

## 2018 Undergraduate Summer Research Symposium

*Tuesday, July 24 10:00 AM - 2:00 PM 102 Benedum Hall*

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- 10:00 am**      **Welcome, Dr. David Sanchez**
- 10:05 am**      **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*)
- 10:20 am**      **Laser Irradiation to Control the Secondary Structure of Silk for Biodegradable, Flexible Multifunctional Films**  
**Advisor:** Mostafa Bedewy, industrial engineering  
**Student:** Megan Black, mechanical engineering & materials science (*Mascaro Scholar*)
- 10:35 am**      **Magnetocaloric Effect of Binder-Jet Printed Ni-Mn-Ga-based Heusler Alloys for Efficient Refrigeration**  
**Advisor:** Markus Chmielus, mechanical engineering & materials science  
**Students:** Aaron Acierno, mechanical engineering & materials science (*Mascaro Scholar*)  
Rafael Rodriguez, mechanical engineering & materials science (*Mascaro Scholar*)
- 11:00 am**      **Accelerating JPEG to JPEG-2000 compression algorithm in an FPGA using Vivado HLS**  
**Advisor:** Alan George, electrical & computer engineering  
**Student:** Sridhar Reddy Velagala, electrical engineering and computer science (*Condon Scholar*)
- 11:15 am**      **Designing efficient electrocatalysts atom by atom**  
**Advisor:** John Keith, chemical & petroleum engineering  
**Student:** Sarah Newton, chemical & petroleum engineering (*Mascaro Scholar*)
- 11:30 am**      Self-cleaning, anti-reflective solar cells  
**Advisor:** Paul Leu, industrial engineering  
**Student:** Sooraj Sharma, mechanical engineering & materials science (*Mascaro Scholar*)
- 11:45 am**      **LUNCH and Group Photo**
- 12:15 pm**      **Nanofabricated interfaces for electrochemical catalysis**  
**Advisor:** James McKone, chemical & petroleum engineering  
**Student:** Julia McKay, chemical & petroleum engineering (*Frank and Daphna Lederman Scholar*)
- 12:30 pm**      **Harnessing electricity from hurricane waves**  
**Advisor:** Katherine Hornbostel, mechanical engineering & materials science  
**Student:** Katrina Haidari, mechanical engineering & materials science (*Mascaro Scholar*)  
Mary Kozuch, mechanical engineering & materials science (*Mascaro Scholar*)
- 12:45 pm**      **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*)

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- 1:00 pm**      ***“Greening’ the Chemical Industry: Towards Cleaner Ethylene Production”***  
**Advisor:** Goetz Vesper, chemical & petroleum engineering  
**Student:** Efram Akabua, chemical & petroleum engineering (*Mascaro Scholar*)
- 1:15 pm**      ***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*)
- 1:30 pm**      ***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*)
- 1:45 pm**      ***Program end***