

- 1. *Reversible hydration as a design tool for sustainable design***  
**Advisor:** Eric Beckman, chemical & petroleum engineering
- 2. *Protein-based nanomanufacturing: Using silk and hydrophobins for sustainable lithography***  
**Advisor:** Mostafa Bedewy, industrial engineering
- 3. *Exploring the end-of-life of buildings using environmental life cycle assessment***  
**Advisor:** Melissa Bilec, civil & environmental engineering
- 4. *Analyzing Water/Energy technology tradeoffs to create a sustainable development framework for a rainforest village outside Panama City, Panama***  
**Advisors:** Dan Budny, civil & environmental engineering  
Dave Sanchez, civil & environmental engineering
- 5. *Microstructure and properties of sintered magnetocaloric materials for efficient magnetic refrigeration***  
**Advisor:** Markus Chmielus, mechanical engineering & materials science
- 6. *Magnetocaloric effect of binder jet printed Ni-Mn-Ga magnetic shape memory alloy***  
**Advisor:** Markus Chmielus, mechanical engineering & materials science
- 7. *Energy-efficient processors, sensors, and systems for space-based sensing and computing***  
**Advisor:** Alan George, electrical & computer engineering
- 8. *Conducting holistic analyses of computing and electronics to understand their entire life-cycle impacts to sustainability and the environment***  
**Advisor:** Alex Jones, electrical & computer engineering
- 9. *Machine learning blueprints for green chelants***  
**Advisor:** John Keith, chemical & petroleum engineering
- 10. *Designing efficient electrocatalysts devices atom by atom***  
**Advisor:** John Keith, chemical & petroleum engineering
- 11. *Food-Energy-Water Nexus***  
**Advisor:** Vikas Khanna, civil & environmental engineering
- 12. *Insect Pollination: Contributions to the U.S. Economy***  
**Advisor:** Vikas Khanna, civil & environmental engineering
- 13. *Self-cleaning solar cells***  
**Advisor:** Paul Leu, industrial engineering
- 14. *Black silicon solar cells***  
**Advisor:** Paul Leu, industrial engineering
- 15. *Nanofabricated interfaces for electrochemical catalysis***  
**Advisor:** James McKone, chemical & petroleum engineering
- 16. *Making green infrastructure work: building systems-level models for networks of green and grey infrastructure***  
**Advisor:** Carla Ng, civil & environmental engineering
- 17. *Capturing tidal energy using smart materials***  
**Advisor:** Katherine Ong, mechanical engineering

**18. Smarter Riversheds – Real-time environmental sensors networks**

**Advisor:** David Sanchez, civil & environmental engineering

**19. Using Biofilm-Electrodes as environmental sensors**

**Advisor:** David Sanchez, civil & environmental engineering

**20. Not Your Grandpa's Fossil Fuels: Environmentally responsible use of natural gas**

**Advisor:** Goetz Vesper, chemical & petroleum engineering

**21. Feeding a Growing World: Towards a novel process for ammonia synthesis**

**Advisor:** Goetz Vesper, chemical & petroleum engineering

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

**Advisor:** Goetz Vesper, chemical & petroleum engineering

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

**Advisor:** Feng Xiong, electrical and computer engineering

**24. Thermoelectric microdevice for energy harvesting**

**Advisor:** Minhee Yun, electrical & computer engineering

**25. 3D Printing of Graded Alloys for Energy Efficiency in Aerospace Materials Manufacturing**

**Advisor:** Wei Xiong, mechanical engineering & material science