and characterization; electrical propulsion applications; aerodynamic instrumentation for separation of clusters and aerosol particles; heterogeneous nucleation in the gas phase; combustion and flames; computational methods for fluid dynamics and reacting flows; interfacial flows and instabilities and transport phenomena in disordered media.

Soft Matter/Complex Fluids Jamming and slow dynamics in gels, glasses, and granular materials; mechanical properties of soft and biological materials; rheology and statistical mechanics of muscle; structure and dynamics of proteins and other macromolecules and wetting of soft solids, elastocapillarity, poroelasticity, microrheology, and scattering.

Robotics/Mechatronics Machine and mechanism design; dynamics and control; robotic grasping and manipulation; legged locomotion; multi-agent search and exploration; optimal control for learning; model-predictive control; reinforcement learning; human-machine interface; rehabilitation robotics; haptics; soft robotics; flexible and stretchable electronics; soft material manufacturing; responsive material actuators; artificial muscle; soft-bodied control; electromechanical energy conversion; biomechanics of human movement and human-powered vehicles.

Bioengineering Engineering sciences of living systems; biomechanics; motor control; animal locomotion; cell and tissue mechanics; biomaterials and therapeutics; human

health and orthopaedics; bio-inspired computation and design; biomaterials and cell-material interaction.

For degree requirements and courses, see Engineering & Applied Science.