



**Material Challenges in Developing a Sustainable
Metal Processing Infrastructure**
Tuesday, July 30th, 2024



8:00 am – 8:45 am	Arrival / Check in	
8:45 am – 9:00 am	Mark VanLandingham, Ph.D., Chief, Materials Science and Engineering Division, NIST	Opening Remarks
9:00 am – 9:30 am	Mike Molnar, Director of the U.S. Advanced Manufacturing National Program Office	Sustainability and Recycling in Advanced Manufacturing Strategy
Critical Materials Session Chair: James Zuback, NIST		
9:30 am – 10:00 am	Diane Bauer, Ph.D., Deputy Director, Advanced Materials and Manufacturing Technologies Office, DOE	DOE's 2023 Critical Materials Assessment
10:00 am – 10:30 am	Elisa Alonso, Ph.D., U.S. Geological Survey	Challenges in Processing Infrastructure for Mineral Commodities and how it Impacts Criticality
10:30 am – 10:45 am	Discussion	
10:45 am – 11:00 am	Break	
Sustainable Extractive Metallurgy Session Chair: Andrew Iams, NIST		
11:00 am – 11:30 am	Brajendra Mishra, Ph.D., Director, Metal Processing Institute & Center for Resource Recovery and Recycling, WPI	Sustainability of Aluminum Production: Environmental Management of Bauxite Residue
11:30 am – 12:00 pm	Corby Anderson, Ph.D., Director, Kroll Institute for Extractive Metallurgy, Colorado School of Mines	The Kroll Institute for Extractive Metallurgy - 50 Years of Success
12:00 pm – 12:15 pm	Discussion	
12:15 pm – 1:30 pm	Lunch	
Aluminum Session Chair: Samantha Webster, NIST		
1:30 pm – 2:00 pm	Marshall Jinlong Wang, Manager of Sustainability Programs, The Aluminum Association	Pathway to Net Zero: A Decarbonization Roadmap for the North American Aluminum Industry
2:00 pm – 2:30 pm	Alex Plotkowski, Ph.D., Senior R&D Staff, Oak Ridge National Lab	Sustainable Alloy Design for Aluminum High Pressure Die Casting
2:30 pm – 2:45 pm	Discussion	
2:45 pm – 3:00 pm	Break	
Integrated Computational Materials Engineering (ICME) for Sustainable Material Design Session Chair: Mark Stoudt, NIST		
3:00 pm – 3:30 pm	Alan Luo, Ph.D., The Donald D. Glower Chair in Engineering, Ohio State University	Development of Recycled Aluminum Alloys and Sustainable Manufacturing Processes: The role of ICME Tools
3:30 pm – 4:00 pm	Paul Mason, President, Thermo-Calc Software Inc.	The Role of CALPHAD-Based Tools in Developing a Sustainable Metal Processing Infrastructure
4:00 pm – 4:30 pm	Carelyn Campbell, Ph.D., Group Leader, Thermodynamics and Kinetics, NIST Zi-Kui Liu, Ph.D., Professor, Materials Science and Engineering, Pennsylvania State University	Data to Support Sustainable Manufacturing
4:30 pm – 4:45 pm	Discussion	
4:45 pm	Adjourn	



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Wednesday, July 31st, 2024



8:00 am – 8:30 am	Arrival	
Steel Session Chair: James Zuback, NIST		
8:30 am – 9:00 am	Brian Bliss , General Manager, Association of Iron and Steel Technologies (AIST)	AIST Roadmap for Iron and Steel Manufacturing: Revolutionizing U.S. Global Leadership for a Sustainable Industrial Supply Chain - Overview and Status Update
9:00 am – 9:30 am	Guillaume Lambotte , Ph.D., Chief Scientist, Boston Metal	Molten Oxide Electrolysis - How to Decarbonize Steelmaking and Transform How Metals Are Made
9:30 am – 9:45 am	Break	
9:45 am – 10:15 am	Elise Goldfine , Ph.D., ARPA-e Fellow, DOE	The ARPA-E ROSIE Program: Innovative Methods for Decarbonizing Iron and Steel Production
10:15 am – 10:45 am	Kip Findley , Ph.D., Professor, Metallurgical and Materials Engineering, Colorado School of Mines	The Role of Steel Research and Development on Sustainable Manufacturing
10:45 am – 11:00 am	Discussion	
Recycling Session Chair: Carelyn Campbell, NIST		
11:00 am – 11:30 am	David L. Wagger , Ph.D., Chief Scientist / Director of Environmental Management, Recycled Materials Association	Recycling Ferrous and Non-Ferrous Metals: Challenges, Opportunities, and Potential Research Directions
11:30 am – 11:45 am	Discussion	
Industrial Panel Session Chair: Andrew Iams, NIST		
11:45 am – 12:15 pm	<i>To be announced.</i>	Topics: Innovations in Sustainable Metal Production, Strategies for Reducing Carbon Footprint in Metal Manufacturing, Circular Economy in Metals: Recycling and Reuse, Policy and Regulation Impact on Sustainable Metallurgy, Supply Chain Sustainability and Ethical Sourcing
12:15 pm – 1:30 pm	Lunch	
Sustainable Manufacturing Session Chair: Samantha Webster, NIST		
1:30 pm – 2:00 pm	George Luckey , Ph.D., Manager, Advanced Metal Technology Research and Advanced Engineering, Ford	Perspectives on Decarbonizing Automotive Grade Structural Metals
2:00 pm – 2:30 pm	Danielle Cote , Ph.D., Co-Director: Materials Reimagined, Sustainability of Metal AM Processes, WPI	Approaches towards Sustainable Large Scale Metal Additive Manufacturing
2:30 pm – 3:00 pm	Cody McIntyre , Engineering Manager – Salvage Development Remanufacturing Division, Caterpillar Inc.	<i>To be announced.</i>
3:00 pm – 3:15 pm	Discussion	
3:15 pm	Adjourn	