



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., Division Chief, Materials Science and Engineering, 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
9:30 am – 9:45 am	Discussion	
Critical Materials Session Chair: James Zuback, NIST		
9:45 am – 10:15 am	Diane Bauer , Ph.D., Deputy Director, Advanced Materials and Manufacturing Technologies Office, DOE	DOE’s 2023 Critical Materials Assessment
10:15 am – 10:45 am	Elisa Alonso , Ph.D., U.S. Geological Survey	Challenges in Processing Infrastructure for Mineral Commodities and how it Impacts Criticality
10:45 am – 11:15 am	Discussion/Break	
Sustainable Extractive Metallurgy Session Chair: Andrew Iams, NIST		
11:15 am – 11:45 pm	Brajendra Mishra , Ph.D., Director, Metal Processing Institute & Center for Resource Recovery and Recycling, WPI	Sustainability of Aluminum Production: Environmental Management of Bauxite Residue
11:45-12:15	Corby Anderson , Ph.D., Director, Kroll Institute for Extractive Metallurgy, Colorado School of Mines	The Kroll Institute for Extractive Metallurgy - 50 Years of Success
12:15-12:30	Discussion	
12:30 pm – 1:45 pm	Lunch	
Aluminum Session Chair: Samantha Webster, NIST		
1:45 pm – 2:15 pm	Marshall Jinlong Wang , Manager of Sustainability Programs, The Aluminum Association	Pathway to Net Zero: A Decarbonization Roadmap for the North American Aluminum Industry
2:15 pm – 2:45 pm	Robert Sanders , Ph.D., Senior Technical Advisor, Novelis Global Research and Technology	Barriers to Raising Recycled Content in Wrought Aluminum Alloys
2:45 pm – 3:15 pm	Alex Plotkowski , Ph.D., Senior R&D Staff, Oak Ridge National Lab	Sustainable Alloy Design for Aluminum High Pressure Die Casting
3:15 pm – 3:30 pm	Discussion	
3:30 pm – 3:45 pm	Break	
Integrated Computational Materials Engineering (ICME) for Sustainable Material Design Session Chair: Mark Stoudt, NIST		
3:45 pm – 4:15 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
4:15 pm – 4:45 pm	Paul Mason , President, Thermo-Calc Software Inc.	The Role of CALPHAD-Based Tools in Developing a Sustainable Metal Processing Infrastructure
4:45 pm – 5:15 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
5:15 pm – 5:30 pm	Discussion	
5:30 pm	Adjourn	



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8:00 am – 8:45 am	Arrival / Check in	
Steel Session Chair: James Zuback, NIST		
8:45 am – 9:15 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
9:15 am – 9:45 am	David Leigh , General Manager, Steel Decarbonization, Rio Tinto	BioIron™ – The Development of a Low CO₂ Emissions Ironmaking Process Utilizing Raw Biomass as a Reductant and Microwaves as an Energy Source
9:45 am – 10:15 am	Guillaume Lambotte , Ph.D., Chief Scientist, Boston Metal	Molten Oxide Electrolysis - How to Decarbonize Steelmaking and Transform How Metals Are Made
10:15 am – 10:30 am	Break	
10:30 am – 11:00 am	Elise Goldfine , Ph.D., ARPA-e Fellow, DOE	The ARPA-E ROSIE Program: Innovative Methods for Decarbonizing Iron and Steel Production
11:00 am – 11:30 am	Kip Findley , Ph.D., Professor, Metallurgical and Materials Engineering, Colorado School of Mines	The Role of Steel Research and Development on Sustainable Manufacturing
11:30 am – 11:45 am	Discussion	
Industrial Panel Session Chair: Andrew Iams, NIST		
11:45 am – 12:15 pm	Gordon Alanko , Ph.D., Sr. Manager, ATI Specialty Alloys & Components Zhuqing Wang , Ph.D., Staff Engineer Materials Science, Kennametal Inc. <i>More to be announced soon.</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 – 1:15 pm	Lunch	
Sustainable Manufacturing Session Chair: Samantha Webster, NIST		
1:15 pm – 1:45 pm	George Luckey , Ph.D., Manager, Advanced Metal Technology Research and Advanced Engineering, Ford	Perspectives on Decarbonizing Automotive Grade Structural Metals
1:45 pm – 2:15 pm	Cody McIntyre , Engineering Manager – Salvage Development Remanufacturing Division, Caterpillar Inc.	Caterpillar Remanufacturing Division: Bringing Equipment Back to Life
2:15 pm – 2:45 pm	Discussion	
2:45 pm – 3:00 pm	Break	
Recycling and Reuse Session Chair: Carelyn Campbell, NIST		
3:00 pm – 3:30 pm	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
3:30 pm – 4:00 pm	Danielle Cote , Ph.D., Co-Director: Materials Reimagined, Sustainability of Metal AM Processes, WPI	Approaches towards Sustainable Large Scale Metal Additive Manufacturing
4:00 pm – 4:15 pm	Discussion	
4:15 pm	Adjournment	