

2024 Vehicle Technologies Office Annual Merit Review

Materials Technology R&D - Composites (MAT) Oral Presentations Detailed Schedule

Tuesday, June 4, 2024	
9:00 AM	MAT146: Ultra-Lightweight, Ductile Carbon-Fiber Reinforced Composites, Seokpum Kim, ORNL
9:15 AM	
9:30 AM	MAT174: Carbon-Fiber Technology Facility (CFTF), Merlin Theodore, ORNL
9:45 AM	
10:00 AM	MAT196: High Temperature Carbon Fiber Carbonization via Electromagnetic Power, Felix Paulauskas, ORNL
10:15 AM	
10:30 AM	MAT197: Multi-Functional Smart Structures for Smart Vehicles, Patrick Blanchard, Ford Motor Company
10:45 AM	
11:00 PM	MAT198: Development of Tailored Fiber Placement, Multi-Functional, High-Performance Composite Material Systems for High Volume Manufacture of Structural Battery Enclosure, Venkat Aitharaju, General Motors Company
11:15 PM	
11:30 PM	Time Buffer
11:40 PM	Lunch Break
1:10 PM	MAT199: Ultra-Lightweight Thermoplastic Polymer/Polymer Fiber Composites for Vehicles (Inter-Lab Project), Kevin Simmons, PNNL
1:25 PM	
1:40 PM	MAT200: Additive Manufacturing for Property Optimization for Automotive Applications, Seokpum Kim, ORNL
1:55 PM	
2:10 PM	MAT202: 3D Printed Hybrid Composite Materials with Sensing Capability for Advanced Vehicles, Karen Cortes Guzman, ORNL
2:25 PM	
2:40 PM	MAT203: Low-Cost, High-Throughput Carbon Fiber with Large Diameter, Felix Paulauskas, ORNL
2:55 PM	
3:10 PM	Time Buffer
3:15 PM	Break
3:45 PM	MAT205: Adopting Heavy-Tow Carbon Fiber for Repairable, Stamp-Formed Composites, Amit Naskar, ORNL
4:00 PM	
4:15 PM	MAT206: Soft Smart Tools Using Additive Manufacturing, Matthew Craps, SRNL
4:30 PM	
4:45 PM	MAT207: Multi-Material, Functional Composites with Hierarchical Structures, Christopher Bowland, ORNL
5:00 PM	
5:15 PM	MAT268: Upcycling of Polymer Composites for Vehicle Decarbonization, Roger Crane, Composites Automation LLC
5:30 PM	MAT269: Producing Multifunctional Automotive Composites with Sustainable Plant Based Graphene, Daniel Mulqueen, Climate Robotics LLC
5:45 PM	Day 1 Ends

Wednesday, June 5, 2024	
9:00 AM	MAT208: Efficient Synthesis of Kevlar and Other Fibers from Polyethylene Terephthalate (PET) Waste, Daniel Merkel, PNNL
9:15 AM	
9:30 AM	MAT209: Bio-based, Inherently Recyclable Epoxy Resins to Enable Facile Carbon-Fiber Reinforced Composites Recycling, Nicholas Rorrer, NREL
9:45 AM	
10:00 AM	MAT280: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 1 - Innovative Low-Cost Carbon Fiber and Alternative Fiber Technologies, Amit Naskar and Felix Paulauskas, ORNL
10:15 AM	
10:30 AM	MAT281: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 2 - Multi-functional Materials and Structures, Christopher Bowland and Seokpum Kim, ORNL
10:45 AM	
11:00 PM	MAT282: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 3 - Circularity and Sustainability of Polymer Composites, Kevin Simmons, Caitlyn Clarkson, and Nicholas Rorrer, PNNL, ORNL, and NREL
11:15 PM	
11:30 PM	Time Buffer
11:40 PM	Lunch Break
1:10 PM	MAT283: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 4 - Polymeric Materials and Their Composites in Additive Manufacturing, Vlastimil Kunc and Logan Kearney, ORNL
1:25 PM	
1:40 PM	MAT265: Low-Cost Multifunctional Composites from Recycled Materials for Lighter and Smarter Vehicles, Xiaodong Li, University of Virginia
1:55 PM	
2:10 PM	MAT266: Development and Manufacturing of Multifunctional Energy Storage Composites (MES) for Automotive Vehicles, Amrita Kumar, Acellent Technologies, Inc.
2:25 PM	
2:40 PM	MAT211: Sustainable Lightweight Intelligent Composites (SLIC) for Next-Generation Vehicles, Masato Mizuta, Newport Sensors, Inc.
2:55 PM	
3:10 PM	Time Buffer
3:15 PM	Break
3:45 PM	MAT212: Integrated Self sufficient Structurally Integrated Multifunctional Sensors for Autonomous Vehicles, Amrita Kumar, Acellent Technologies, Inc.
4:00 PM	
4:15 PM	MAT254: Conductive Lightweight Hybrid Polymer Composites from Recycled Carbon Fibers
4:30 PM	MAT254: Conductive Lightweight Hybrid Polymer Composites from Recycled Carbon Fibers, Yinghua Jin, Rocky Tech Ltd.
4:45 PM	MAT257: Changing the Design Rules of Rubber to Create Lighter Weight, More Fuel Efficient Tires, Kurt Swogger, Molecular Rebars LLC
5:00 PM	
5:15 PM	MAT267: Multiscale Bioinspired Enhancement of Natural-Fiber Composites for Green Vehicles, Lorenzo Mencattelli, Helicoid Industries Inc.
5:30 PM	
5:45 PM	Day 2 Ends

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Materials Technology R&D – Joining, Metals, Propulsion Materials (MAT) Oral Presentations Detailed Schedule

Tuesday, June 4, 2024	
9:00 AM	MAT270: Materials Tech Team Roadmap Briefing, Jerry Gibbs,
9:15 AM	DOE
9:30 AM	MAT159: Cost Effective Lightweight Alloys for Electric Vehicle
9:45 AM	Propulsion: Fundamental Fatigue and Creep in Advanced Lightweight Alloys, Amit Shyam, ORNL
10:00 AM	MAT160: Cost Effective Lightweight Alloys for Electric Vehicle
10:15 AM	Propulsion: Hybrid Dispersion Strengthened AL matrix composites for higher efficiency EV powertrains, Mert Efe, PNNL
10:30 AM	MAT221: Lightweight and Highly-Efficient Engines Through AI and
10:45 AM	Si Alloying of Martensitic Materials, Dean Pierce, ORNL
11:00 PM	MAT237: Materials, Lubricants, and Cooling for Heavy Duty Electric
11:15 PM	Vehicles, Jun Qu, ORNL
11:30 PM	Time Buffer
11:40 PM	Lunch Break
1:10 PM	MAT241: Advanced Processing and Additive Manufacturing for EV
1:25 PM	Propulsion: Advanced Ceramics and Processing for Wireless Charging Systems, Beth Armstrong, ORNL
1:40 PM	MAT242: Advanced Processing and Additive Manufacturing for EV
1:55 PM	Propulsion: Novel Ultra High Conductivity Composites for EVs, Tolga Aytug, ORNL
2:10 PM	MAT236: Advanced Characterization and Computational Methods,
2:25 PM	Thomas Watkins, ORNL
2:40 PM	MAT222: Extending Ultrasonic Welding Techniques to New Material
2:55 PM	Pairs, Jian Chen, ORNL
3:10 PM	Time Buffer
3:15 PM	Break
3:45 PM	MAT223: Extending High Rate Riveting to New Material Pairs, Kevin
4:00 PM	Simmons, PNNL
4:15 PM	MAT224: Solid State Joining of Multi-Material Autobody Parts
4:30 PM	Toward Industry Readiness, Yong Chae Lim and Piyush Upadhyay, ORNL and PNNL
4:45 PM	MAT225: Surface Modifications for Improved Joining and Corrosion
5:00 PM	Resistance, Yong Chae Lim and Vineet Joshi, ORNL and PNNL
5:15 PM	Day 1 Ends

Wednesday, June 5, 2024	
9:00 AM	MAT226: Machine Learning for Joint Quality and Control, Zhili
9:15 AM	Feng and Keerti Kappagantula, ORNL and PNNL
9:30 AM	MAT243: Manufacturing Demonstration of a Large-scale, Multi-
9:45 AM	material Passenger Vehicle Sub-system, Srikanth Pilla, Clemson University
10:00 AM	MAT231: Light Metals Core Program Introduction, Glenn Grant, PNNL
10:15 AM	MAT244: LMCP P1A - Sheet Materials with Local Property
10:30 AM	Variation, Scott Whalen, PNNL
10:45 AM	MAT245: LMCP P1B - Form-and-Print - AM for Localized Property
11:00 PM	Enhancement of High-strength Al sheet, Alex Plotkowski, ORNL
11:15 PM	MAT246: LMCP P1C - Local Thermomechanical Processing to
11:30 PM	Address Challenges to Implementing High Strength Al Sheet, Mert Efe and Govindarajan Muralidharan, PNNL and ORNL
11:40 PM	Time Buffer
11:45 PM	Lunch Break
1:10 PM	MAT247: LMCP P2A - Solid Phase Processing of Aluminum
1:25 PM	Castings, Saumyadeep Jana and Zhili Feng, PNNL and ORNL
1:40 PM	MAT248: LMCP P2B - High Intensity Thermal Treatment, Aashish
1:55 PM	Rohatgi, PNNL
2:10 PM	MAT249: LMCP P2C - Cast-and-Print - AM for Localized Property
2:25 PM	Enhancement of Al castings, Alex Plotkowski, ORNL
2:40 PM	MAT250: LMCP P3A - Cast Magnesium Local Corrosion Mitigation,
2:55 PM	Vineet Joshi and Jiheon Jun, PNNL and ORNL
3:10 PM	Time Buffer
3:15 PM	Break
3:45 PM	MAT251: LMCP P3B - Thermomechanical Property Modification of
4:00 PM	Mg Castings, Mageshwari Komarasamy, PNNL
4:15 PM	MAT235: Light Metals Core Program - Thrust 4 - Residual Stress
4:30 PM	Effects, Ayoub Soulami, PNNL
4:45 PM	MAT252: LMCP - Thrust 4 - Materials Lifecycle, Jeff
5:00 PM	Spangenberg, ANL
	Day 2 Ends