



U.S. DEPARTMENT OF
ENERGY



Crosscutting Research and Advanced Energy Systems Project Review Meeting High Performance Materials Program Virtual Session Agenda

All times designated in Eastern Daylight Time

Thursday, June 10, 2021

Advanced Manufacturing

Moderator: Heather Hunter

- 10:00 AM** **Opening Remarks**
Heather Hunter, National Energy Technology Laboratory
- 10:10 AM** **Low-Cost Hip Fabrication of Advanced Power Cycle Components and PM/Wrought in 740h Weld Development (FE0031818)**
Shenyan Huang, General Electric (GE) Company
- 10:30 AM** **Low Cost Fabrication of ODS Materials (FWP-60098)**
Glenn Grant, Pacific Northwest National Laboratory
- 10:50 AM** **Solid State Joining of Creep Enhanced Ferritic Steels (FWP-66059)**
Glenn Grant, Pacific Northwest National Laboratory
- 11:10 AM** **Integrated Process Improvement using Laser and Friction Stir Processing for Nickel Alloys used in Fossil Energy Power Plant Applications (FWP-71843)**
Chris Smith, Pacific Northwest National Laboratory
- 11:30AM** **Components Fabricated by Additive Manufacturing (FWP-FEAA128)**
Sebastien N. Dryepondt, Oak Ridge National Laboratory
- 11:50 AM** **Development of Functionally Graded Transition Joints to Enable Dissimilar Metal Welds (FWPFEEA151)**
Peeyush Nandwana, Oak Ridge National Laboratory
- 12:10 PM** **BREAK**



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Moderator: Michael Fasouletos

- 1:00 PM** **Multi-Pass Hybrid Laser ARC Welding of Alloy 740H (FWP-B100-19010)**
Thomas M. Lillo, Idaho National Laboratory, Todd Palmer, Pennsylvania State University
- 1:20 PM** **Additively Manufactured Graded Composite Transition Joints for Dissimilar Metal Weldments in Ultra-Supercritical Power Plant (FE0031819)**
Xingbo Liu, West Virginia University
- 1:40 PM** **Optimization of Wire Arc Additive Manufacturing (WAAM) Process to Produce Advanced Ultra-Supercritical Components (AUSC) Components with Increased Service Life (FE0031821)**
Alexander Staroselsk, United Technologies Research Center
- 2:00 PM** **Computation Tools for Additive Manufacture of Tailored Microstructure and Properties (FE0031642)**
John A. Sharon, United Technologies Research Center
- 2:20 PM** **Robust Dissimilar Metal Friction Welded Spool for Enhanced Capability for Steam Power Components (FE0031907)**
Erica Sampson, General Electric (GE) Company



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Tuesday, June 15, 2021

Materials Characterization, Modeling, Existing Fleet, and Alloy Development

Moderator: Omer Bakshi

- 10:00 AM** **Opening Remarks**
Omer Bakshi, National Energy Technology Laboratory
- 10:10 AM** **Characterization of Long-Term Service Coal Combustion Power Plant Extreme Environment Materials (EEMs) (FE0031562)**
Steven C. Kung, Electric Power Research Institute

Project Sponsored by Transformative Power Generation (TPG) Program

- 10:30 AM** **Environmental Validation of Materials and Design Concepts to Enable Operational Flexibility of Existing Coal Power Plants (FE0031749)**
Anand Kulkarni, Siemens Corporation

Project Sponsored by Transformative Power Generation (TPG) Program

- 10:50 AM** **Elimination of Steam Side Scaling on Grade 91 Steel: Improving Efficiency, Reliability, & Flexibility of Existing Fossil Fired Power Plants (FE0031769)**
Jeff Henry, Applied Thermal Coatings, Inc.

Project Sponsored by Transformative Power Generation (TPG) Program

- 11:10 AM** **Life Modeling of Critical Steam Cycle Components in Coal-Fueled Power Plants (FE0031811)**
Mark Patterson, Southern Research Institute



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Project Sponsored by Simulation-Based Engineering (SBE) Program

11:30 AM **Damage Accumulations Predictions for Boiler Components via Microstructurally Informed Material Models (FE0031823)**
Monica Soare, General Electric (GE)

Project Sponsored by Simulation-Based Engineering (SBE) Program

11:50 AM **Advanced Coating Compositions and Microstructures to Improve Uptime and Operational Flexibility in Cyclic, Low-Load Fossil Plants (FE0031911)**
Anteneh Kebede, General Electric (GE) Company

12:10 PM **BREAK**

Materials Characterization, Modeling, Existing Fleet, and Alloy Development

Moderator: Robie Lewis

1:00 PM **Standardized Test Method and Calculation Protocol for Determining and Reporting Annual Heat Rate for Coal-Fueled Electricity Generating Units (FE0031933)**
Dan Andrei, ASME Standards Technology, LLC

1:20 PM **Materials Performance in sCO₂ Environments (FWP-1022406 Task 12)**
Omer Dogan, National Energy Technology Laboratory

1:40PM **Guidelines for Alloy Development (FWP-1022433 Thrust 4)**
Edgar Lara-Curzio, Oak Ridge National Laboratory and Jeffrey Hawk, National Energy Technology Laboratory

2:00 PM **Reducing the Cost of Ingots Utilized in Large Steam Cycle Components by Heat Flux Manipulation During VAR Processing to Control Solidification (SC0020980)**
Paul King, KW Associates, LLC



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- 2:20 PM** **Design Tool for Creep-Resistant Materials and Low Cycle Fatigue Modeling
(FWP-1022406 Task 16)**
Youhai Wen, National Energy Technology Laboratory
- 2:40 PM** **Advanced Alloy Development (FWP-1022406 EY20 Task 5, 7, & 8; EY21 Task 5)**
Paul Jablonski, National Energy Technology Laboratory