

I-CARES FUNDED PROPOSALS

Principal Investigator	Department	Title
Richard L. Axelbaum	Energy, Environmental & Chemical Engineering (EECE)	Mitigation of Atmospheric Carbon Dioxide via Oxy-Fired Combustion of Coal and Engineered Biomass
Ursula Goodenough	Biology	Exploring the use of <i>Chlamydomonas</i> as a Source of Biodiesel
Sophia Hayes	Chemistry	Understanding the Role of Defects in Reducing Photovoltaic Efficiency of Silicon Solar Cells - Probed by Optically Pumped Nuclear Magnetic Resonance (OPNMR) Spectroscopy
Young-Shin Jun	Energy, Environmental & Chemical Engineering (EECE)	Mechanisms and Kinetics of CO ₂ -H ₂ O Mineral Interfacial Reactions: Molecular-Scale Understanding of Geological CO ₂ Sequestration Related to Climate Changes
Cynthia Lo	Energy, Environmental & Chemical Engineering (EECE)	High-efficiency Photovoltaic Devices: Integration of Photosynthetic Antenna Complexes with Dye-sensitized Solar Cells
Peter MacKeith	Architecture	Zero Energy Buildings Case Studies and Performance Guidelines
John Orrock	Biology	An Experimental Evaluation of Regional Variation in the Production of Sustainable Biofuels
Radhakrishna Sureshkumar	Energy, Environmental & Chemical Engineering (EECE)	Multi-level modeling of Anaerobic Mixed Culture Fermentations
Yinjie J. Tang	Energy, Environmental & Chemical Engineering (EECE)	Novel Approach for Characterizing Microbial Communities: ¹³ C Based Flux Analysis of Syntrophic <i>Desulfovibrio</i> Co-cultures
Heather Woofter	Architecture	Metabolic City
Younan Xia	Biomedical Engineering	Putting Nanostructures to Work for Improving the Energy Conversion Efficiency of Solar Cells
Lan Yang	Electrical and Systems Engineering	Enhanced Photoactivity of Nanostructured TiO ₂ Films by Micro-Resonance Systems: Solar Energy Conversion for Electricity and Hydrogen Production