

CABLE Big Idea Workshop

Hosted by the DOE/EERE Advanced Manufacturing Office (AMO)

April 7-9, 2021

RECAP

DAY 2: April 8	
Time	Activity
11:30 AM – 11:40 AM	2.1 Welcome from CABLE Big Idea Team Lead, Overview of CABLE Prize <ul style="list-style-type: none"> Emily Evans, National Renewable Energy Laboratory, “CABLE Conductor Manufacturing Prize”
11:40 AM – 2:30 PM	2.2 Materials Fabrication Panels
11:40 AM – 12:20 PM	2.2.1 Metal/Nanocarbon Conductor Panel – Moderator: Brian Valentine, DOE Advanced Manufacturing Office <ul style="list-style-type: none"> Mehran Tehrani, University of Texas at Austin, “Advanced Electrical Conductors: An Overview and Prospects” Keerti Kappagantula, Pacific Northwest National Laboratory, “Enhanced Conductivity Composites Using Solid Phase Processing” Balu Balachandran, Argonne National Laboratory, “Fabrication of CABLE Materials by Industrially Viable Process (aka ‘Covetics’)”
12:20 PM – 1:00 PM	2.2.2 Metal Enhanced without Nanocarbon Panel – Moderator: Chris Hovanec, DOE Advanced Manufacturing Office <ul style="list-style-type: none"> Nhon Vo, NanoAL, LLC, “NanoAl Technologies for Wire and Cable Applications” Alex Plotkowski, Oak Ridge National Laboratory, “Materials Fabrication – Metal Enhanced without Nanocarbon” Jon McCrea, Integran, “Nanostructure Enabled High Strength Electrical Conductors” John Hryn, Argonne National Laboratory, “Copper-Rare Earth Alloys from China”
1:00 PM – 1:30 PM	2.2.3 Polymer and Other Non-metallic Enhanced Conductor Concepts Panel – Moderator: Tony Bouza, DOE Advanced Manufacturing Office <ul style="list-style-type: none"> Saniya LeBlanc, George Washington University, “Thermal Metrology to Measure Thermal Conductivity” Dan Gianola, University of California, Santa Barbara, “Flexible Composites with Programmable Electrical (and Thermal) Anisotropy Using Acoustophoresis” Chuck Booten, National Renewable Energy Laboratory, “Far Infrared Fiber Optics for Heat Transfer” Michael Ohadi, University of Maryland, “High-conductivity Polymer Composite Conductors for Thermal Management – Case Examples”
1:30 PM – 2:30 PM	2.2.4 Facilitated Discussion on Materials Fabrication (Emmanuel Taylor and Ridah Sabouni, Energetics)
2:30 PM – 2:45 PM	BREAK

2:45 PM – 4:50 PM	2.3 Materials Modeling and Computation Panels – Moderators: George Maracas, DOE Office of Basic Energy Sciences and Santanu Chaudhuri, Argonne National Laboratory
2:45 PM – 3:20 PM	2.3.1 Atomistic-scale Simulation <ul style="list-style-type: none"> • Subramanian Sankaranarayanan, Argonne National Laboratory, “Exploring Metastable Metal-nanocarbon Composites for Enhanced Electrical and Thermal Conductivity” • David Drabold, Ohio University, “Conduction in Aluminum and Copper: Defects and Impurities” • Panchapakesan Ganesh, Oak Ridge National Laboratory, “Understanding Metal-Insulator Transitions in Correlated Oxides for Rapid Electrical Switching”
3:20 PM – 3:50 PM	2.3.2 Multi-scale Simulation Approaches <ul style="list-style-type: none"> • Pallab Barai, Argonne National Laboratory, “Multiscale Computational Model to Estimate Effective Properties for Metal/Carbon Nano Composites” • Duane D. Johnson, Iowa State University/Ames Laboratory, “Strong, Lightweight ‘Mary Shelley’ Alloys for Transmission Lines” • Rajeev Kumar, Oak Ridge National Laboratory, “Modeling Structure and Ionic Transport in Polymer Electrolytes”
3:50 PM – 4:20 PM	2.3.3 Cross-cutting Topics in Materials Simulation <ul style="list-style-type: none"> • Maria Chan, Argonne National Laboratory, “Thermal Transport Modeling of C-in-Cu Nanoscale Inclusions” • Angel Yanguas-Gil, Argonne National Laboratory, “Why Cu-C Composites Underperform?” • Bobby Sumpter, Oak Ridge National Laboratory, “Molecular Modeling and Simulation of Hybrid Materials, Polymers and Polymer Nanocomposites”
4:20 PM – 4:50 PM	2.3.4 Facilitated Discussion on Materials Modeling and Computation (Emmanuel Taylor, Energetics)
4:50 PM – 5:00 PM	Preview of Day 3