



URP/Honors in the Major Projects at the Department of Chemical and Biomedical Engineering, FAMU-FSU College of Engineering (2024)

Professor	Projects
Alamo, R.	<ul style="list-style-type: none"> • Effect of Melt memory on crystallization of high impact polyolefins. • Self-assembly of conjugated novel polyethylenes.
Ali, J.	<ul style="list-style-type: none"> • Fabrication and rheological characterization of trans-domain bioinks. • 3D bioprinting of mammalian-bacterial hydrogel co-cultures.
Arnett, A.	<ul style="list-style-type: none"> • Polymeric materials
Chung, H.	<ul style="list-style-type: none"> • Functional polymer synthesis. • Development of biomedical adhesives for strong tissue adhesion and targeted drug delivery. • Synthesis of sustainable biomass lignin-based polymers. • Greenhouse gas CO₂ based degradable polymer synthesis. • Biomass polymers for CO₂ storage. • Depolymerization study for circular economy. • Smart polymers with dual thermoresponsive properties. • Polymeric 2D materials modification for aerodynamic applications.
Driscoll, T.	<ul style="list-style-type: none"> • Focal adhesion force transmission during cell migration in engineered fibrous networks. • Regulation of cellular contractile forces by tropomyosins. • Age related changes in cellular mechanosensors of fibrochondrocytes.
Grant, S.	<ul style="list-style-type: none"> • Magnetic targeting of iron oxide-labeled stem cells. • Conductivity mapping in pathological human brain tissue (Parkinson's and Alzheimer's diseases). • Intranasal delivery for cellular therapy.
Guan, J.	<ul style="list-style-type: none"> • Micro/nanoparticles for drug delivery or biosensing. • Microparticles for studying phagocytosis.
Hallinan, D.	<ul style="list-style-type: none"> • Thermal Diffusion in Polymer Electrolytes. • Reaction Kinetics in Lithium Batteries with Solid Electrolytes.
Kalu, E./Yeboah, Y.	<ul style="list-style-type: none"> • Simultaneous generation of electricity and value, added chemicals in a biofuel redox flow battery. • Hybrid electrocatalyst for hydrogen generation from water electrolysis.
Liu, Z. L.	<ul style="list-style-type: none"> • Microfluidic characterization thrombosis and hemostasis. • Multiscale modelling of molecular and cellular blood flows • Physics-informed Machine Learning.
Li, Y.	<ul style="list-style-type: none"> • Characterization of human stem cell microenvironment and extracellular vesicles.



	<ul style="list-style-type: none">• Engineering extracellular vesicles of human stem cells for drug delivery.• Expansion of human stem cells in a bioreactor system.
Locke, B.	<ul style="list-style-type: none">• Water-film plasma reactors for organic chemical synthesis.• Characterization of hydrodynamics in water film plasma reactors.
Mohammadigoushki, H.	<ul style="list-style-type: none">• Dynamics and Rheology of Living Polymers.• Design of a Temperature and Humidity Controlled Chamber.
Ramakrishnan, S.	<ul style="list-style-type: none">• Structure Dynamics and Rheology of nanoparticle suspensions and gels.• 3D printing of light weight multifunctional composites.• Synthesis of polymer particle nano composites for aerospace applications.• Mechanisms of self-assembly of peptides into hydrogels.
Ramamoorthy, A.	<ul style="list-style-type: none">• Biocondensation.• Development and characterization of lipid-nanodiscs.• Development of inhibitors of biocondensation/aggregation associated with Alzheimer's disease, Parkinson's disease and type-2 diabetes.• NMR investigation of biomaterials.
Ricarte, R.	<ul style="list-style-type: none">• Understanding structure-property relationships of vitrimers.• Elucidation of nanoparticle self-assembly during polymerization-induced encapsulation.
Siegrist, T.	<ul style="list-style-type: none">• Crystal Growth for magnetic systems for the Ising model.

Our past Honors URP/Honors in the Major students have gone to PhD in graduate schools (including law schools and medical schools) and industry. Several students received prestigious National Science Foundation graduate research fellowships.

Example graduate schools: Stanford, University of Minnesota, University of Florida, Florida State University, Georgia Tech, Emory University, Penn State University, Northwestern University, Duke University, etc.