



U.S. DEPARTMENT OF  
**ENERGY**



NATIONAL  
**ENERGY**  
TECHNOLOGY  
LABORATORY

## Crosscutting Research and Advanced Energy Systems Project Review Meeting Sensor Technologies for Fossil Energy Virtual Session Agenda

All times designated in Eastern Daylight Time

**Thursday, May 20, 2021**

- 8:45 AM Welcome and Opening Remarks**  
Dave Lyons, Transformative Power Generation and  
Sydni Credle, Crosscutting Research Sensors & Controls, National Energy Technology Laboratory
- 9:00 AM DOE Perspectives - An Overview of Sponsoring Programs**  
Sotirios (Sam) Thomas, U.S. Department of Energy
- 9:30 AM Highlighting: Distributed Temperature Measurements (Optical Fiber), Laser LOS Measurement (Laser), Fluorescent Particles for Boiler Application (FWP-NETL)**  
Ben Chorpening, National Energy Technology Laboratory

### Coal Fly Ash Speciation

Moderator: Rick Dunst

- 10:00 AM Elucidating Arsenic and Selenium Speciation in Coal Fly Ashes (FE0031739)**  
Yuanzhi Tang, Georgia Tech Research Corporation
- 10:30 AM Characterization of Arsenic and Selenium in Coal Fly Ash to Improve Evaluations for Disposal and Reuse Potential (FE0031748)**  
Heileen Hsu-Kim, Duke University
- 11:00 AM BREAK**

### Plant Improvements via Advanced Sensor Technologies

Moderator: Rick Dunst

- 11:15 AM Mid Infra-Red Laser Sensor for Continuous Sulfur Trioxide Monitoring to Improve Coal-Fired Power Plant Performance During Flexible Operations (FE0031560)**  
Jason Kriesel, Opto-Knowledge Systems, Inc.
- 11:45 AM Wireless High Temperature Sensor Network for Smart Boiler Systems. (FE0031895)**  
Xuejun Lu, University of Massachusetts

Driving Innovation & Delivering Solutions



U.S. DEPARTMENT OF  
**ENERGY**



NATIONAL  
ENERGY  
TECHNOLOGY  
LABORATORY

## Crosscutting Research and Advanced Energy Systems Project Review Meeting Sensor Technologies for Fossil Energy Virtual Session Agenda

All times designated in Eastern Daylight Time

12:15 PM      **BREAK**

### Plant Improvements via Advanced Sensor Technologies

Moderator: Jessica Mullen

- 12:45 PM      Online System ID for Predicting Power Plant Performance Throughout Cycling Operations (FWP-1022461 - Task 4)**  
Larry Shadle, National Energy Technology Laboratory  
*(Sponsored by Transformative Power Generation Program)*
- 1:15 PM      Ultrasonic Measurements of Temperature Profile and Heat Fluxes in Coal-Fired Power Plants (FE0031559)**  
Mikhail Skliar, University of Utah  
*(Sponsored by Transformative Power Generation Program)*
- 1:45 PM      Combustion Performance and Emissions Optimization Through Integration of a Miniaturized High-Temperature Multi Process Monitoring System (FE0031680)**  
Zhonghua Zhan, Reaction Engineering International  
*(Sponsored by Transformative Power Generation Program)*
- 2:15 PM      Development of Miniaturized High-Temperature Multi-Process Monitoring System (FE0031682)**  
Hong-Shig Shim, Reaction Engineering International  
*(Sponsored by Transformative Power Generation Program)*
- 2:45 PM      BREAK**
- 3:00 PM      Demonstration of Multi-Gamma Based Sensor Technology for As-Fired Coal Property Measurement (FE0031750)**  
Shuchita Patwardhan, Microbeam Technologies, Inc.  
*(Sponsored by Transformative Power Generation Program)*
- 3:30 PM      Test and Validate Distributed Coaxial Cable Sensors for In Situ Condition Monitoring of Coal-Fired Boiler Tubes (FE0031765)**  
Hai Xiao, Clemson University  
*(Sponsored by Transformative Power Generation Program)*

Driving Innovation & Delivering Solutions



U.S. DEPARTMENT OF  
**ENERGY**



## **Crosscutting Research and Advanced Energy Systems Project Review Meeting Sensor Technologies for Fossil Energy Virtual Session Agenda**

All times designated in Eastern Daylight Time

- 4:00 PM**      **Real-time, Close-Coupled, Multi-Species Gas Analyzer (SC0020879)**  
Jason Kriesel, Opto-Knowledge Systems, Inc.
- 4:30 PM**      **High Temperature Electrochemical Sensors for In-Situ Corrosion Monitoring in Coal-Based Power Generation Boilers (FE0031548)**  
Xingbo Liu, West Virginia University Research Corporation