



Center for Resource Recovery & Recycling Fall Meeting

November 6-7, 2024
Rubin Campus Center, WPI
Worcester, MA

Wednesday, November 6, 2024

- 8:30 a.m.** Breakfast – Odeum C
Odeum C
- 9:00 a.m.** Welcome – *B. Mishra*
Odeum A & B
- 9:05 a.m.** MPI & CR3 Updates -- *B. Mishra*
- 9:10 a.m.** CHTE Update -- *T. Christiansen*
- 9:15 a.m.** Charles Bateman, Senior External Relations Manager and Cathy Zhang, Innovation Manager/Group Leader, Sustainability, Saint-Gobain Research North America
- 9:45 a.m.** Break
- 10:00 a.m.** CR3 Center Update for CR3
B. Mishra
- 10:20 a.m.** Funded Project Updates: Moderator: *B. Mishra*
- 10:20 a.m. A: Kinetic of FeNi-sulfidization in Ni-Matte with Sulphur Injection into Matte (WPI)
H. Nirgude, H. Lee, A. Powell, B. Mishra
- 10:40 a.m. B: Roadmap CO2 Reduction on Lead Blast Furnace (KU Leuven)
M. Guo, B. Blanpain.
- 11:00 a.m.** Focus Group Sessions for A & B – Two parallel sessions
- A: Kinetic of FeNi-sulfidization in Ni-Matte with Sulphur Injection into Matte (SMS Group) *Mid-Century Room*
- B: Roadmap CO2 Reduction on Lead Blast Furnace (Campine, Gopher, Umicore, Boliden) *Odeum A & B*
- 11:45 a.m.** Lunch – Odeum C
- 12:45 p.m.** Funded Project Updates: Moderator: *C. Anderson*
- 12:45 p.m. C: Cleaning of fayalite/olivine slags using H₂ (and CO): Measurement for the recovery of technology elements, e.g. Pb, Zn, Sb, As, etc. from bath smelting slags (KU Leuven)
Z. Qiu, B. Blanpain
- 1:05 p.m. D: Increased Gas Injection Efficiency through Sonic Jetting Regime Using Hydrogen and Ammonia (CSM)
L. Aguayo Torrez, C. Anderson

1:25 p.m. Focus Group Sessions for C & D – Two parallel sessions

C: Cleaning of fayalite/olivine slags using H₂ (and CO): Measurement for the recovery of technology elements, e.g. Pb, Zn, Sb, As, etc. from bath smelting slags (SMS Goup)

Odeum A & B

D: Increased Gas Injection Efficiency through Sonic Jetting Regime Using Hydrogen and Ammonia (Aurubis)

Mid-Century Room

2:10 p.m. Break

2:25 p.m. Funded Projects Updates: Moderator: Y. Pontikes

2:25 p.m. E: Metal Recovery from Industrial By-Products Using Bromine (CSM)

A. Hirata Miyaski, C. Anderson . FINAL

2:45 p.m. F: Assessment of Environmental Properties of Non-Ferrous Metal Production Slags (KU Leuven) *FINAL*

K. Koukouza, V. Cappuyns, Y. Pontikes, B. Blanpain

3:05 p.m. Focus Group Sessions for E & F – Two parallel sessions

E: Metal Recovery from Industrial By-Products Using Bromine (Gopher)

Odeum A & B

F: Assessment of Environmental Properties of Non-Ferrous Metal Production Slags (Boliden) *Mid-Century Room*

3:50 p.m. Funded Project Update: Moderator: A. Powell

3:50 p.m. G: Contactless Flow Measurement of Molten Materials (CSM/Gopher) **FINAL**

B. Raadam, J. Lee, C. Anderson

4:10 p.m. Focus Group Session for G

G: Contactless Flow Measurement of Molten Materials (CSM/Gopher)

Odeum A & B

4:45 p.m. Meeting Adjourns

4:45 p.m. Shuttle Buses Depart for campus for the Publick House

**5:30 p.m. Reception and Dinner
Publick House Historic Inn
277 Main Street
Sturbridge, MA 01566**

Thursday, November 7 2024

8:30 a.m. Breakfast – Odeum C

9:00 a.m. Funded Projects Updates: Moderator: Y. Pontikes

9:00 a.m. H: Adhesive and Sealant Waste Reduction (WPI)

C. Ruhatiya, B. Mishra

- 9:20 a.m. I: Solar Panel Recycling (WPI)
J. Hou, Y. Wang
- 9:40 a.m. Focus Group Sessions for H & I – Two parallel sessions**
- H: Adhesive and Sealant Waste Reduction (GM)
Mid-Century Room
- I: Solar Panel Recycling (WPI)
Odeum A & B
- 10:25 a.m. Break**
- 10:40 a.m. Funded Projects Updates: Moderator: *B. Mishra***
- 10:40 a.m. J: Identify and Develop Processes to Recover and Produce Saleable Silica from Mine Wastes (CSM) *C. Anderson*
- 11:00 a.m. K: Silver, Gold and PGM Distribution Between Doré and Litharge Slag in Pyrometallurgical Lead Refining (CSM) *C. Colligan, J. Lee*
- 11:20 a.m. Focus Group Sessions for I & J – Two parallel sessions**
- J: Identify and Develop Processes to Recover and Produce Saleable Silica from Mine Wastes (Canmet)
Mid-Century Room
- K: Silver, Gold and PGM Distribution Between Doré and Litharge Slag in Pyrometallurgical Lead Refining (Glencore)
Odeum A & B
- 12:05 p.m. Lunch – Odeum C**
- 1:05 p.m. Review of 2025 Project Proposals *H. Goovaerts, Chair PSC***
- 1:05 p.m. 25-01: Define Climate Impact of Recycling Metal Oxides Versus Production of Metal from Virgin Raw Materials with Focus on Metals that are Mined as Sulphidic Ore or as Salts.– Boliden
- 1:15 p.m. 25-02: Phyto-remediation of Heavy Metals – Ecobat Solutions
- 1:25 p.m. 25-03: Use of Cerium in AM Processing of Titanium; Recycling and New High Strength Products – WPI
- 1:35 p.m. 25-04: Measurement of Fe²⁺/Fe³⁺ ratio in slags as a proxy for pO₂ – Umicore
- 1:45 p.m. 25-05: End Point Detection of Harris/Softening Process Through Electrical Conductivity Changes in Caustic Medium – Umicore
- 1:55 p.m. 25-06: Exploring Fe-Rich Slags as Carbon Sequestration Medium: Investigating Ambient Carbonation Potential for CO₂ Utilization – KU Leuven
- 2:05 p.m. 25-08: Intensified Solvent Extraction – KU Leuven
- 2:15 p.m. Break**

- 2:30 p.m.** **IAB Meeting – Closed Session** *R. Vanparys, Chair IAB*
- 2:30 p.m.** **Directors Meet with Guests & Potential Members**
- 2:30 p.m.** **Researchers – Closed Session**
Mid-Century Room
- 4:30 p.m.** **Researchers Debrief with Directors and IAB**
- 4:45 p.m.** **IAB Debrief with Directors**
- 5:45 p.m.** **Meeting Adjourns**
- 6:00 p.m.** **Self-Pay Dinner**
Oak Barrel Tavern
2929 Grove Street
Worcester, MA 01605