

**CORE-CM SEMINAR**  
**Michigan State University**

**Turning Chemistry into Food-Energy-Water Nexus**  
**Solutions towards Global Sustainability**

**Wei Liao**

**MSU Anaerobic Digestion Research and Education Center  
(ADREC), Department of Biosystems & Agricultural  
Engineering, MSU**

Rapid growth of the world's population, along with accelerating industrialization and expanding urbanization, quickly pushes the global community to face the serious challenges (i.e., food, energy, water, air pollution, climate change, and diseases) of living in the Anthropocene. Food, energy, and water (FEW) are the most significant ones among them, where innovations are urgently needed to develop system-based FEW solutions. In response to this critical need, the MSU ADREC is applying a variety of chemical and biological approaches to develop integrated systems that can sustainably address the FEW nexus challenge. The following topics are included in this presentation: 1) anaerobic digestion – new roles for carbon, nitrogen, and phosphorus sequestration; 2) combined chemical and biological process to recycle carbon dioxide for biofuel/chemical production; 3) algae biorefining of food and chemical production; and 4) examples of integrated systems in real-world applications.

**Thursday, Sept. 29, 2016**

**12:00 NOON**

**Room 1400 – Biomedical & Physical Sciences**

**Host: Professor John Frost**