

Center for Research in Energy and the Environment (CREE)

Who We Are

- > Jonathan Kimball, Interim Director
 - Professor of ECE; power electronics, solar energy, microgrids
- > Wenyan Liu, Ninu Madria – chemical analysis
- > Stephane Menand, Thomas Yarbrough – microgrids
- > Steve Achterberg – aerospace particulate analysis
- > Denise Choate, administrative assistant

Faculty

- > 70+ Faculty
- > Both colleges
- > 12 Departments
 - All 9 in CEC
 - Biological sciences, chemistry, and economics

CREE Thrust Areas

- > Electrochemical Energy Conversion and Catalysts
 - Fatih Dogan
- > Nutrients and Eutrophication
 - Dev Niyogi and Mark Fitch
- > Nanoparticles
 - Honglan Shi

CREE Thrust Areas (cont.)

- > Transportation Energy
 - Mehdi Ferdowsi
- > Sustainable Mining
 - Kwame Awuah-Offei and Michael Moats
 - Includes the Thomas J. O’Keefe Institute for Sustainable Supply of Strategic Minerals
- > Also home of the Center of Excellence in Aerospace Particulate Emissions Reduction Research (Phil Whitefield)

Notable Recent Awards

- > Multiscale manufacturing for advanced energy storage devices (Jonghyun Park)
- > Nano-engineered catalyst supported on ceramic hollows fibers for the utilization of CO₂ in dry reforming to produce syngas (Xinhua Liang)
- > Alleviating Electric Grid Congestion: Infrastructure Investment Portfolio for Promoting Distributed Energy Technology Adoption (Islam El-adaway)
- > WORKSHOP: Resilient Supply of Critical Minerals (Marek Locmelis et al.)

- > Corn Seed Quality Chemical Marker Discovery (Honglan Shi et al.)
- > Petro-physics Property and EOR Potential Evaluation of Tight Oil Sands (Baojun Bai and Mingzhen Wei)
- > Modeling and Optimizing Pumped Storage in Multi-stage Large Scale Electricity Market under Portfolio Evolution (Rui Bo)
- > Elucidating the interactive mechanisms of silver and zinc oxide nanoparticles with corn and lettuce through soil ecosystem (Honglan Shi and Joel Burken)

Facilities

- > Extensive chemical analysis equipment, mostly in BCH, also McNutt and Schrenk
 - GFAA, FAA, HPLC, IC, Zetasizer, TOC-TN
 - GC, GC-MS, GC-TD, ICP-MS, ICP-OES
 - Microwave Digestion System
 - Contact Wenyan Liu or Ninu Madria for more information
- > Microgrids
 - Solar Village – one microgrid for four houses
 - EcoVillage – microgrid per house for two houses

What We Do

- > Chemical analysis – provide training and support
- > Biweekly seminars
 - Lightning talks – to initiate new research connections
- > Thrust areas – gathering to discuss capabilities, funding opportunities
- > Pilot funding – to get initial results in support of new collaborations

How to Get Involved

- > For analytical chemistry support, contact Wenyan Liu or Ninu Madria
- > For microgrid projects, contact Stephane Menand
- > For one of the CREE thrust areas, contact its leader(s)
- > To attend the seminars/lightning talks, contact Denise Choate for Zoom details

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