



2009 *SUNRISE* REU Mentors and Proposed Research Projects

Mentor, Discipline*	Project Title
Interdisciplinary Projects	
Evguenii Kozliak, PChem; Alena Kubatova, AChem, Wayne Seames, ChE	Chemistry of Polymer Formation during Vegetable Oil Cracking
Julia Zhao, AChem; Darrin Muggli, ChE	Fundamental Chemistry of Silica-based Nanocatalysts
Evguenii Kozliak; David Pierce, AChem; Wayne Seames	GFAA Modeling of Trace Element Atomization in Coal Combustion Furnaces
Alena Kubatova; Evguenii Kozliak	Aldehyde Extraction from Coal-Derived Particles
Alena Kubatova; Darrin Muggli	Chromatographic Characterization of Biofuels
Julia Zhao; David Pierce	Applications of Silica-based Nanocatalysts
Darrin Muggli; Wayne Seames; Evguenii Kozliak	High-throughput Experimentation and Combinatorial Chemistry for the Development of Biofuels Catalysts
Michael Mann, EnE; David Pierce; Hossein Salehfar, EE	Kinetic and Transport Properties of PEM Electrolysis Stacks using Electrochemical Impedance Spectroscopy
Reginald Parker, MSE; Wayne Seames	Energy recovery via carbonization of waste polymers
Frank Bowmann, EnvE; Michael Mann, EnE	Near Plume Transformations of Trace Elements From Coal Combustion
Other Projects	
Julia Zhao	Synthesis of Silica-based Nanocatalysts
Irina Smoliakova, OChem	Development of New Organometallic Catalysts
Darrin Muggli	Developing a New Catalyst for Photocatalytic Oxidation
Reginald Parker	Optimization of Material Formulation for Efficiency of Nanobiocomposite Organic Photovoltaic
Mark Hoffmann, PChem	Computational Coal Combustion Chemistry
Frank Bowmann, EnvE	Modeling Atmospheric Aerosols from Sustainable Combustion Sources

* PChem = physical chemistry; AChem = analytical chemistry; ChE = chemical engineering; EnE= energy engineering; EE = electrical engineering; OChem = organic chemistry; MSE = material science engineering; EnvE = environmental engineering