

2018 Undergraduate Summer Research Program

Protein-based nanomanufacturing: Using silk and hydrophobins for sustainable lithography

Advisor: Mostafa Bedewy, industrial engineering

Student: Megan Black, mechanical engineering & materials science (*Mascaro Scholar*)

Microstructure and properties of sintered magnetocaloric materials for efficient magnetic refrigeration

Advisor: Markus Chmielus, mechanical engineering & materials science

Student: Rafael Rodriguez, mechanical engineering & materials science (*Mascaro Scholar*)

Magnetocaloric effect of binder jet printed Ni-Mn-Ga magnetic shape memory alloy

Advisor: Markus Chmielus, mechanical engineering & materials science

Student: Aaron Acierno, mechanical engineering & materials science (*Mascaro Scholar*)

Energy-efficient processors, sensors, and systems for space-based sensing and computing

Advisor: Alan George, electrical & computer engineering

Student: Sridhar Reddy Velagala, electrical engineering and computer science (*Condon Scholar*)

Designing efficient electrocatalysts atom by atom

Advisor: John Keith, chemical & petroleum engineering

Student: Sarah Newton, chemical & petroleum engineering (*Mascaro Scholar*)

Black silicon solar cells

Advisor: Paul Leu, industrial engineering

Student: Sooraj Sharma, mechanical engineering & materials science (*Mascaro Scholar*)

Nanofabricated interfaces for electrochemical catalysis

Advisor: James McKone, chemical & petroleum engineering

Student: Julia McKay, chemical & petroleum engineering (*Frank and Daphna Lederman Scholar*)

Capturing tidal energy using smart materials

Advisor: Katherine Ong, mechanical engineering & materials science

Student: Katrina Haidari, mechanical engineering & materials science (*Mascaro Scholar*)

Mary Kozuch, mechanical engineering & materials science (*Mascaro Scholar*)

Smarter Riversheds – Real-time environmental sensors networks

Advisor: David Sanchez, civil & environmental engineering

Student: Kathleen Beaudoin, civil & environmental engineering (*Charles A. and Linda E. Sorber Scholar*)

Feeding a Growing World: Towards a novel process for ammonia synthesis

Advisor: Goetz Vesper, chemical & petroleum engineering

Student: Eyram Akabua, chemical & petroleum engineering (*Mascaro Scholar*)

Making more with less: "Greening" the process industry via process intensification

Advisor: Goetz Vesper, chemical & petroleum engineering

Student: Trevor Devine, chemical & petroleum engineering (*Mascaro Scholar*)

Green electronics – Low-Power memory device on transparent nanopaper substrate

Advisor: Feng Xiong, electrical and computer engineering

Student: Nolan Ardolino, mechanical engineering & materials science (*Mascaro Scholar*)

3D Printing of Graded Alloys for Energy Efficiency in Aerospace Materials Manufacturing

Advisor: Wei Xiong, mechanical engineering & material science

Student: Noah Levine, mechanical engineering & material science (*Mascaro Scholar*)