Monday, 8 May  »  Morning Sessions

» Environmental: EAF Gas Flow Emission & Energy Optimization
Room 355  »  Session Chairs: Kevin Deliman, Baltimore Aircoil Co.; Dejan Zrelec, Tenova Goodfellow Inc.

9:30 a.m.
Offgas Technology for EAF Operations
J. Andrade, S. Gonzalez, E. Placier, AMI Automation

10 a.m.
Advanced EAF Offgas Treatment Solutions for Integrated Steel Plants
A. Fleischanderl, T. Steinparzer, P. Trunner, Primetals Technologies

10:30 a.m.
Valorization of the Offgas Energy for a More Sustainable Electrical Steel Industry
E. Chiarullo, Tenova S.p.A.

11 a.m.
Fan Energy Improvement Through CFD and Rapid Prototyping

11:30 a.m.
Energy Consumption Forecast to Cash In on Profits From Short-Term Market Prices
S. Albers, PSI Metals GmbH; P. Bachmann, PSI Energy Markets; R. Felix, A. Görtz, PSI FLS; H. Ponten, PSI Metals

» Decarbonization: New Decarbonization Technologies
Room 330A  »  Session Chairs: Mike Grant, Air Liquide Global Management Services GmbH; David Marshall, Performance Improvement Inc.

9:30 a.m.
Decarbonizing the Iron and Steel Industry Under the New Energy Order
F. Memoli, Tenova Inc.; C. Galimberti, Rystad Energy

10 a.m.
Direct Reduction – Electrical Smelting – Basic Oxygen Furnace: A New Route for Low-CO₂ Steelmaking?
E. Engel, Danieli Corus

10:30 a.m.
Decarbonizing Steel to Create Sustainable Aviation Fuels and Chemicals
S. Manocha, LanzaTech; W. Van Der Stricht, ArcelorMittal; A. Fleischanderl, T. Plattner, Primetals Technologies; B. Pettersen, T. Dower, LanzaTech

11 a.m.
Applications of Advanced Smelting Furnace Technology for Sustainable Steelmaking
K. Chomyn, S. Ge, T. Koehler, C. Walker, Hatch

11:30 a.m.
Different Perspectives on Green Steel Transitioning — Roadblocks and Opportunities
A. Fleischanderl, Primetals Technologies

Papers, titles, authors and company names confirmed as of 23 March are indicated in blue.
The AISTech technical program is arranged according to the structure of the AIST Technology Divisions and Technology Committees.

» Howe Memorial Lecture
8 a.m.  »  Room 310AB

Fiber Optic Sensing Technologies Supporting Advancements in Steel Production and the Shift to Industry 4.0

Ronald J. O’Malley  »  F. Kenneth Iverson Chair Professor and Director, PSMRC  »
Missouri University of Science and Technology
**Cokemaking**

Room 330B  »  Session Chairs: James Hosfield, U. S. Steel – Mon Valley Works, Clairton Plant; Dick Randolph, Fosbel Inc.; Steven McKnight, United States Steel Corporation

9:30 a.m.  
**Coke Oven Battery Life Extension Program**  

10 a.m.  
**Technical Support to Schwelgern Coke Plant Featured by Carbonization Retort**  
M. Schulten, V. Stiskala, thyssenkrupp Steel Europe AG

10:30 a.m.  
**Charcoal Fines: Strategic Raw Material for Brazilian Steelmaking**  
R. de Mello Machado, A. Milton Albergaria Campos, P. Santos Assis, Universidade Federal de Ouro Preto

11 a.m.  
**Estimation of Coal Charge Bulk Density: Factors Impacting Bulk Density and its Effect on Carbonization Process for Stamp-Charged Coke Ovens**  
A. Bhushan, Tata Steel Ltd.

**Ironmaking: Digitalization, Control & Modeling**

Room 321  »  Session Chairs: Mitren Sukhram, Hatch; Jesse Carreau, Allied Mineral Technical Services LLC

9:30 a.m.  
**Blast Furnace Hot Metal Temperature Prediction With Multi-Wave Pyrometer Measurements**  
A. Schmitz, J. Micak, Paul Wurth S.A.; L. Wu, Dillinger Hüttenwerke AG; M. Schulte, SMS group Inc.

10 a.m.  
**An Eulerian-Based Reduction Model for Iron Ore Particle Reduction**  
M. Bösenhofer, TU Wien; F. Hauzenberger, Primetals Technologies Austria GmbH; H. Stocker, voestalpine Stahl Donawitz GmbH; C. Feilmayr, voestalpine Stahl GmbH; M. Harasek, TU Wien

10:30 a.m.  
**Investigating the Use of Shaft-Level Tuyere Injection With Computational Fluid Dynamics**  
S. Nielson, T. Okosun, O. Ugarte, C. Zhou, Purdue University Northwest

11 a.m.  
**Evaluation and Improvement Methods of Preparation for a Blast Furnace Taphole Campaign**  
E. Silva, Universidade Federal de Ouro Preto; A. Quintas, Gerdau; J. Peixoto, C. Silva, Universidade Federal de Ouro Preto

11:30 a.m.  
**Investigation of the Thermally Thick Alternative Reducing Agent Behavior in the Raceway Zone**  
M. Kiss, K1-MET GmbH; M. Bösenhofer, TU Wien; F. Hauzenberger, Primetals Technologies Austria GmbH; H. Stocker, voestalpine Stahl Donawitz GmbH; C. Feilmayr, voestalpine Stahl GmbH; M. Harasek, TU Wien

**Ironmaking: Sintering/Pelletizing/Briquettes**

Room 331ABC  »  Session Chairs: Mac Steele, J.C. Steele & Sons Inc.; Joe Morey, U. S. Steel – Gary Works

9:30 a.m.  
**Effects of Recycling Sinter Dust as Calcium Ferrite in the Sintering Process on Sinter Quality and Emission of CO₂, NO and SO₂**  
L. Tomas da Rocha, Š. Cho, POSTECH; S. Kim, POSCO; S. Jung, POSTECH

10 a.m.  
**Hybrid Microwave-Heating-Assisted Carbothermal Reduction of Low-Grade Iron Ore Pellets**  
S. Yadav, S. Mohanty, P. Singha, A. Shukla, Indian Institute of Technology – Madras

10:30 a.m.  
**Numerical and Experimental Approach to Heating Iron Ore With Mixed Coal**  
P. Singha, S. Mohanty, S. Yadav, A. Shukla, Indian Institute of Technology – Madras

11 a.m.  
**Carbothermic Reduction of a Lean-Grade Chromiferous Multi-Metallic Magnetite Ore**  
B. Mishra, Indian Institute of Technology – Varanasi

11:30 a.m.  
**Innovative Briquetting Technology: High-Pressure Vacuum Extrusion**  
C. Verma, V. Garg, A. Bhagat, Jindal Steel and Power

**Direct Reduced Iron: DRI & HBI Handling**

Room 313B  »  Session Chairs: Vincent Chevrier, Form Energy; Nicholas Sosalla, Barr Engineering Co.; Rudy Tolkamp, CIM-Tech Inc.

9:30 a.m.  
**Impact of Direct Reduced and Blast Furnace Grade Pellet Feedstock to Direct Reduced Iron Plant**  
L. Young, Cleveland-Cliffs Inc.

10 a.m.  
**Effects of Making HBI With and Without Hot Fines Recycling**  
M. Miller, Cleveland-Cliffs IronUnits LLC
10:30 a.m.
**Cold-Bonded Briquettes for Use as Furnace Feedstocks: Metallurgical and Hot Strength Testing**
M. Ford, M. Steele, J.C. Steele & Sons Inc.

11 a.m.
**Defect Structures of Direct Reduced Iron and Their Effect on Pellet Strength**
G. Kenny, C. Pistorius, Carnegie Mellon University

11:30 a.m.
**Revealing Multi-Scale Mechanism of Hydrogen-Based Direct Iron Reduction: A Ptychotomographic Analysis**

**Electric Steelmaking: Robotics Applications**
Room 320  »  Session Chairs: Patrick Hansert, Badische Stahl-Engineering; Dan Bourloto, Carbide Industries LLC; Justin Zwick, Commercial Metals Company

9:30 a.m.
**Automatic Robotic Solution for Internal Furnace Inspection to Optimize Cooling Panel and Refractory Maintenance**
S. Ambrosio, M. Martin, M. Ometto, Danieli Automation S.p.A.

10 a.m.
**“The Future Is Manless” Takes the Next Step**
T. Steurer, D. Schreiber, P. Hansert, H. Karbstein, M. Breithaupt, R. Schweikle, Badische Stahl-Engineering

10:30 a.m.
**Advanced Water Leak Detection Solutions for EAF Steelmaking Using Offgas and Acoustic Technologies**

11 a.m.
**One-Year Feedback of Q-One Technology Applied to Ladle Furnaces and Future Developments**
A. Polo, Danieli Automation S.p.A.

11:30 a.m.
**EAF Optimization: An Important Factor in Reducing Steelmaking Energy Intensity and GHG Emissions**
D. Zuliani, B. Babaei, Tenova Goodfellow Inc.

**Oxygen Steelmaking: Scrap**
Room 410A  »  Session Chairs: Hoyong Hwang, Cleveland-Cliffs Research & Innovation Center; Dave Runner, U. S. Steel – Gary Works

9:30 a.m.
**Advancements in Scrap Optimization Leading to Lower Steelmaking Production Costs**
V. Scipolo, D. Zuliani, Tenova Goodfellow Inc.

10 a.m.
**Heat Transfer in a BOF Converter**
N. Madhavan, G. Brooks, M. Rhamdhani, Swinburne University of Technology; B. Rout, A. Overbosch, Tata Steel Netherlands

10:30 a.m.
**Pushing Scrap Rate in BOF Operations**
A. Melcher, B. Voraberger, G. Wimmer, Primetals Technologies

11 a.m.
**Challenges and Opportunities of BOF/LD Steelmaking Technologies Within the Green Transition**
J. Kempken, SMS group; F. Ahrenhold, M. Wambach, thyssenkrupp Steel AG

11:30 a.m.
**Theoretical Calculation Associated With Raising Scrap Ratio in BOF**
J. Yang, Shougang Group Co. Ltd.; P. Gao, L. Yao, H. Li, Shougang Group Co. Ltd. Research Institute of Technology; X. Zhao, H. Jing, Beijing Shougang Co. Ltd.

**Ladle & Secondary Refining: Modeling & Machine Learning I**
Room 413AB  »  Session Chairs: Greg Brasel, Carbide Industries LLC; Val Varick, Steel Dynamics Inc. – Structural and Rail Division; Dai Tang, Nucor Steel–Decatur LLC

9:30 a.m.
**Modeling EAF Carryover Slag Volume and LMF Lime and Ca-Aluminate Addition**
D. Tang, Nucor Steel–Decatur LLC; C. Scott, Purdue University; J. Lara, Nucor Steel–Decatur LLC; C. Pistorius, Carnegie Mellon University

10 a.m.
**A CFD Study of Alloy Dissolution and Homogenization in the Ladle Metallurgy Furnace**
O. Duruiheme, X. Guo, N. Walla, Purdue University Northwest; J. Lowry, Nucor Steel; C. Zhou, Purdue University Northwest

10:30 a.m.
**A Finite Volume Method to Simulate Aggregation and Removal of Non-Metallic Inclusions in Liquid Melts**
A. Podder, McMaster University; K. Coley, Western University; A. Phillion, McMaster University

11 a.m.
**An Overview of Nozzle Clogging of a 10-Ton Ladle**
P. Singha, Indian Institute of Technology – Madras; A. Tiwari, Indian Institute of Technology
» Continuous Casting: Caster Modeling
Room 312AB » Session Chairs: Jeff Brower, Primetals Technologies USA LLC; Darryl Sturgill, IMERYS Steelcasting USA Inc.

9:30 a.m.
Sensor Instrumentation and Advanced Imaging of the Full-Scale Physical Twin Mold for Digital Data Generation During Continuous Casting
J. Leung, ArcelorMittal; S. Dinda, D. Li, University of Toronto; J. Sengupta, ArcelorMittal; M. Bussmann, University of Toronto

10 a.m.
Flow Simulation Approaches and Supplementary Measurements for SEN Design Characterization and Its Development
G. Hackl, W. Fellner, Y. Tang, T. Ma, P. Shivaram, RHI Magnesita

10:30 a.m.
Thin-Slab Caster Mold Thermal Mapping: An Advanced Solution for High-Efficiency Sticking Detection

» Hot Sheet Rolling: Energy Optimization, Green Steel, Environmental, Safety & Health
Room 313A » Session Chairs: Rajat Bathla, Cleveland-Cliffs Inc.; Rob Brunelli, TMEIC Corp. Americas

9:30 a.m.
Reducing the Carbon Footprint of the Hot Rolling Mill Process
D. Cernava, Inductotherm Group

10 a.m.
Advanced Operational Control of a Reheat Furnace With Laser-Based Combustion Sticking Detection
J. Richards, Tata Steel; E. Huelson, Koch Engineered Solutions; G. Tiffon, OnPoint Digital Solutions

10:30 a.m.
Toward Lights-Out Factory: Improved Finishing Mill Operation by Centerline Control, Reduced Strip Steering
K. Pronold, A. Kofler, C. Mengel, SMS group GmbH; G. Eichert, EMG Automation GmbH

9:30 a.m.
Eco Pickled Surface (EPS) Technology Evolution: Next-Generation Cell Design, System Integration and Application to High-Strength and Silicon Steels

10 a.m.
Latest Developments in On-Line Monitoring of the Condition of Steel Cold Rolling Emulsions
M. Cook, Quaker Houghton

10:30 a.m.
An Examination of the Underlying Physics and Mechanics of Herringbone and Diagonal/Cross-Buckle Flatness Distortions — Part 2: Analytic Analysis of Planar Shear-Induced Diagonal Wrinkles
M. Zipt, SMS group Inc.

11:30 a.m.
Defect Logging in Steel: The Speech-to-Text Way
A. Pujari, A. Kallakuri, A. Chatterjee, S. Kumar, A. Dalal, N. Kumar, N. Paul, Tata Steel Ltd.

» Long Products: Digitalization & Project Technologies
Room 359 » Session Chairs: Doug Durand, Nucor Steel–Berkeley; Patrick Peek, Gerdau Long Steel North America Cartersville Mill

9:30 a.m.
Process Control With a Focus on Surface Quality in Wire Rod Rolling
Z. Han, Zenith Steel Group; E. Frixione, T. Chang, OG Technologies Inc.

10 a.m.
The Digitalization Tool That Helps Steel Industry Operations to Improve Size Change Procedures by Interlinking Rolling Mill and Workshop On-Line Data
J. Bermúdez Sirvent, Russula

10:30 a.m.
Methods for Model-Aided In-Line Measurement and Control of Cross-Sections in Wire Rod and Bar Mills
C. Overhagen, R. Braun, University of Duisburg-Essen

11 a.m.
Computer Vision Improves Safety and Productivity in Long Product Rolling Mills
M. Vilarriño, E. Papadimitriou, Russula

11:30 a.m.
Roller Hearth Heat Treatment at the Cutting Edge of Technology
E. Koenig, Tenova (LOI Thermprocess GmbH); M. Allan, Tenova Inc.

» Cold Sheet Rolling: Latest Advancements in Steel Processing
Room 358 » Session Chairs: William Hartley, Quaker Houghton; Katie Behrendt, Nucor Steel–Arkansas
Metallurgy — Steelmaking & Casting: Thin-Slab Casting

Room 410B  »  Session Chairs: Bryan Webler, Carnegie Mellon University; Hunter Lohr, Berry Metal Co.

9:30 a.m.
Nitrogen Composition and Its Effect on Magnetic Properties of Simulated Twin-Roll Cast Non-Grain Oriented Si Steel
H. Parrish, M. Buchely, R. O’Malley, V. Athavale, Missouri University of Science and Technology; P. Kelly, Consultant Castrip LLC

10 a.m.
The Future of Endless Strip Casting and Rolling: Green and Designed for Automotive Exposed
R. Conte, A. Carboni, Danieli & C. Officine Meccaniche S.p.A.

10:30 a.m.
State of the Art in Electromagnetic Devices for Mold Fluid Dynamics Control Presently Installed on Thin-Slab Casters

11 a.m.
Root-Cause Analysis and Control for Transverse Edge Cracks in Niobium Bearing Steel Grades Produced Through Thin-Slab Caster
A. Bhandari, S. Suresh, A. Kumar, U. Kumar, A. Saini, R. Sangwai, Tata Steel Ltd.; V. Mahashabde, Tata Steel Ltd. – Kalinganagar

Metallurgy — Processing, Products & Applications: Microalloy & Characterization

Room 414AB  »  Session Chairs: Viraj Athavale, Missouri University of Science and Technology; Matthew Enloe, Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division; Daniel Baker, General Motors; Igor Vieira, Nucor Steel–Arkansas

9:30 a.m.
MicroNiobium-Low-Manganese Steelmaking Approach at Gerdau Ouro Branco
A. Araujo, CBMM North America Inc.; S. Jansto, Research and Development Resources; J. Cohn, R. de Faria, A. de Souza, Gerdau Ouro Branco; A. Gorni, metallurgical consultant; M. Rebelliato, Eurosport

10 a.m.
Dynamic Recrystallization Behavior of a Ni-Containing Austenite-Based Fe-Mn-Al Steel
R. Antao Cordoso, M. Piston, M. Buchely, L. Bartlett, Missouri University of Science and Technology

10:30 a.m.
Characterization of Steel Plates for Sour Service Pipelines for the Improvement of DWTT Results
D. Matsubara, Gerdau; C. Castro, C. Oliveira, R. Carvalho, CIT SENAI; P. Haddad, CBMM

11 a.m.
Properties and Processing of Medium-Mn Steel Plate: Understanding Composition and Heat Treatment Effects
K. Limmer, D. Field, DEVCOM U.S. Army Research Laboratory; D. Magagnosc, J. Lloyd, U.S. Army Research Laboratory

11:30 a.m.
Processing Routes to Obtain a DP Steel Alloyed With Mo-V
O. Vázquez-Gómez, J. López-Ruiz, P. Garnica-González, Tecnológico Nacional de México/Instituto Tecnológico de Morelia

Digitalization Applications: AI & Machine Learning I

Room 311AB  »  Session Chairs: April Baggett, Nucor Business Technology; Jacqueline Peintinger, Smart Steel Technologies Inc.

9:30 a.m.
Model-Assisted Labeling Deployment – Enablers for AI and IOT Paving Modern Iron- and Steelmaking
A. Husakovic, A. Abbas, Primetals Technologies Austria GmbH; A. Melcher, Primetals Technologies; A. Tushev, Primetals Technologies Germany GmbH; T. Swathish, Primetals Technologies Austria GmbH

10 a.m.
Adopting Machine-Learning-Based Workflows for Reducing Production Risk and Cost
P. Ozbay, Fero Labs; C. Almquist, Gerdau

10:30 a.m.
Business Continuity and Cybersecurity: Using ISO 62443 Industrial Cybersecurity Standard Compliance on the Operational Technology at Çolakoğlu Metalurji
M. Pillwax, PILLWAX Industrial Solutions Consulting; U. Dalbeler, Ö. Özsoy, Çolakoğlu Metalurji; Ö. Söke, E. Eroğlu, Biltim Bilgisayar; S. Cerman, Dataline Teknoloji; M. Cato, TÜV Austria

11 a.m.
“Hands-Free” Fully Autonomous, Plant-Scale, Anomaly Detection AI
J. Porter, K. Bhanushali, D. Kearns, N. Mehta, Falkonry Inc.

11:30 a.m.
Fast or Low-Speed Measurements: What Is the Best Choice for Industrial Processes?
D. Morice, G. Ferreira, R. van Rensburg, C. Melendez, AST Technology
**Project & Construction Management**

Room 357  »  Session Chairs: Rich Dugan, Cleveland-Cliffs Mansfield Works; Steven Roloff, The Systems Group

9:30 a.m.
**Pre-Outage and Off-Line Testing — Mitigating Risk in Outages**

10 a.m.
**“Green” Building and Facility Improvements and Renovations**
J. Kalin, W. Kesterson, R.E. Warner & Associates

10:30 a.m.
**U. S. Steel – Gary Works Pig Iron Caster: Executing a Fast-Track Project in a VUCA Environment**
S. McCann, United States Steel Corporation; C. Moreau, D. Ploskina, S. Smith, U. S. Steel – Gary Works; R. Arif, N. Tannyan, Hatch; B. Black, E. Evangelista, Paul Wurth; M. Winter, Morrison Construction; A. Davis, Sargent Electric; M. Preuss, E Tech Group

11 a.m.
**Negotiation: A Key Success Factor for Project Delivery**
P. Ghose, Kalyani Steels Ltd.


Room 412AB  »  Session Chairs: Jimmy Barrett, Allied Mineral Products Inc.; Matt Chabes, Cleveland-Cliffs Indiana Harbor; Xin Zhang, Cleveland-Cliffs Indiana Harbor

9:30 a.m.
**An Overview of Blast Furnace Refractory Lining Management by Acousto Ultrasonic-Echo Method**

10 a.m.
**Upper-Shaft DRI Refractories**
E. Chen, ArcelorMittal Texas HBI LLC; Y. Lee, G. Tsvik, ArcelorMittal

10:30 a.m.
**Moisture Detection in Refractory Linings**
P. Leper, Saveway USA Corp.; D. Wagner, Saveway GmbH & Co. KG

11 a.m.
**Improving Higher Magnesia-Containing Doloma-Based Bricks to Reduce Greenhouse Gas Emissions**
R. O’Brien, C. Larens, H. Moggee, RHI Magnesita

11:30 a.m.
**Challenges for the Refractory Industry to Support the Foreseen Large-Scale Transition to DRI Shaft Kilns**
E. Estrada, G. Hebenstreit, S. Postrach, D. Gavagnin, RHI Magnesita

**Crane Automation Technologies**

Room 353  »  Session Chairs: Mark McGinley, Hall Industries Inc.; Russell Walters, Nucor Steel Kankakee Inc.

9:30 a.m.
**Automatic Scrap Bucket Charging in Electric Arc Furnace**
L. Bacchetti, Danieli & C. Officine Meccaniche S.p.A.

10 a.m.
**Autonomous Overhead Cranes: Raising the Bar in Safety and Efficiency by Utilizing Advanced Technologies**
D. Timble, Schneider Electric

10:30 a.m.
**Microwave Anti-Collision System for EOT Cranes in Extremely Harsh Environments**
S. Dahlman, Gigasense AB

11 a.m.
**Specifying and Commissioning Cranes and Material Handling Devices With Load Cells**
B. Dunville, Safe Lifting International Group LLC

11:30 a.m.
**Ten Considerations to Identify Lift Plan Categorization**
M. Parnell, Industrial Training International

Monday, 8 May  »  Afternoon Sessions

**Safety & Health: Analytics & Automation for Health & Safety**

Room 354  »  Session Chairs: Dale Crawford, Steel Tube Institute of North America; Nathan Berry, Cleveland-Cliffs Cleveland Works LLC

2 p.m.
**Digital Computer Vision Technologies for Safety Management in Steel Manufacturing**
R. Lan, I. Awolusi, J. Cai, The University of Texas at San Antonio
2:30 p.m.
Elimination of External Reaction Points in Bolting Operations Substantially Improves Operator Safety and Increases Bolt Tension Accuracy
M. Dolan, HYTORC

3 p.m.
State-of-the-Art ASRS for the Metals Industry
E. LaBruna, Janus Automation

3:30 p.m.
Point of Execution Analytics to Optimize Performance and Stakeholder Value
K. Kimmel, Check-6 Inc.

4 p.m.
How Safety Leads ESG
S. Dey, Guardhat

4:30 p.m.
Waste Heat Recovery Solutions for Increasing Productivity
C. Nicolla, PSNERGY

» Environmental: Regulation & Emission Reduction
Room 355  » Session Chairs: Dave Mysko, Hatch; Adam Pace, Monroe Environmental Corp.

2 p.m.
Good Neighbor Plan for NOX Emissions — Current Status and Possible Impacts to Iron and Steel Facilities
J. Koenen, Barr Engineering Co.

2:30 p.m.
The Need to Lower the Opacity Limit Following EPA Recommendations: The Experience of a Totally Enclosed Building That Operates Above an EAF With Ultralow Specific Electrical Consumption
M. Cudicio, A. Feruglio, Danieli & C. Officine Meccaniche S.p.A.

3 p.m.
How to Navigate Failed Stack Emissions Tests — Technical and Legal Considerations Before, During and After the Test
T. Russell, Barr Engineering Co.; J. Tharp, Squire Patton Boggs (US) LLP

3:30 p.m.
Flue Gas Cleaning to Optimize CO₂ Capture
X. d’Hubert, XDH-energy

4 p.m.
Feasibility Evaluations of Potential Emission Control Measures
L. Dickerson, Barr Engineering Co.

» Decarbonization: Biomass Solutions
Room 330A  » Session Chairs: Madhu Ranade, Steel Dynamics Inc. – Flat Roll Group Columbus Division; Felix Firsbach, Badische Stahl-Engineering

2 p.m.
Decarbonization Based on Sustainable Biomass in Ironmaking, Steelmaking and Ferrous Alloymaking: A Continuous Improvement of a Centenary Experience in Brazil
R. Sampaio, RSConsultants Ltda; T. Oliveira, Carnegie Mellon University

2:30 p.m.
Biotechnologies: A Pathway to Net-Zero CO₂ Emissions Steel?
M. Chrzaszcz, M. Sidawi, I. Cameron, R. Elliott, M. Sukhram, Hatch

3 p.m.
Study of the Potential Application of Macauba Palm’s Biomass as an Energy Source in the Steel Industry
G. Gois, P. Santos Assis, T. Matte Manhabosco, J. Lima, Universidade Federal de Ouro Preto

3:30 p.m.
Photosynthesis: A Natural Process for Decarbonization of the Steel Industry
D. Calais, SINDIFER; R. Sampaio, RSConsultants Ltda

4 p.m.
Biomass Pyrolysis for Coke and Ironmaking: An Alternative for Decarbonization
A. Milton Albergaria Campos, P. Santos Assis, M. Silva, M. Avila, L. Dias, L. Cruz, Universidade Federal de Ouro Preto; J. Barbosa, G. Silva, Gerdau

» Ironmaking: Blast Furnace Maintenance & Productivity
Room 331ABC  » Session Chairs: Brian Black, Paul Wurth; Kyle Ferron, ArcelorMittal Dofasco G.P.; Angelo Petruccelli, Allied Mineral Technical Services LLC

2 p.m.
Strategic Hearth Campaign Extension Strategies Using Partial Repairs
J. Carreau, F. van Laar, R. Chaykowski, M. Grguric, A. Petruccelli, Allied Mineral Technical Services LLC

2:30 p.m.
Campaign Life Extension of Ironmaking Facilities
C. Van der Woude, C. Long, K. Chomyn, H. Ghorbani, Hatch Ltd.
3 p.m.
**Blast Furnace Gas to Boiler Pressure Control**
M. Ferra, REXA Inc.

3:30 p.m.
**Investigation on the Performance of Large Blast Furnace Copper Cooling Stave Slag Crust**
J. Sun, M. Xu, Y. Zhang, W. Wang, X. Zhang, J. Wu, Shougang Group Co. Ltd. Research Institute of Technology

3 p.m.
**VSB Blast Furnace Operation With High Productivity and Low Reducing Agent Ratio**

4:30 p.m.
**Productivity Improvement of Large Blast Furnace (4,554 m³) at Jindal Steel and Power Angul, India**
R. Mishra, N. Khan, D. Mittal, Jindal Steel & Power Angul Odisha India

**» Direct Reduced Iron/Decarbonization**

Room 310B » Session Chairs: Zane Voss, CIX Inc.; Joe Morey, U. S. Steel – Gary Works

2 p.m.
**Where Should the Next 100 Direct Reduction Modules Be Built?**
I. Cameron, R. Elliott, G. De Villa, J. Eastick, J. Allard, Hatch

2:30 p.m.
**Briquette Strength: Effect of Hydrogen vs. Reformed Natural Gas**
V. Dean, Midrex Technologies

3 p.m.
**A Low-Carbon-Emission Flowsheet for BF-Grade Iron Ore using Advanced Electric Smelting Furnace**
S. Ge, E. Widajat, T. Sachdeva, K. Chomyn, C. Walker, I. Cameron, Hatch Ltd.

3:30 p.m.
**DRI and Green Steel — Unaccounted-for Cost of Inputs**
J. Kutsch, Thorium Energy Alliance

4 p.m.
**The ENERGIRON Technology: The Perfect Fit Between Decarbonization and Direct Reduction**
J. Morales, J. Martinez, Tenova HYL

4:30 p.m.
**Circularity and Fossil-Free Reduction of Metal Oxides**
E. Murray, Greeniron H2 AB

**» Electric Steelmaking: EAF Efficiencies & Improvements**

Room 321 » Session Chairs: Crawford Murton, HarbisonWalker International; Stephan Ferenczy, ENE/TCI Inc.; Brett McGee, Mid-Continent Coal & Coke Co.

2 p.m.
**Electrode Cooling Optimization**
C. Barnes, R. Toste, Veolia Water Technologies & Solutions

2:30 p.m.
**Large Electric Arc Furnace Equipped With Electro-Magnetic-Stirrer as a Model for the Efficient and Reliable Transition of the Steel Industry**
S. Reali, A. Grasseili, Tenova S.p.A.; Z. Mehraban, L. Teng, ABB AB

3 p.m.
**EAF Revamp at Gerdau Monroe: A Case Study of EAF Capacity Increase and Its Impact on the Overall Meltpshop Operation**
R. Costa, Gerdau Special Steel North America Monroe Mill; H. Beile, tripleS GmbH & Co. KG

3:30 p.m.
**Reduction of Electrode Breakage During Operation in a 130-Ton EAF From ArcelorMittal Resende — Case Study**
P. Hopperdizel, T. Wandekoken, Lumar Metals; H. de Oliveira, M. Victorino, I. Silva, ArcelorMittal Resende

4 p.m.
**Using Electrode Consumption Reduction Technology to Advance ESG Initiatives**
J. Leitze, R. Jeffers, A. Feller, ChemTreat Inc.

4:30 p.m.
**Initiatives to Achieve Electrode Consumption of 0.6 kg/ton in the AC EAF at Topy Industries**
H. Okada, K. Fusamae, R. Ishikawa, K. Kamite, Topy Industries Ltd.

**» Electric Steelmaking: Media Transport**

Room 320 » Session Chairs: Matthew McKenna, Tokai Carbon GE LLC; Bob LaRoy, Steel Dynamics Inc. – Flat Roll Group Butler Division; Alex England, Tokai Carbon GE LLC

2 p.m.
**The Critical Role of Hydrogen in Linde’s Coherent Jet Technology**
W. Mahoney, Linde Technology Center; A. Deneyes, P. Mathur, S. Warty, Linde Inc.

2:30 p.m.
**Use of Different Lime-Based Products to Promote Agglomeration of Bio-Charcoal for EAF Injection Through Extrusion and Tableting Processes**
J. Aderhold, Lhoist Group; M. Ford, J.C. Steele & Sons Inc.; H. Lambert, H. Huynh, Lhoist Group; J. Böhninger, HÄNDLE
GmbH Maschinen und Anlagenbau; M. Steel, J.C. Steele & Sons Inc.; B. Johnson, Lhoist Group

3 p.m.
Carbon Footprint Reduction by Charcoal Injection Into the Electric Arc Furnace at Vallourec Brazil Steelmaking
P. Machado, S. Pinheiro, D. Santiago, Vallourec; T. Oliveira, Carnegie Mellon University; C. Musso, Vallourec; L. Dutra, R. Rodrigues, L. Chessret, L. Birkhäuser, VSB

3:30 p.m.
Lime Particle Size Variation — Effects in Lime Injection Systems
E. Schons, Carmeuse

4 p.m.
Optimization of the Melting Process of an Electric Arc Furnace by On-Line Offgas Measurement
H. Conrads, PROMECON GmbH

4:30 p.m.
New Controlling Approach for Electric Arc Furnace Electrode Regulation System
H. Omar, Al EZZ Dekhila Steel Co.

» Oxygen Steelmaking: Process Modeling
Room 410A » Session Chairs: Alexandre Beaulieu, Rio Tinto Fer Et Titane; Matthew Wilson, Cleveland-Cliffs Indiana Harbor; Lewyn Valladares, Stelco Inc.

2 p.m.
Implementing Dimensionality Reduction for Fundamental Assisted Analytics for End of Blow Chemistry Prediction in an LD Converter (FAA4LD)
S. Dinda, R. Wang, University of Toronto; I. Mohanty, P. Gupta, T. Roy, Tata Steel Ltd.

2:30 p.m.
Hybrid Process Models Are Setting New Standards for Advanced Process Optimization in Converter Steelmaking
A. Mayrhofer, H. Kühböck, K. Pastucha, B. Voraberger, G. Wimmer, Primetals Technologies Austria GmbH

3 p.m.
Slag Splashing — Cold Model Comparisons and Equations for Industry Setup
B. Maia, W. Lima, Lumar Metals North America; J. Mafort Santos, B. Martins Braga, Lumar Metals; L. Rocha, Universidade Federal de Minas Gerais; J. de Oliveira, Instituto Federal do Espírito Santo; V. Sinelnikov, Metinvest Polytechnic University

3:30 p.m.
Predicting the Dissolved Oxygen in Steel by Using Quick Carbon Analyzer at Energy Optimizing Furnace
M. Vidhyasagar, P. Ramasubramanian, D. Rajesh, S. Manjini, JSW Steel Ltd. – Salem Works

4 p.m.
A Dynamic Model of Basic Oxygen Steelmaking Process
P. Singha, A. Shukla, Indian Institute of Technology – Madras; V. Singh, Indian Institute of Technology

4:30 p.m.
Physical Modeling of Hot Metal Desulfurization Through Submerged Rotative Lance
D. Perasoli, Gerdau; C. da Silva, C. Filho, M. da Silva e Silva, J. Peixoto, C. da Silva, Universidade Federal de Ouro Preto

» Ladle & Secondary Refining: Modeling & Machine Learning II
Room 413AB » Session Chairs: Tyler Higgins, Liberty Steel and Wire; Chase Ault, Steel Dynamics Inc. – Flat Roll Group Butler Division

2 p.m.
Machine Vision System to Optimize Stirring During Secondary Refining Processes

2:30 p.m.
Usage of CaO-Al2O3 Synthetic Slag on EAF Tapping for Steel Desulfurization
L. da Silva Renato, SIMEC Group; R. Mariano de Souza, V. dos Santos Dagostini, E. Vieira, F. Fardin Grillo, Instituto Federal do Espírito Santo; J. Camasmie de Paola, City University of São Paulo; J. de Oliveira, Instituto Federal do Espírito Santo

3 p.m.
Data-Driven Model for On-Line Steel Temperature Prediction to Optimize the Secondary Refining Processes

3:30 p.m.
Modeling Ladle Slags Using a Mass Balance Approach and Integration Into the Ladle Furnace Process Supervisory System
F. Lopez, D. Souza, RHI Magnesita; S. Matos, Gerdau; T. Alcântara, Gerdau Ouro Branco; N. Silva, CI&T UK Ltd.; N. Carvalho, RHI Magnesita; T. Coelho, M. Bock, E. Almeida, Gerdau

» Ladle & Secondary Refining/Metallurgy — Steelmaking & Casting: Steel Cleanliness
Room 410B » Session Chairs: Obinna Adaba, Nucor-Yamato Steel Co.; Jamie Lash, AJF Inc.
2 p.m.
Sliver Reductions Utilizing Best Clean Steel Practices at Cleveland-Cliffs Indiana Harbor Works
J. Li, Cleveland-Cliffs Indiana Harbor

2:30 p.m.
Indirect Characterization of Inclusion Core Sizes in Steel
P. Wilkerson, Carnegie Mellon University

3 p.m.
Characterizing Smaller Inclusions and Their Individual Phases
M. Potter, C. Hefferan, K. van Beek, H. Lentz, RJ Lee Group

3:30 p.m.
Steel Cleanliness Comparison Between Al-Killing and Al+CaC2-Killing for Low-Carbon Steel Grade
S. Pinheiro, P. Machado, D. Santiago, Vallourec; R. Rodrigues, L. Chessret, VSB; A. Fabas, VRCF

4 p.m.
Evolution of Al-Ti Complex Oxide Inclusions in Liquid Steel in View of Stable Phase Diagram Analysis
Y. Kang, Y. Park, POSTECH

『Continuous Casting: Casting Quality』

Room 312AB ession Chairs: Jim Gilmore, Shinagawa Advanced Materials Americas Inc.; Rudolf Moravec, United States Steel Corporation

2 p.m.
Application of Micro-CT 3D Scan Technique to Investigate As-Cast Slab Defects
H. Yin, ArcelorMittal

2:30 p.m.
Transverse Slab Crack Reduction in Low-Carbon, Low-Alloy Steels
P. Wu, M. Suer, T. Charatan, Cleveland-Cliffs Inc.

3 p.m.
Slab Surface Cracking Characterization of Hyperperitectic Steels
J. Su, B. Konar, M. Gaudet, A. Hamilton, M. Arafín, EVRAZ North America

3:30 p.m.
As-Cast Microstructural Constituents Near the Centerline of Nb-Mo(-Ti) Microalloyed Steels
S. Piva, Vallourec

4 p.m.
Investigation of Argon Bubble Injection in Continuous Casting
M. Wang, A. Silvaen, Purdue University Northwest; B. Konar, S. Chen, EVRAZ North America; C. Zhou, Purdue University Northwest

『Continuous Casting: Tundish Technology』

Room 311AB ession Chairs: Greg Geist, Cleveland-Cliffs Cleveland Works LLC; Stephen Swoope, Delavan Spray Technologies; Bill Schlachtig, United States Steel Corporation

2 p.m.
Development of a Fast-Drying Tundish Slurry Refractory
J. Kerr, F. Olvera, D. Wappel, RHI Magnesita

2:30 p.m.
Distributed Temperature Monitoring of Tundish Refractory Lining Using Optical Fiber Sensors
H. Tekle, M. Roman, R. Gerald III, R. O’Malley, J. Huang, T. Sander, J. Smith, Missouri University of Science and Technology

3 p.m.
Tundish-to-Mold Refractory Solutions for a MIDA Caster
P. Shivaram, P. Domingos, G. McKillen, A. Resende, R. Komanecy, J. Stickan, P. Barrett, RHI Magnesita

3:30 p.m.
Inclusion Density in Tundish Zones Using Fluid Flow Simulations
D. Ruy, J. Pereira, ArcelorMittal; L. Meneghel, A. Oliveira, L. Prandi, A. Beloti, E. Vieira, Instituto Federal do Espírito Santo

4 p.m.
Avoiding Asymmetric Flows Caused by Off-Center Pouring Into the Tundish: A Novel Impact Pot Design
A. Resende, R. Freire, G. Lukesch, G. Hackl, D. Meurer, RHI Magnesita

『Hot Sheet Rolling: Digitalization』

Room 313A ession Chairs: Rob Brunelli, TMEIC Corp. Americas; Rajat Bathla, Cleveland-Cliffs Inc.

2 p.m.
Turn-Up/Down Improvement During Roughing Mill Rolling Process at AM/NS Calvert Hot Strip Mill
A. Wagatsuma, B. Tania, AM/NS Calvert LLC; G. Barbosa, ArcelorMittal USA Research LLC; A. Glenn, AM/NS Calvert LLC

2:30 p.m.
Benefits of Usage of Various Models in a Hot Strip Mill
E. Nikitenko, U. S. Steel Research and Technology Center

3 p.m.
Journey to Coiler Cobble Prevention in Hot Rolling Mills
3:30 p.m.
Digital Packages: Modular Solutions for the Digital Twin of Furnaces
M. Roveda, Tenova

4 p.m.
Slab Temperature Prediction at Inlet of Hot Rolling Mill Using AI Model
M. Saparrat, C. Vecchiarto, TECNOAP

4:30 p.m.
Development of Tandem Steering Control in Hot Strip Mill
S. Takagi, S. Ueno, T. Tsukamoto, TMEIC

Cold Sheet Rolling: Technology & Silicon Steel Rolling

Room 358 » Session Chairs: Liz Abreu, Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division; Brian Smith, ANDRITZ Metals USA Inc.

2 p.m.
Confocal Technology: The Next Generation in Optical Thickness Gauging
A. Sonntag, Micro-Epsilon Messtechnik GmbH & Co. KG; N. Dreihäupl, Micro Epsilon America

2:30 p.m.
How to Make an Old 4-High Cold Rolling Mill Fit for AHSS or Electrical Steel Production
K. Krimpelstätter, S. Angerer, B. Schinagl, Primetals Technologies Austria GmbH

3 p.m.
Effective Cold Rolling Technologies for the Successful Production of Electrical Steel and AHSS
K. Krimpelstätter, R. Kellermayr, Primetals Technologies Austria GmbH; H. Dagn, J. Hofbauer, Primetals Technologies Germany GmbH

3:30 p.m.
Extreme Low-Contrast Detection of Periodic Roll Marks — Results and Benefits
G. Gutmann, ISRA Vision Parsytec

4 p.m.
New Contactless Flatness Measurement for Improvement of Strip Quality and Production Yield
S. Hain, Primetals Technologies; D. Terry, Primetals Technologies Ltd.; A. Maierhofer, C. Blanco de Souza, Primetals Technologies

4:30 p.m.
Effect of Dewpoint on the Evolving Spectral Emissivity of Advanced High-Strength Steel During Intercritical Annealing
F. Suleiman, N. Narayanan, K. Daun, University of Waterloo

Plate Rolling: Plate Processing & Toughness Properties Enhancements

Room 359 » Session Chairs: Tanya Ros-Yanez, Cleveland-Cliffs Research & Innovation Center; Jacob Lewis, Nucor Steel Brandenburg; Michael Cooke, SSAB Iowa Inc.

2 p.m.
Hot Rolling Roughing and Finishing Reduction Balance for Heavy-Gauge X80
M. Gaudet, J. Su, M. Rashid, M. Arafin, EVRAZ North America

2:30 p.m.
Surface Quality Management and Condition Monitoring to Ensure Reliable Quality Decisions
G. Gutmann, M. Hoenen, ISRA Vision Parsytec

3 p.m.
Low-Carbon High-Toughness Steel for Tank Car Applications
T. Ros-Yanez, Cleveland-Cliffs Research & Innovation Center; S. Glinski, M. Kapustin, Cleveland-Cliffs Burns Harbor; V. Challa

3:30 p.m.
Development of a Digital Twin for the MULPIC at SSAB Mobile Plate-Steckel Rolling Mill
I. Robinson, Primetals Technologies; D. Bai, Y. Wang, SSAB Americas; J. Hinton, Primetals Technologies

Rolls: Roll Manufacturing/Performance

Room 357 » Session Chairs: Jochen Muenker, GEORG North America Inc.; Alexander Corts, Corts Bearing Technology & Walzen Irle

2 p.m.
Recent Improvements in Backup Rolls: Results and Experiences
S. Schneider, P. Heisterkamp, Gontermann-Peipers GmbH

2:30 p.m.
On the Performance and Surface Quality of Graphitic HSS Roll Grades at Tata Steel’s Direct Sheet Plant
M. Aigner, Eisenwerk Sulzau-Werfen R. & E. Weinberger AG; D. Beentjes, H. Boit, Tata Steel Netherlands; A. Paar, L. Elizondo, Eisenwerk Sulzau-Werfen R. & E. Weinberger AG

3 p.m.
Investigation and Analysis of Mill Roll Surface After Operation to Develop High-Performance HSS Work Rolls for Hot Strip Mills
A. Noda, N. Oda, Y. Nozaki, Proterial Wakamatsu Ltd.; P. Fleiner, SinterMet LLC

3:30 p.m.
Fused Silica Rolls for Improved Galvanizing and Electrical Steel Production Performance
J. Poncelet, J. Nicolas, M. Bright, Vesuvius
4 p.m. Roll Manufacturing Technology and Developments in Roll Material in the Context of Flat Rolling Mills in India
N. Kumar, MECON Ltd.

4:30 p.m. Considerations and Features of an Effective Roll Shop Management System
J. Snedeker, Herkules North America-KPM

» Metallurgy — Processing, Products & Applications: Thermomechanical Processing & Heat Treatment
Room 414AB » Session Chairs: Chirag Mahimkar, Big River Steel; Luis Garza, Cleveland-Cliffs Research & Innovation Center; Shobhit Bhartiya, Big River Steel

2 p.m. Effects of Atmosphere on Bright Annealed Stainless Steel
J. Arnold, K. Peter, Cleveland-Cliffs Inc.

2:30 p.m. Effect of Cr and Cooling Rates in Hypoeutectoid Steels Under Forced-Convection Conditions

3 p.m. Slipper-Type Spindles — Latest Developments and Installations for Heavy-Duty Applications
S. Puzzo, G. Tiussi, Danieli & C. Officine Meccaniche S.p.A.

3:30 p.m. Investigation of Thermomechanical Process Routes, From Rolling Mill to Final Heat Treatment, for the Production of Steel for Fasteners and Bolts
A. Spadaccini, S. Marzio, Acciaierie Bertoli Safau S.p.A.

4 p.m. Investigating the Effects of Induction Heating on Friction Stir Welding of Low-Carbon Steel
P. Kaushik, Indian Institute of Technology – Roorkee

» Energy & Utilities: Reheating Technologies for Decarbonization & Panel Discussion
Room 330B » Session Chairs: Lou York, Case Engineering Inc.; Chris Williams, Airgas

2 p.m. Decarbonization and Increased Productivity in the Reheating Furnace Using Hydrogen Fuel
A. Karambelkar, C. Uzor, N. Walla, A. Silaen, Purdue University Northwest; L. Fabina, K. Johnson, Cleveland-Cliffs Inc.; C. Zhou, Purdue University Northwest

2:30 p.m. Zero-Emission Reheating Technologies: State of the Art and Future Developments of Danieli Induction Heating Systems
A. Polo, Danieli Automation S.p.A.

3 p.m. Tenova Ultralow-NOx Regenerative Burners Working With Hydrogen and Oxygen Enrichment
D. Astesiano, A. Della Rocca, C. Leoncini, Tenova

3:30 p.m. The Role of Hydrogen in the Decarbonization of Iron and Steel From the Perspective of a Gas Supply and Distribution Perspective
S. McDermott, Enbridge Gas

4 p.m. Panel Discussion: Opportunities for Carbon-Free Improvements in Reheating Using Induction and Hydrogen
Panelists: Chenn Zhou, Purdue University Northwest; Andrea Polo, Danieli Automation S.p.A.; Sam McDermott, Enbridge Gas; Alessandro Della Rocca, Tenova

» Digitalization Applications: Quality
Room 310A » Session Chairs: Jim Hendrickson, Cleveland-Cliffs Burns Harbor; Yufeng Wang, SSAB Americas; Mo Ahmed, Schneider Electric

2 p.m. Use of AI Technology for Detection of Slabs and Coil Marking
E. LaBruna, Janus Automation

2:30 p.m. Expert System Process Monitoring and Real-Time Event Forensics
F. Adjogble, H. Chinoy, SMS group Inc.

3 p.m. Unlock the Sustainable Value Path for Steel Industry Transformation
B. Orsal, Dassault Systèmes

3:30 p.m. Configurability in Service-Oriented and Collaborative Production Management
A. Malla, J. Hackmann, PSI Metals GmbH

4 p.m. Real-Time Defect Prevention in Continuous Casting
P. Hänisch, SMS digital; B. Dutta, SMS group Inc.; R. Murthy, C. Kirmse, SMS digital
Sensors: Sensors for Safety & Process Improvements
Room 313B » Session Chairs: Karl Kessler, Cleveland-Cliffs Dearborn Works; Nathan Smith, Gray Matter Systems

2 p.m.
Spatial Thermal Mapping of the Water-Cooled Upper Shell of an Electric Arc Furnace Using Fiber Optic Sensors
Y. Mekala, Missouri University of Science and Technology

2:30 p.m.
Comparison of MEMS and Piezoelectric Accelerometers for Impact Detection in Low-Speed Bearing Applications
B. Li, S. Siroka, A. Lauden, J. Davis, ITR LLC

3 p.m.
Improved Monitoring of the Bottom Anode of an Electric Arc Furnace Using Fiber Optic Sensors
Y. Mekala, Missouri University of Science and Technology

3:30 p.m.
Energy-Saving Virtual Sensor for Electric Heating Applications
P. Sherwin, Eurotherm

4 p.m.
Using Radar Technology to Detect Objects and Personnel for Safety Applications
E. LaBruna, Janus Automation

Maintenance & Reliability: Managing Risk Applications With Analytic Information
Room 356 » Session Chairs: Carl Garringer, Steel Dynamics Inc. – Structural and Rail Division; Randy Heisler, Life Cycle Engineering; Keith Hoffman, Danieli Corp.

2 p.m.
5 Symptoms for Risk Mitigation and Maintenance Strategy Optimization in Steel
C. Newmister, Bently Nevada

2:30 p.m.
Servicing Converter Vessel Bearings
M. Allega, E. Dickerhoof, The Timken Co.

3 p.m.
The Journey of Digital Transformation in Maintenance — Ternium Brasil Use Case
L. Passos, R. Pereira, F. Lourenço, Ternium Brasil

3:30 p.m.
Increasing Gearbox Reliability to Minimize Downtime
S. Franks, M. Clark, Sumitomo Drive Technologies

4 p.m.
Preventing Costly Failure Events in Submersible Pumps Using Wireless Condition Monitoring
A. Panagoulias, Hydro Inc.

Refractory Systems: New Development of Steel/Iron Ladle Refractories
Room 412AB » Session Chairs: Daniel Silva, Calderys; Rob Doty, IMACRO Inc.; James Smith, Alkegen

2 p.m.
Energy-Efficiency Refractory Bricks for Steel Ladle Linings
C. Pagliosa, J. Sardelli, B. Borges de Melo, M. Borges, C. Cavalcante, E. Mejia, RHI Magnesita

2:30 p.m.
Operation of Steel Mill Ladle Pre-Heater With 100% Green Hydrogen and Zero CO₂ Emissions
I. Auzmendi, J. Blanco-Requesens, Sarralle Environment & Energy

3 p.m.
Zero-Carbon Tempered MgO-ZnO Brick as Alternative of Fired Magnesia Chrome for Safety Lining of Stainless Steel Ladle
B. Borges de Melo, C. Pagliosa, A. Junior, C. Lares, RHI Magnesita

3:30 p.m.
Development of a Methodology for Life Cycle Assessment of Refractories and Fluxes Used in Iron and Steel Processes
B. Touzo, Calderys; L. Canton, E. Henry-Lannier, IMERYS

4 p.m.
Novel Environmental Refractory Lining for Hot Metal Ladle: Carbon-Free Al₂O₃-SiC Brick
J. Sardelli, C. Pagliosa, T. Moreira, J. Macedo, V. Madalena, RHI Magnesita

4:30 p.m.
Recycling of Refractory Within the Circular Economy
S. Mohapatra, C. Willoughby, Calderys

Cranes: New Technologies for Cranes
Room 353 » Session Chair: Benjamin Tad Dunville, Safe Lifting International Group LLC

2 p.m.
Collision Detection: Safety Improvements to High-Bay/ Low-Bay Overhead Cranes
S. Lubeck, Laser-View Technologies
2:30 p.m.  
Advantages of Planetary Gearbox and Hoist Redundancies  
L. Bacchetti, Danieli & C. Officine Meccaniche S.p.A.

3 p.m.  
Crane Safety Project — Overload Protection Systems for Cranes in Demanding Environments  
S. Dahlman, Gigasense AB

3:30 p.m.  
OSHA Requires Ten Distinct Types of Crane Inspections — Do You Know What They Are?  
L. Dunville, Overhead Crane Consulting LLC

4 p.m.  
Minimizing Downtime on Wire Rope Hoists via Proper Vertical Lifting  
S. Lubeck, Laser-View Technologies

Tuesday, 9 May » Morning Sessions

»Safety & Health: Planning & Implementing Safety Into the Working Area I
Room 354  » Session Chairs: Kyle Toth, Purdue University Northwest; Jane MacPherson, MacPherson & Company; Bob Carter, Big River Steel

10 a.m.  
System Safety or Safety System — What Is the Difference?  
M. Dunbar, Edw. C. Levy Co.

10:30 a.m.  
Resilience and Planning for the Unexpected  
J. Gray, V. Saporito, Check-6 Inc.

11 a.m.  
5 Key Steps to Driving Safety Program Adoption Through Internal Communications — What Every Steel Manufacturer Must Consider  
D. Konstantinovsky, RH Blake

11:30 a.m.  
Optimizing Uptime and Safety Through Automated Energy Isolation Technology  
M. Thomson, SafeBox Systems

»Environmental: Waste Minimization & Energy Reduction
Room 355  » Session Chairs: Bijay Prakash, EVRAZ Rocky Mountain Steel; Lorenzo Marino, Danieli Corp.

10 a.m.  
Synthesis of Fe-Al-C Intermetallic Alloy via Fe₂O₃-Al-C Interaction at 1,550°C: Implication for Mill Scale Upcycling  
P. Wongsawan, W. Srichaisiriwech, S. Kongkarat, Thammasat University

10:30 a.m.  
Study on the Reuse Technology of Waste Tundish Dry Materials  
H. Ning, Shougang Group Co. Ltd. Research Institute of Technology; L. Yang, Shougang Group Co. Ltd.; J. Liu, Shougang Group Co. Ltd. Research Institute of Technology; J. Yanan, Beijing Key Laboratory of Green Recyclable Process for Iron & Steel Production Technology; K. Xiangtao, Shougang Group Co. Ltd.; C. Zhengming, Shougang Jingtang United Iron and Steel Co.; T. Zhihong, Shougang Group Co. Ltd.; H. Li, Shougang Group Co. Ltd. Research Institute of Technology

11 a.m.  
Heat Storage and Centralization in a Steelmaking Plant — A Rational Use of Energy  

»Decarbonization: Green Reducing Agent Technologies
Room 330A  » Session Chairs: Kyle Vanover, Sara Cupp, Steel Dynamics Inc.

10 a.m.  
Nuclear Energy as a Pathway to Decarbonization for Modern Steelmaking Plants  
H. Lam, J. Wikston, N. Tannyan, Hatch

10:30 a.m.  
Recycling CO₂ From Ironmaking Top Gas Using Light X. Zheng, Stanford University

11 a.m.  
Clean Hydrogen From Steel Plant Waste Gases  
M. Dawson, J. Ferguson, K. Grieshaber, Utility Global Inc.

11:30 a.m.  
End-to-End Assessment of Fluidized Bed Hydrogen Direct Reduced Ironmaking With Pilbara Ores  
J. Pye, Australian National University
» Ironmaking: Low-CO₂ Iron I
Room 321 » Session Chairs: Sanjeev Manocha, LanzaTech; Rudy Tolka, CIM-Tech Inc.

10 a.m.
Open Bath Furnace for the Production of Hot Metal
B. Belford, SMS group GmbH; G. Lötter, Metix

10:30 a.m.
Valorization of Iron Oxide Residue From Dye Manufacturing as a Potential Feed for Ironmaking
T. Dhruw, B. Hazra, S. Basu, Indian Institute of Technology – Bombay

» Direct Reduced Iron: Reduction Mechanisms
Room 310B » Session Chairs: Elaine Chen, ArcelorMittal Texas HBI LLC; Kyle Ferron, ArcelorMittal Dofasco G.P.

10 a.m.
A Multi-Scale View of Scalability Challenges in H₂ Direct Iron Reduction
L. Dresselhaus-Marais, Stanford University

10:30 a.m.
Circored Fine Ore Direct Reduction and the Benefits of Microgranulation
S. Lang, M. Köpf, Outotec GmbH & Co. KG; S. Richter, J. May, Metso Outotec;

» Electric Steelmaking: Refractory & Slag
Room 320 » Session Chairs: Madhu Ranade, Steel Dynamics Inc. – Flat Roll Group Columbus Division; Sam Matson, CMC Steel Texas

10 a.m.
Rapid Slag Analysis With Digital Sample Homogenization to Slag Analysis in Under One Minute and Efficient In-Situ Furnace Management
M. Ounanian, QuantoLux GmbH; B. van Stuijvenberg, A. Schlemminger, QuantoLux Innovation GmbH

10:30 a.m.
Fiber Optic Raman Probe for On-Line EAF Slag Analysis
B. Zhang, H. Tekle, R. O’Malley, T. Sander, J. Smith, L. Bartlett, F. Muntaz, R. Gerald II, J. Huang, Missouri University of Science and Technology

11 a.m.
EAF Lining and Hot Repair: New Technologies to Improve Repair Quality and Furnace Productivity
R. Freire, M. Kammerhofer, G. Pusterhofer, F. Rangel, RHI Magnesita

» Oxygen Steelmaking: Process Metallurgy
Room 410A » Session Chairs: Jens Kempken, SMS group; Ashraf Hanna, RHI Magnesita; Yun Li, U. S. Steel Research and Technology Center

10 a.m.
Precise Temperature Control From Steelmaking to Casting Using Real-Time Artificial Intelligence
M. Peintinger, Smart Steel Technologies Inc.

10:30 a.m.
Skull Removal Device in Lances of BOF Process
E. Acciarito Filho, A. Barbosa, H. Carneiro, C. Lapa, Metalurgica Vulcano Ltda.; V. Pimpinella, Advanced Wear Resistant Equipment

11 a.m.
Recent Trends in BOF Converter Revamp
B. Voraberger, G. Wimmer, J. Buttler, Primetals Technologies

11:30 a.m.
Effects of Slag Removal Method on the Process Parameters of Energy Optimizing Furnace
M. Vidhyasagar, P. Ramasubramanian, D. Rajesh, S. Manjini, JSW Steel Ltd. – Salem Works

» Specialty Alloy & Foundry/Metallurgy — Steelmaking & Casting
Room 412AB » Session Chairs: Andy Pinsky, Holland Manufacturing Corp.; Judy Li, Cleveland-Cliffs Indiana Harbor

10 a.m.
Investigation of Non-Metallic Inclusions During Primary Melting of Specialty Steels
A. Huck, B. Webler, Carnegie Mellon University

10:30 a.m.
New AOD Automation System at Cleveland-Cliffs Butler Works
M. Suer, J. Brocklehurst, K. Allen, D. Shandick, R. Bowser, Cleveland-Cliffs Inc.

11 a.m.
Metal Degassing by Means of Vacuum Cap Technology for Enhanced Material Properties
I. Vicario, A. Teske, E. Schmilinsky, Consarc Corp.; M. Myška, Brno University of Technology; R. Ritzenhoff, Friedr. Lohmann GmbH

11:30 a.m.
Improving Stainless Steel Cleanliness During Ingot Casting Process
J. Espinoza, V. Nuzzolo, Frisa Steel
**» Ladle & Secondary Refining: Slag & Process Optimization**
Room 413AB  »  Session Chairs: Andrea Aller, Nucor Steel Gallatin; Bill Porter, PRCO America Inc.; Felix Firsbach, Badische Stahl-Engineering

10 a.m.
**Improved Measurement System and Its Contribution to Enhanced Chemistry Control**
P. Wu, G. Newman, K. Allen, Cleveland-Cliffs Inc.

10:30 a.m.
**Safety and Operational Improvements After Installation of a Gas Coupling System**
C. Schöggl, INTECO Melting & Casting Technologies; M. Leber, INTECO PTI; Z. Stroaman, Nucor Steel–South Carolina

11 a.m.
**Effect of Steelmaking Process Conditions on Cleanliness in Calcium- and Non-Calcium-Treated Steel in Two Different Secondary Refining Process Routes**
B. Cerchiari, L. Saisse, H. Gomes, Ternium Brasil

11:30 a.m.
**Increasing of LF Performance by Controlling the Slag and Steel Oxygen Activities**
F. Tekin, E. Tan, ICDAS Steel; S. Erdemiş, ICDAS Celik Tersane A.Ş.; R. Ünza, S. Arabaci, ICDAS Steel; E. Arikan, I. Keskin, B. Doğan, Heraeus Electro-Nite Co. LLC

**» Continuous Casting/Hot Sheet Rolling**
Room 313A  »  Session Chairs: Greg Geist, Cleveland-Cliffs Cleveland Works LLC; Jorge Fernandez, AMI International S. de R.L. de C.V.

10 a.m.
**Modernizations and Upgrade Concepts of American Mini-Mills**
C. Cecere, SMS group GmbH; K. Watson, SMS group Inc.; B. Kintscher, T. Töpfer-Bergner, SMS group GmbH

10:30 a.m.
**Latest Achievements With Endless Casting and Rolling Technology at Shougang Jingtang**
A. Pigani, Danielli & C. Officine Meccaniche S.p.A.

11 a.m.
**A New Era of Thin-Slab Casting and Rolling**
C. Cecere, SMS group GmbH; K. Watson, SMS group Inc.; B. Kintscher, T. Töpfer-Bergner, SMS group GmbH

11:30 a.m.
**Steel Producers Overcome the Gap Between Productivity and Quality Demands With Arvedi**
A. Jungbauer, S. Grosseiber, B. Linzer, Primetals Technologies Austria GmbH

**» Continuous Casting: Bloom & Billet Casting**
Room 312AB  »  Session Chairs: Mark Masters, CMC Steel Alabama; Ian Deeks, Nucor Steel–Arkansas

10 a.m.
**Initial Experience With New Round Caster Operation and Improvements at U. S. Steel – Fairfield Works**
R. Moravec, W. Schlichting, J. Ruf, F. Mamtooth, United States Steel Corporation

10:30 a.m.
**Continuous Casting of Octagonal Section Revisited: Quality Steel Production Trials at Acciaierie Bertoli Safau S.p.A.**

11 a.m.
**World’s Largest Casters Are Danielli’s in China**

**» Long Products: Metallurgy & Profile Measurement**
Room 359  »  Session Chair: Fermin de la Maza, Russula

10 a.m.
**Profile Measurement of Reinforcing Bar and Rolling Defect Detection During Production**
J. Peters, LAP Measurement Technology GmbH

10:30 a.m.
**Intelligent Sensor for Rib Profile Detection in High-Speed Rebar Mill**
V. Shah, P. Bangalore, P. Kumar, A. Raj, V. Subramanyam, Tata Steel

11 a.m.
**Prediction of Austenite Grain Size Evolution in Wire Rod Rolling**
M. Iqbal, S. Jayaraj, S. Manjini, JSW Steel Ltd. – Salem Works

**» Pipe & Tube: Digital Transformation & Equipment Upgrades in Pipe & Tube**
Room 358  »  Session Chairs: Frank Baumgardner, Nucor Steel–Decatur LLC; Susan Conley, Quaker Houghton

10 a.m.
**Leveraging Artificial Neural Networks to Predict Saw Blade Failure**
D. Kober, iba America
10:30 a.m.  
Atlas Jumbo Mill Project  
V. Girardin, Polytex North America

» Rolls: Roll Shop Equipment/Processes  
Room 331ABC » Session Chairs: Robert Curler, Herkules North America; Mike Reidy, California Steel Industries Inc.

10 a.m.  
Tungsten Carbide: An Alternative to Chrome Plating on Work Rolls  
M. Brennan, A. Smith, Praxair Surface Technologies Inc., a Linde Company

10:30 a.m.  
New Developments in Electrical Discharge Texturing  
C. Childs, G. McBain, Sarcld Ltd.

11 a.m.  
Automatization of Roll Shop Operation Beyond Roll Grinding  
D. Quaglia, A. Brambilla, Tenova

11:30 a.m.  
Electrical Discharge Texturing — How the Use of Linear Motors Will Increase the Quality of Cold Rolled Steel Strip  
M. Nitschke, H. Kleinknecht & Co. GmbH

» Metallurgy — Processing, Products & Applications: Electric Steels & Corrosion  
Room 414AB » Session Chairs: Grant Thomas, Cleveland-Cliffs Research & Innovation Center; Qiuln Yu, Nucor Steel Tuscaloosa Inc.; Siddhartha Biswas, Big River Steel

10 a.m.  
In-Situ Observation of the Solidification of X70 Steel Using High-Temperature Confocal Scanning Laser Microscope  
K. Kiser, V. Athavale, L. Bartlett, R. O’Malley, M. Buchely, Missouri University of Science and Technology

10:30 a.m.  
Development of Non-Linear Equations for Predicting Electrical Conductivity in Silicates  
P. dos Anjos, L. de Almeida Quaresma, M. Lucas Pereira Machado, Instituto Federal do Espirito Santo

11 a.m.  
Ensuring Highest Quality Standards in Electrical Steel Production Combining 2D and 3D Inspection Technology for Surface Defects and Waviness Recognition  
G. Gutmann, S. Weigelt, ISRA Vision Parsytec

» Energy & Utilities: Process Optimization & Innovation to Meet Decarbonization  
Room 330B » Session Chairs: Lawrence Fabina, Cleveland-Cliffs Inc.; Tina Wolff, Kokosing Industrial Inc.

10 a.m.  
How Modern Combustion Systems Address Top-Tier Issues for Processing Lines  
D. Quinn, Fives North American Combustion Inc.

10:30 a.m.  
Optimization of Steelmaking Gas Distribution Using an Artificial Intelligence Tool  
A. Farah, F. Drumond, K. Cançado, L. Soares, R. Gacomin, T. Maia, Vetta

11 a.m.  
Basic Research on H2 Production From Hydrocarbon Gases Using a Molten Metal Catalyst  
Y. Kang, T. Wi, POSTECH; E. Lee, KITECH; Y. Park, POSTECH

11:30 a.m.  
NOx Emission Reduction From Steel Soaking Pit Furnaces Using Innova-Jet Burners  
K. Abe, T. Haneji, Y. Yamamoto, Y. Hagiha, Taiyo Nippon Sanso

» Metallurgy — Steelmaking & Casting: Inclusion Study & Control  
Room 410B » Session Chairs: Viraj Athavale, Missouri University of Science and Technology; Paul Wu, Cleveland-Cliffs Inc.

10 a.m.  
Improvement of CpK of High-Strength Rebar Grade at New Bar Mill, Tata Steel  
V. Shah, P. Bangalore, P. Kumar, A. Raj, Tata Steel

10:30 a.m.  
Mechanism of Initial Nozzle Clog Deposit Growth and Its Countermeasure During Continuous Casting of Ti-Added Ultralow-C Steel  
Y. Kang, POSTECH; J. Lee, POSCO

11 a.m.  
Inclusion Control in High-Carbon Wire Rod Coils  
S. Shanmugam, E. Ramamurthy, S. Dharmar, D. Rajesh, JSW Steel Ltd. – Salem Works
Digitalization Applications: AI & Machine Learning II
Room 310A  » Session Chairs: Patrick Gallagher, Management Science Associates Inc.; Bis Sarkar, Cleveland-Cliffs Indiana Harbor

10 a.m.
Dancing With the Cloud
P. Ruiz, G. La Cruz, Optimus Steel

10:30 a.m.
Next-Generation Machine-Learning Methods for Asset Vibration Condition Monitoring and Predictive Analytics
B. Li, S. Siroka, A. Lauden, J. Davis, ITR LLC

11 a.m.
How to Increase the Net Return on Digital Investments in the Steel Industry
M. Provencher, AVEVA

11:30 a.m.
Lighting as a Conduit for Technological Disruption
A. Orkin, Coolon

Digitalization Applications: Rolling & Finished Goods
Room 311AB  » Session Chairs: Michael Florian Peintinger, Smart Steel Technologies Inc.; Ruth Kirkwood-Azmat, Primetals Technologies USA LLC

10 a.m.
Small-Scale AI Is the Future: Weld Quality Prediction Using AI in a Processing line
R. Ndiaye, Cleveland-Cliffs Inc.

10:30 a.m.
Improving Automatic Surface Inspection Performance by Multiple Synchronized Views and Enhanced Classification Algorithms
G. Gepitulan, D. Recker, ISRA Vision Parsytec

11 a.m.
Digital Solutions for the Hot Strip Mill: Leveraging Industry 4.0
G. Gepitulan, J. McMillen, P. Jackson, J. Hollingsworth, TMEIC Corp. Americas

11:30 a.m.
Development and Application of Intelligent Cutting System for Slab Caster
P. Gao, Shougang Group Co. Ltd. Research Institute of Technology; X. Zhao, Beijing Shougang Co. Ltd.; J. Yang, Shougang Group Co. Ltd.; L. Yao, Shougang Group Co. Ltd. Research Institute of Technology; Y. Liu, Z. Bi, Beijing Shougang Co. Ltd.

Project & Construction Management: Challenges in Trade Labor Availability
Room 357  » Session Chair: Bob Czerniewski, Mascaro

10 a.m.
Panel Discussion: Challenges in Trade Labor Availability
Panelists:
B. Leslie, Barton Malow Co.
M. Hershey, Kiewit Energy Group
M. Dorsey, National Maintenance Agreements Policy Committee

Maintenance & Reliability: Lubrication Solutions for a Proactive Maintenance Program
Room 356  » Session Chairs: Kevin Morrow, LubriSource; Brian Wilson, HASTEC group; John Accurso, Quaker Houghton

10 a.m.
How to Escape From the Lithium Grease Price Trap
T. Mattern, Carl Bechem GmbH; D. Greiner, Bechem Lubrication Technology

10:30 a.m.
How Lubrication Can Affect Steel Mill OEE
G. Savernik, Quaker Houghton

11 a.m.
Reducing Operational Costs by Specialized Grease and Testing
D. Greiner, Bechem Lubrication Technology; T. Mattern, Carl Bechem GmbH

11:30 a.m.
Managing Electric Motors for Reliable Service
J. Hatfield, HECO

Material Handling/Transportation & Logistic: New Material Handling Technologies
Room 353  » Session Chair: Jesse DeSpain, Nucor Steel-Texas

10 a.m.
Shunting Technologies and Their Approach to Decarbonizing Both Passenger and Freight Rail
C. Meier, WINDHOFF Rail Technology Corp.

10:30 a.m.
Blending Screen Media for the Best Possible Results
D. High, Haver & Boecker Niagara
11 a.m.
The Future of Transportation: How Technology and Innovation Will Revolutionize Shipping Strategies Within the Metals Industry
G. Troian, L. Cox, PGT Trucking Inc.

11:30 a.m.
How to Improve the Quality of Inbound Scrap
T. Saccamozzone, Eriez

Tuesday, 9 May » Afternoon Sessions

» Safety & Health: Digital Transformation in Training & Safer Operations
Room 354 » Session Chairs: Ibukun Awolusi, The University of Texas at San Antonio; Paul Thurber, Everguard.ai

2 p.m.
Point Clouds and Interactive 3D Models for Safety Training Realism
J. Moreland, K. Toth, J. Heffron, C. Zhou, Purdue University Northwest

2:30 p.m.
Implementing Virtual Reality Technology for Safety Training to Reduce Hand Injuries in the Steel Manufacturing Industry
M. Assafi, J. Cotton, G. Wood, J. Ma, Y. Wang, J. Wang, Mississippi State University

3 p.m.
Automation Safety Features to Minimize Operator Errors in Crane Operations
E. LaBruna, Janus Automation

3:30 p.m.
Operational Safety and Digital Transformation: A Win-Win Integration
M. Ometto, C. Pietrosanti, Danieli Automation S.p.A.

» Environmental: Water Treatment & Minimizing Water Waste
Room 355 » Session Chairs: John Cioffi, Nalco Water, An Ecolab Company; Timothy Weiler, ChemTreat Inc.

2 p.m.
Digitally Enabled Best-in-Class Advanced Polymer Activation System Liquid Emulsion Technology
D. Schwarz, A. Zagala, Nalco Water, E. Grodecki, Nalco Water, An Ecolab Company

2:30 p.m.
Production of Aqueous Chlorine or Bromine Using Electrohalogenation Technology for Cooling Water Microbial Control
A. Boal, De Nora Water Technologies

3 p.m.
Digitization, Automation and Visualization of Secondary Contact Cooling Water Treatment
D. Schwarz, A. Zagala, Nalco Water, An Ecolab Company

3:30 p.m.
Ways to Reduce Water Usage in Facilities in Order to Meet ESG Commitments
S. Birtch, Aggreko

4 p.m.
Zero-Sand Filtration Technology
L. Marino, Danieli Corp.

» Decarbonization: Pathway to Responsible CO2 Standards
Room 330A » Session Chairs: Mike Grant, Air Liquide Global Management Services GmbH; Sara Hornby, Global Strategic Solutions Inc.

2 p.m.
Decarbonization Perspectives: Assessment of Different Scenarios in the Iron- and Steelmaking Industry
T. Oliveira, C. Pistorius, Carnegie Mellon University; R. Sampaio, RSConsultants Ltda

2:30 p.m.
Path to ResponsibleSteel Certification
R. Contreras, J. Klaumer, LRQA Inc.

3 p.m.
Driving Demand for Green Steel Through Clean Energy Projects
C. Swalec, Global Energy Monitor

3:30 p.m.
Developing a Strategic Road Map for Reducing Energy Consumption and CO2 Emission for Iron and Steel Plants
S. Kumar, Y. Gordon, Hatch

4 p.m.
A Model-Driven Framework to Enable Decarbonization in the Iron and Steel Industry
A. Giglio, SINAI Technologies
Cokemaking/Ironmaking/Decarbonization

Room 330B  »  Session Chairs: Joe Morey, U. S. Steel – Gary Works; Scott Pisula, U. S. Steel – Mon Valley Works, Clairton Plant

2 p.m.
Characterization of Charcoals Produced From Acacia, Lebbeck and Leucaena for Application in Ironmaking
A. Singh, Indian Institute of Technology BHU, Varanasi

2:30 p.m.
Brazilian Breakthrough Technology for a Low-Carbon Metallurgy Industry
L. Fialho, Vallourec; R. Neiva, Vallourec Soluções Tubulares do Brasil S.A.

Direct Reduced Iron: Plant Design, Safety & Maintenance

Room 310B  »  Session Chairs: Valmiro Sa, Air Products; Madhu Ranade, Steel Dynamics Inc. – Flat Roll Group Columbus Division

2 p.m.
Complete Refractory Solution for DRI Reactors With High Hydrogen Concentration in the Reducing Gas
S. Mohapatra, Calidrys; B. Hiot, Calidrys France; B. Touzo, Calidrys

2:30 p.m.
H2-Change: Refractories Under Attack of Challenging Atmospheres During Transformation Process
J. Sperber, F. Duennes, Steuler-KCH GmbH

3 p.m.
Conversion of DRI Shaft Furnace Operation to Hydrogen Reduction and Lower-Grade Pellets From a Consultancy Perspective
Y. Gordon, Hatch

3:30 p.m.
Next Generation of Pelletizing Plants for the Transition to Green Steel
M. Köpf, M. Gabriel, R. Schiemann, O. Nolasco, Outotec GmbH & Co. KG

4 p.m.
Preventive Maintenance to Assure Direct Reduction Plant Availability

4:30 p.m.
Safe Operating Strategy of Post-Combustion Chamber for Optimal Energy Utilization in a Sponge Iron Plant
P. Kekarjawlekar, B. Deo, P. Kekarjawlekar, Indian Institute of Technology – Bhubaneswar; P. Nanda, Tata Steel Long Products Ltd.

Electric Steelmaking: Scrap

Room 321  »  Session Chairs: Jeff Richards, Charter Steel – Saukville; Eric Busboom, CMC Steel Texas

2 p.m.
Machine-Learning Applications for a Smart Scrap Yard
G. Bavestrelli, Tenova S.p.A.

2:30 p.m.
Crafted Scrap: Advanced Scrap Preparation Technology for High-Quality Green Steel Production
A. Melcher, Primetals Technologies; H. Gusgall, SICON GmbH

3 p.m.
Real-Time On-Line Elemental Analysis of Scrap for Steelmaking
H. Kurth, M. Kalincinski, Scantech International Pty Ltd.

3:30 p.m.
A CFD Study of the Melting Process of HBI/DRI Scrap in an AC Electric Arc Furnace
O. Ugarte, N. Busa, P. Vemula, T. Okosun, C. Zhou, Purdue University Northwest

4 p.m.
Classification of Scrap Types Using Computer Vision Algorithms
A. Dhani, C. Vaghela, SMS digital; A. Asaro, SMS digital GmbH; D. Yuan, SMS digital; G. Pravisani, SMS group S.p.A. – Tarcento; J. Kempton, SMS group; C. Kirmse, SMS digital

4:30 p.m.
Intelligent Recognition of Scrap Attributes Throughout AI
M. Saparrat, C. Vecchiarto, TECNOAP

Electric Steelmaking: Trials & Plant Start-Ups

Room 320  »  Session Chairs: Alyssa van Delden, Nucor Steel Kankakee Inc.; Kamlesh Mandal, Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division

2 p.m.
Use of HBI in Cleveland-Cliffs EAF and AOD Operations
J. Li, M. Suer, J. Haeberle, R. Bowser, J. Fehr, B. Dehaut, Cleveland-Cliffs Inc.; M. Erford, Cleveland-Cliffs Toledo Direct Reduction Plant

2:30 p.m.
Installation of Spray-Cooled Sloped Hot Face for EAF Sidewalls
L. Valentas, S. Ferguson, Systems Spray-Cooled

3 p.m.
AURA Digital Feeders for Low-Impact Electric Arc Furnaces
L. Neri, A. Lanari, SMS group S.p.A.
3:30 p.m.
The Medium-Frequency Coreless Induction Furnace — A CO₂ and NOx-Friendly Solution for Scrap Melting
F. Donsbach, S. Esser, T. Schanz, Induga GmbH & Co. KG

4 p.m.
Start-Up of New Meltshop and Strip Production Plant at Nucor Steel Gallatin
L. Faralli, Danieli & C. Officine Meccaniche S.p.A.

4:30 p.m.
EAF Restart at ArcelorMittal Sul-Fluminense: Problems and Solutions to Reach Process Performance Goals
P. Hopperdizel, T. Wandekoken, Lamar Metals; A. Ramalho, M. Almeida, F. Moreira, G. Moraes, I. Rana, ArcelorMittal Barra Mansa

» Oxygen Steelmaking: Blowing Practice
Room 410A » Session Chairs: Champion Chigwedu, HT-PEACS LLC; Gerald Wimmer, Primetals Technologies

2 p.m.
Nitrogen Control in the Basic Oxygen Steelmaking Process
S. Chatterjee, B. Rout, Tata Steel Netherlands

2:30 p.m.
Effect of Shrouding Nozzle Mach Number on Characteristics of Supersonic Oxygen Jet in Converter Steelmaking Process
L. Yao, P. Gao, Shougang Group Co. Ltd. Research Institute of Technology; J. Yang, Shougang Group Co. Ltd.; H. Li, Shougang Group Co. Ltd. Research Institute of Technology; X. Zhao, T. Jiang, Beijing Shougang Co. Ltd.; H. Yu, University of Science and Technology Beijing; L. Hao, Beijing Shougang Co. Ltd.

3 p.m.
Modeling of the “K” Compensation Factor of the Momentum Balance Equation in a Metallic Bath in the LD
W. Lima, Lamar Metals North America; B. Martins Braga, Lamar Metals; B. Maia, Lamar Metals North America; M. Covcevich Bagatini, R. Parreiras Tavares, A. dos Santos Dias Moreira, A. Vasconcelos e Silva, P. Araújo, G. Siemou Tchoupo, Universidade Federal de Minas Gerais

3:30 p.m.
Novel Approach to Control Nitrogen in BOF Steelmaking
A. Biswal, J. Babu, S. Kumar, Tata Steel Ltd.

4 p.m.
Blow Ignition in Converters: Behavior Analysis to Increase Effectiveness
B. Maia, W. Lima, Lamar Metals North America; J. Mafort Santos, Lamar Metals; B. de Almeida Santos, Lamar Metals; L. Alves, J. de Athayde Junior, USIMINAS

» Specialty Alloy & Foundry/Metallurgy — Steelmaking & Casting: Vision & Data Analytics/Machine Learning
Room 412AB » Session Chairs: Charlie Fink, Inductotherm Corp.; Aaron Ingalls, PRCO America Inc.

2 p.m.
Bubble Size Determination in a Half-Scale Curved Water Model Mold for Various Casting Conditions Using Imaging and Machine Learning
S. Dinda, D. Li, University of Toronto; F. Guerra, C. Cathcart, Stelco Inc.; M. Barati, University of Toronto

2:30 p.m.
Bubble-Inclusion Interaction During Argon Bubbling in a Tundish: Assessment With Automated Inclusion Microanalysis and Data Analytics
T. Oliveira, C. Pistorius, Carnegie Mellon University; M. Ferreira, D. Tang, Nucor Steel–Decatur LLC

3 p.m.
Quality Improvements in the Vacuum Degasser by Steel Exposure Model Through Artificial Vision
R. Marquez, E. Morales, A. Alvarez, R. Lescas, ECON Tech; D. Alvarado, Frisa Steel

3:30 p.m.
Steel Works Energy-Saving Strategies Through Artificial Intelligence Techniques
E. Morales, R. Marquez, A. Alvarez, ECON Tech

4 p.m.
Physical and Mathematical Modeling of Residence Time Distribution and Grade Transition in a Twin-Strand Slab Caster Tundish
S. Dinda, D. Li, University of Toronto; F. Guerra, C. Cathcart, Stelco Inc.; M. Barati, University of Toronto

4:30 p.m.
Modeling of the Mixing Phenomena in the RH Vacuum Refining Process
F. Ramstorfer, Ternium Brasil

» Ladle & Secondary Refining/Metallurgy — Steelmaking & Casting: Kent D. Peaslee Memorial Session
Room 410B » Session Chairs: Sunday Abraham, SSAB Iowa Inc.; Bill Jones, U. S. Steel – Granite City Works

2 p.m.
A Possible Reason Why Ti-SULC Grades Are More Prone to CC Clogging Issues Than Other Al-Killed Grades
2:30 p.m.
Different Approaches to Trace the Source of Non-Metallic Inclusions in Steel
K. Thiele, Montanuniversität Leoben; S. Ilié, R. Roessler, voestalpine Stahl GmbH; C. Walkner, T. Meisel, T. Prohaska, S. Michelic, Montanuniversität Leoben

3 p.m.
Kent D. Peaslee Panel Discussion
Panelists:
C. Cathcart, Stelco Inc.
R. O’Malley, Missouri University of Science and Technology
C. Pistorius, Carnegie Mellon University
S. Story, U. S. Steel Research and Technology Center

2:30 p.m.
Developing New Refractories Raw Material for Slidegate Plate

3 p.m.
Use of 3D Laser Scan in RH Degasser to Enhance Refractory Performance Analysis in Critical Areas
R. Araujo, L. Crivellari, B. Calazans de Andrade, W. Moraes, G. de Souza, Ternium Brasil; J. Macedo, B. Laidens, G. Coimbra, L. Martins, RHI Magnesita

2:30 p.m.
The Study of the Behavior of CaO-SiO2-Al2O3-Na2O-Based Mold Flux in 1,400°C by a Fiber-Optic Raman Sensor

4 p.m.
Impact of Mold Fluxes on Slab Quality Visualized at the Scarfing Process With Automatic Surface Inspection System
M. Campos, Vesuvius; H. Hannu Suopajärvi, Sapotech; H. Tavenier, Vesuvius; R. Madrona, R. Seara, USIMINAS; V. Esteves, M. Miranda, J. Moreira, G. Ribeiro, F. Quinelato, Vesuvius

2 p.m.
Mold Powder Development for High-Al Medium-Carbon Steel Continuous Casting

2:30 p.m.
A Study on Carbon Pickup for ULC Steel Slab Casting
J. Cardoso Ferreira, Calderys; J. Klug, Universidade Federal do Ceará; E. Maranhão, Calderys

3 p.m.
Designing Mold Fluxes to Prevent Longitudinal Cracking for Peritectic Steel Slab Casting
J. Cardoso Ferreira, Calderys; J. Klug, Universidade Federal do Ceará; E. Maranhão, Calderys

3:30 p.m.
Celsa UK Green Steel: Every Degree Counts
B. Hale, Heraeus Electro-Nite Co. LLC; P. Hughes-Narborough, G. Humphrey, Heraeus Electro-Nite (UK) Ltd.; I. Keskin, B. Hale, Heraeus Electro-Nite Co. LLC; S. Simmons, Celsa UK; A. Hernández Rivera, Celsa Spain; S. Nacarino, Heraeus Electro-Nite (UK) Ltd.
3:30 p.m.  
Next-Level Self-Adaptive Unsteady Bulging and Clogging Compensation Using the Mold Influx  
V. Humer, F. Bordas, M. Nolan, P. Wimmer, C. Froehlich, M. Speher, Primetals Technologies

4 p.m.  
Anomaly Detection Using the Isolation Forest Algorithm: Application to Continuous Slab Casting  
F. Ramstorfer, Ternium Brasil

» Hot Sheet Rolling: Quality  
Room 313A » Session Chairs: John Wallace, SES LLC; Bill Remley, Metalworking Lubricants Co.

2 p.m.  
Rectifying a Misinterpretation on Gaugemeter Automatic Gauge Control Model  
Y. Liu, Quad Engineering Inc.

2:30 p.m.  
How to Improve Flatness Condition and Avoid Undulation/Bright Band Defects During Ultrathin Gauges Production in Hot Rolling Process  
M. Abu Mosaed, EZDK

3 p.m.  
How the Virtualized Modernization of a Hot Strip Mill Control System Led to Improved Quality for thyssenkrupp Steel Europe  
K. Gurrath, M. Kurz, Primetals Technologies; A. Schmidt, Primetals Technologies Germany GmbH; K. Loehle, Primetals Technologies; R. Twardowski, thyssenkrupp Steel Europe

3:30 p.m.  
Reduction of Localized Surface Cracks in Nb Microalloyed High-Strength, Low-Alloy Grade During Thin-Slab Rolling Process  
U. Kumar, Y. Krishnan, M. Kumar Singh, S. Suresh, A. Kumar, S. Saini, Tata Steel Ltd.

» Cold Sheet Rolling: Rolling Innovation  
Room 358 » Session Chairs: Nelson Smith, Quaker Houghton; Brian Shaw, ANDRITZ Metals - ASKO

2 p.m.  
Optical Thickness Measurement in Tandem Mill  
E. Roller, Vollmer

2:30 p.m.  
Coolant Demands for Silicon Steel Cold Rolling  
J. Smeulders, Quaker Houghton

3 p.m.  
Maximizing Yield Using Innovation in Automatic Gauge Control for Rolling Mills  
N. Singh, YOGIJI DIGI PVT LTD.; J. Bartlett, JDB Control Technologies; M. Kumar, Digi Drives (P) Ltd.

3:30 p.m.  
Tatmetal Rolling Innovation  

4 p.m.  
6-High Cold Rolling Mill (HYPER UC-MILL) With Smaller Work Roll Diameter for Thin-Gauge Rolling  

» Galvanizing: New Technologies for Galvanizing  
Room 357 » Session Chairs: Joe McDermid, McMaster University; Daniel Baker, General Motors

2 p.m.  
Chemistry and Process Optimization for Operational Robustness in the Production of SS Grade 55 Cold-Rolled Galvanized Sheet Steel  
B. Chen, S. Biswas, S. Bhartiya, C. Martis, Y. Injeti, M. Bishop, A. De, Big River Steel

2:30 p.m.  
Approach to Successful Development of Low-Carbon, Lean-Alloyed Cold-Rolled Galvanized HSLA 550 Sheet Steels  
S. Bhartiya, S. Biswas, B. Chen, C. Martis, V. Injeti, M. Bishop, Big River Steel; A. Araujo, CBMM North America Inc.; A. De, Big River Steel

3 p.m.  
Effect of Zn-Bath Temperature on the Corrosion Behavior of Martensitic Steels 1.4095 and 1.4096 in Comparison to the Ferrite-Free 316  
T. Simon, F. Wischnowski, Kuhn Special Steel

3:30 p.m.  
Arvedi Servola (Italy) and the Production of Sustainable and Green Steel  
M. Svetina, Danieli & C. Officine Meccaniche S.p.A.; W. Donato, Danieli Centro Combustion

4 p.m.  
Color-Coated Purlins Used for Pre-Engineered Buildings  
N. Singh, YOGIJI DIGI PVT Ltd.; D. Khanna, Digi Drives (P) Ltd.

4:30 p.m.  
Production of Aluminized Coated Steels  
K. Bertermann, Fives ST Corp.
» Long Products: Technology Overview & Mill Upgrades

Room 359 » Session Chairs: Ken Hutter, Belden-Hutter Inc.; Christopher Hill, Gerdau Long Steel North America Cartersville Mill

2 p.m.
Commissioning of Intelligent Guides at Nucor Steel Sedalia to Improve Safety, Quality and Reliability
J. Ball, Danielli & C. Officine Meccaniche S.p.A.; C. Hines, Nucor Steel Sedalia LLC; E. Svensson, Morgårdshammar AB

2:30 p.m.
Equipment Technologies for Processing of Long Rolled Products
N. Asamer, BRAUN Maschinenfabrik

3 p.m.
Billet Welding Machine — Latest Development Description and Real Application Results
V. Pomettol, POMINI Long Rolling Mills S.r.l.; G. Tobanelli, Ferriera Valsabbia S.p.A.

3:30 p.m.
AI-Supported Material Simulation of Forming Processes
M. Kruse, Friedrich Kocks GmbH; D. Wehage, GMT Gesellschaft für Metallurgische Technologie-und Softwareentwicklung mbH

» Electrical Applications

Room 313B » Session Chairs: Tim Burtram, Big River Steel; Kevin Bort, TMEIC Corp. Americas; Tom Dionise, Eaton Corp.

2 p.m.
Application of a Less Flammable Ester Liquid in Electrical Arc Furnace Rectifier Transformers
M. Sauer, Charter Steel; J. Malde, MIOEL; A. Coker, M&I Materials Inc.; G. Urso, TAMINI Transformers USA

2:30 p.m.
Grid-Forming Control Functionality for STATCOMs in Steelmaking Applications
J. Rasmussen, C. Elm, Hitachi Energy

3 p.m.
Nucor Steel—Indiana Reversing/Temper Mill Modernization
T. Richards, TMEIC Corp. Americas; D. Reed, Nucor Corp.

3:30 p.m.
Challenges of New-Generation i-MCC System Adoption in the Power and Blowing Station of an Integrated Steel Plant
D. Mishra, K. Srivastava, MECON Ltd.

4 p.m.
Advanced On-Line Electrical Testing in Real Time Aided by Electromagnetic Signature Analysis and Artificial Intelligence Technology
R. Ladroga, AI Advanced Energy Systems USA

» Digitalization Applications: Melting & Casting

Room 310A » Session Chairs: Bertrand Orsal, Dassault Systèmes; Michael Mayer, SMS group Inc.; Liwei Zhang, ArcelorMittal Global R&D – East Chicago

2 p.m.
Optimized Scheduling for Increased Yield in Steel Production
J. Peintinger, Smart Steel Technologies Inc.

2:30 p.m.
Application of Tailored Scheduling Algorithms for Automated Slab Yard Management
M. Ahmed, SMS group GmbH; H. Schnitzler, SMS digital; C. Klein, SMS group GmbH; J. Neuer, SMS digital; F. Adjogble, SMS group Inc.

3 p.m.
Customer Portal — All Information on Contract Performance in One Place
M. Assis, R. Fraga, C. Lamare, C. Saliby, P. Conceição, RHI Magnesita

3:30 p.m.
Digital Twin of a Torpedo Ladle: The Simulated Future
B. Luchini, M. Garcia Campos, P. van Beurden, S. Sinemma, Tata Steel Ijmuiden

4 p.m.
Digital Twin Software for a Continuous Caster
K. Toth, A. Zafar, X. Zhou, R. Zaman, Purdue University Northwest; N. Gregurich, L. Yakovleva, Cleveland-Cliffs Burns Harbor; C. Zhou, Purdue University Northwest

4:30 p.m.
Navigate Your Way Out of the Decarburization Challenge
S. Griesser, qoncept technology GmbH

» Maintenance & Reliability: Analytics Foundation for a Successful Predictive Maintenance Program

Room 356 » Session Chairs: Terry Adams, Cleveland-Cliffs Rockport Works; Michael Sparks, Bently Nevada; Mike Falk, Falk PLI

2 p.m.
Precise Diagnosis With Properly Defined Condition Monitoring and Remote Services Avoiding One Week of Downtime
M. Sparks, C. Dannehy, Bently Nevada

2:30 p.m.
The Importance of Vibrating Screen Monitoring and Preventive Maintenance
M. Honea, Haver & Boecker Niagara
3 p.m.  
**Monitoring and Maintaining Stoichiometric Combustion**  
R. Hardy, A. Bailey, PSNERGY

3:30 p.m.  
**Holistic Predictive Maintenance — IoT and Route-Based Combined**!  
J. Hatfield, HECO

4 p.m.  
**On-Line Failure Detection During Coal Injection by Wavelet Analysis of Pressure Signal**  
B. Deo, P. Pravendra, P. Kaushal, K. Mohit, Indian Institute of Technology – Bhubaneswar; M. Jain, Tata Steel Long Products Ltd.

4:30 p.m.  
**Simplifying the Feedback Supply Chain to Ensure Uptime and Machine Reliability**  
A. Casso, B. Winter, Avtron Encoders

— Material Handling/Transportation & Logistics: Advanced Automation Solutions

Room 353  » Session Chair: Michael Leard, Pannier Corp.

**Wednesday, 10 May » Morning Sessions**

— Safety & Health: Planning & Implementing Safety Into the Working Area II


8 a.m.  
**Frequent and Forgotten: Slips and Falls Are the Biggest Problem Facing Manufacturing**  
J. Baker, SLIPNOT

8:30 a.m.  
**New Brake System for Mechanical Draft Fans to Safely Stop and Lock a Rotor**  
A. Ray, ProcessBarron

9 a.m.  
**Hazard Identification, Risk Safety Perceptions and Safety Climate Among Steel Manufacturing Workers**  
L. Marin, M. Zreiqat, W. Minnick, G. Green, C. Croft, S. Sheredy, B. Wiggins, Indiana University of Pennsylvania

9:30 a.m.  
**Real-Time Legionella Monitoring of Contact and Non-Contact Cooling Systems**  
J. Gleason, Veolia Water Technologies & Solutions

— Environmental: NOx Reduction & Carbon Emission Optimization

Room 355  » Session Chairs: Peter Petrov, Primetals Technologies USA LLC; Ray Tedford, Schust

8 a.m.  
**Innovative Design of High Efficiency, Low NOx Emissions and Decarbonization of Bell Annealing Furnaces**  
S. Brown, Bloom Engineering; C. Messina, RAD-CON Inc.

8:30 a.m.  
**Integrated Production Cost and Carbon Emissions Optimization for Stainless Steelmaking Operation**  
Y. Zhang, N. Nekomeh, S. Shen, S. Ge, M. Tutty, N. Jory, R. Fournier, Hatch

9 a.m.  
**SNCR Experience in an Iron Ore Pellet Plant**  
F. Ferrari, N. Griffini, Redecam Group
9:30 a.m. 
Reduction of Gaseous Emissions by Applying a Spray-Scrubber-Based Process for Cyanide Compound Reduction in Blast Furnace Gas  
A. Olcese, L. Micheletti, L. Spadoni, Paul Wurth Italia S.p.A.; I. Matino, A. Zaccara, A. Petrucciani, V. Colla, T. Annunziata Branca, Scuola Superiore Sant’Anna

**» Decarbonization: Novel Decarbonization Routes**  
Room 330A » Session Chairs: Anderson Morelato, ArcelorMittal; David Marshall, Performance Improvement Inc.

8 a.m.  
Technology Pathways for Decarbonization and Productivity Improvements  
S. Mehrain, Fives; K. Bertermann, Fives ST Corp.

8:30 a.m.  
Green Hydrogen Now Making Steel Industry Commercial Debut  
D. Wolff, Nel Hydrogen

9 a.m.  
Carbon-Free Fully Electrical Soaking Furnace: Step Toward Zero-Carbon Emissions  
A. Biliotti, A. Venanzini, N. Raut, Danieli Centro Combustion

9:30 a.m.  
Improvement of Environmental Protection and Energy Savings by Suitable Material Handling Systems  
M. Moritz, AUMUND Fördertechnik GmbH

**» Ironmaking: Low-CO₂ Iron II**  
331ABC » Session Chairs: Megha Jampani, Hatch Associates Consultants Inc.; Brian Jamieson, ArcelorMittal Dofasco G.P.

8 a.m.  
Fuel Flexible Ironmaking With Reduced CO₂ Emissions  
I. Cox, E. Di Cesare, NSGI Steel Inc.

8:30 a.m.  
A Novel Test Rig for the Evaluation of Auxiliary Reducing Agents (ARAs)  
T. Nanz, K1-MET GmbH; M. Bösenhofer, TU Wien; J. Rieger, K1-MET GmbH; C. Feilmayr, voestalpine Stahl GmbH; F. Hauzenberger, Primetals Technologies Austria GmbH; H. Stocker, voestalpine Stahl Donawitz GmbH; M. Harasek, TU Wien

9 a.m.  
CO₂ Reduction by Combining Methanation With the Blast Furnace  
Y. Kawashiri, JFE Steel; Y. Kashihara, JFE Steel; K. Fukada, JFE Steel

9:30 a.m.  
In-House Pellet Plant Under the Circular Economy Concept  
R. Neiva, L. Teixeira, A. Sampaio, Vallourec Soluções Tubulares do Brasil S.A.; R. Sampaio, RSConsultants Ltda; P. Almeida, Vallourec Soluções Tubulares do Brasil S.A.

**» Direct Reduced Iron: Ore Quality & Use in Blast Furnaces**  
310B » Session Chairs: Juan Cairo, Paralloy Ltd.; Jeremy Jones, Continuous Improvement Experts (CIX Inc.)

8 a.m.  
Case Study of Different Feeds for a Metso Outotec DRI Smelting Furnace  
T. Haimi, Metso Outotec Finland Oy

8:30 a.m.  
Industrial Trial of Recycled Iron Briquettes Produced With Iron Ore Fines and Sludge From Sedimentation Piles in a Direct Reduced Iron Reactor  
E. Bubniak, Diproinduca Canada Ltd.; J. Morales, A. Villa, Tenova HYL; J. Senra, Diproinduca Canada Ltd.

9 a.m.  
From Ore to Steel — Process Simulation, Material Testing and Technology Solutions for Future Challenges  
F. Hauzenberger, Primetals Technologies Austria GmbH; C. Eglauer, H. Baumgartner, B. Hiebl, B. Weiss, R. Millner, Primetals Technologies

9:30 a.m.  
Use of Direct Reduced Iron to Minimize the Fuel Rate and CO₂ Emission in JSW Blast Furnace 2  
M. Nagarajan, JSW Steel Ltd.

**» Electric Steelmaking/Decarbonization**  
Room 330B » Session Chairs: Zane Voss, CIX Inc.; Michael Wilson, Berry Metal Co.

8 a.m.  
Digital Solution for Optimizing Scrap Yard Management  
J. Rodríguez Diez, A. Vicente Rojo, A. Galletebertia, ArcelorMittal Global R&D; R. Jaras, G. Sorrosai, Ikerlan Technology Research Centre; J. Arteche V., A. Lago R., TECNALIA

8:30 a.m.  
Applications of Carbon Sources for Green Steel Using Power Carbon  
B. Maia, Lumar Metals North America; B. Martins Braga, L. Moreira Duarte, M. Lima Guerra, P. Hopperdizel, T. Wandekoken, Lumar Metals
9 a.m. **Use of Green Pig Iron in the Electric Arc Furnace**
P. Machado, S. Pinheiro, D. Santiago, Vallourec

9:30 a.m. **The Decarbonization of Reheating Furnaces: A Stepwise Approach**
A. Della Rocca, D. Astesiano, C. Leoncini, M. Roveda, Tenova

**Electric Steelmaking: Automation/Neural Networking Systems**

Room 320  »  Session Chairs: Rob Strain, Nu-Core Inc.; Jerry Castleman, Sangraf International

8 a.m. **Instrumented Trial-Based Models for Efficient Electric Arc Furnace Operation**
B. Konar, N. Sundaresan Ramesh, A. Hamilton, K. Dunnett, EVRAZ North America

8:30 a.m. **High Level Integration of Power Electronic Controls & Smart Algorithms to Upgrade DC Furnace Rectifiers**
J. Haros, B. Sainz, R. Villarreal, G. Castillón, AMI Automation

9 a.m. **Dynamic Process Control and Optimization of an Electric Arc Furnace**
A. Rohrhofer, H. Aflenzer, T. Reindl, Primetals Technologies

9:30 a.m. **AMI Artificial Intelligence Application for EAF Operations**
E. Placier, M. Viale, R. Rosales, AMI Automation

**Specialty Alloy & Foundry/Metallurgy — Processing, Products & Applications**

Room 311AB  »  Session Chairs: Richard Smith, Carpenter Technology Corp.; Paliava Kaushik, ArcelorMittal Global R&D – East Chicago

8 a.m. **Casting Configuration Development for Improved Performance Solutions of Walking Beam Furnace Components**
T. Ros-Yanez, Cleveland-Cliffs Research & Innovation Center; E. Scotuzzi, Fai-Ftc S.p.a.; J. Martin, B. Felton, Cleveland-Cliffs Burns Harbor; F. Prandi, Fai-Ftc S.p.a.; B. Shaw, ANDRITZ Metals - ASKO

8:30 a.m. **Control of MnS Inclusion Aspect Ratio in Leaded Free-Cutting Steels**
S. Jayaraj, V. R, M. Iqbal, S. Manjini, JSW Steel Ltd. – Salem Works

**Continuous Casting: Caster Secondary Cooling**

Room 312AB  »  Session Chairs: Rick Besich, Cleveland-Cliffs Indiana Harbor; Ron Bohna, Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division

8 a.m. **New Approach to Optimize the Continuous Casting Process at the Zero Zone and Reduce Operation Costs**
J. Maquinghen, C. Zhang, A. Rangel, Ecolab

8:30 a.m. **SKF X-Finish Extends Bearing Service Life in Continuous Casters**
R. Loughery, SKF

9 a.m. **Is It Possible to Cast Bloom and Beam Blanks With the Same Secondary Cooling Setup?**
D. Fatima Gomes, Universidade Federal de Minas Gerais; B. Martins Braga, Lumar Metals; R. Parreiras Tavares, M. Covcevich Bagatini, C. Berlini Filho, Universidade Federal de Minas Gerais; G. Pereira Maciel, Universidade Federal de Ouro Preto

**Hot Sheet Rolling: Maintenance & Reliability and Continuous Casting**

Room 313A  »  Session Chairs: Matt Druciak, Tenova Inc.; Ken Hutter, Belden-Hutter Inc.

8 a.m. **Effect of Water Jet Nozzle Lead Angle on Descaling Efficiency**
T. Ojiako, V. Athavale, Missouri University of Science and Technology; R. Osei, Steel Dynamics Inc.; T. Tayebali, O. Sasso, Spraying Systems Co.; M. Buchely, L. Bartlett, S. Lekakh, R. O’Malley, Missouri University of Science and Technology

8:30 a.m. **Reliability Case Study: Supporting One of the World’s Most Advanced Flat Carbon Rolled Steel Facilities With Asset Strategy Optimization**
D. Robey, Nexus Global Business Solutions Inc.; D. Thurston, AM/NS Calvert LLC

9 a.m. **Strip Steering Control in a Hot Strip Mill as a Key Feature for Safe and Stable Production**
K. Loehe, Primetals Technologies; S. Kallabis, N. Petrash, thyssenkrupp Steel Europe; A. Maierhofer, Primetals Technologies

9:30 a.m. **Cladded Downcoiler Pinch Rolls: New Alloys and Improvements Achieved**
M. Zawadzki, Danieli & C. Officine Meccaniche S.p.A.
**Galvanizing: New Processing Technologies for Galvanizing**

*Room 357*  
**Session Chairs:** Joe McDermid, McMaster University; Bill Lucas, Fives ST

8 a.m.  
**Automatic Strip Processing Line Control Based on Predictive Modeling by Linking Process and Metallurgy on a Real-Time Basis**  
D. Barbier, Fives Keods

8:30 a.m.  
**Redundant Strip Temperature Measurements on a Continuous Galvanizing Line**  
R. Comstock, K. Ward, J. Niedringhaus, Cleveland-Cliffs Inc.

9 a.m.  
**Laser Ultrasonic Inspection of Mash Seam Welds in a Steel Mill**  
M. Hiraiwa, Tecnar Automation Ltée; H. Guo, Cleveland-Cliffs Inc.; A. Nadeau, Tecnar Automation Ltée; A. Grasley, M. Stautz, Cleveland-Cliffs Inc.

**Pipe & Tube: Product & Quality Development in Pipe & Tube**

*Room 358*  
**Session Chairs:** Allen Schaneman, Nucor Steel–Arkansas; David Johnson, Paragon Industries Inc.

8 a.m.  
**Understanding How Large Inclusions Ended Up Near the Heat-Affected Zone of a Spiral-Welded Pipe**  
H. Yin, ArcelorMittal

8:30 a.m.  
**Production of X70 Helical Line Pipe With Increased Gauge**  
M. Gaudet, J. Su, M. Rashid, K. Dunnett, M. Arafif, EVRAZ North America

**Digitalization Applications: AI & Machine Learning III**

*Room 310A*  
**Session Chairs:** Brad Morgan, Nucor Steel–Arkansas; Logan Kraus, SORBA.ai

8 a.m.  
**AI/ML Modeling Using Metals Industry Domain Knowledge**  
F. Adjogble, H. Chinoy, SMS group Inc.

8:30 a.m.  
**Digital Transformation: System and Data Architecture as the Backbone for AI/ML in the Metals Industry**  
F. Adjogble, S. Parvathaneni, J. Lenox, SMS group Inc.

9 a.m.  
**Industrial AI, From Myth to Commodity**  
L. Van Nerom, R. Jäger, PSI Metals GmbH

**Sensors: Laser Sensors for Steel Production**

*Room 313B*  
**Session Chairs:** Mo Ahmed, Schneider Electric; Santino Keusemann, Kocks Measure + Inspect GmbH & Co. KG

8 a.m.  
**Non-Contact Laser Sensor Suitability for Steel Production**  
S. Lubeck, Laser-View Technologies

8:30 a.m.  
**Increasing Sustainability Through Process Optimization With the Aid of Laser Surface Velocimeters**  
R. Bodamer, Polytec GmbH; P. Nawfel, Polytec Inc.

9 a.m.  
**Facilitating the Operator’s Life: How Computer Vision-Based Digital Assistants Can Improve Plant Production**  
J. Frenzel, tyssenkrupp Hohenlimburg GmbH; C. Horn, Primetals Technologies Germany GmbH; M. Kerschensteiner, Primetals Technologies; K. Knothe, thyssenkrupp
Maintenance & Reliability: Innovation in Plant Monitoring & Reliability

Room 356 » Session Chairs: David Bussell, Sidock Group Inc.; Rachel Schmidt, Hydro Inc.; Tim-Oliver Mattern, Carl Bechem GmbH

8 a.m. New, Reliable Plant Supervising System Reduces Unplanned Downtime and Eases the Plant Service
A. Haschke, A. Maierhofer, Primetals Technologies

8:30 a.m. An Innovative Approach to Plant and Process Supervision in Steelmaking Plants
M. Ometto, Danieli Automation S.p.A.

Material Handling/Transportation & Logistics: Understanding Supply Chains & Systems

Room 353 » Session Chair: Jagannathan Rajagopalan, Pesmel South Asia

8 a.m. How Portable, Inclined Vibrating Screen Plants Boost an Aggregates Operation’s Productivity and Profits
D. High, Haver & Boecker Niagara

8:30 a.m. Different Supply Chain Routes and Economics for Steel and Iron Alloy Raw Materials
C. Tumazos, Strategic Point Partners LLC

9:30 a.m. The Modular Coil Shuttle System — A 10-Year Review of Safe and Efficient Coil Handling
L. Pichler, R. Hofer, C. Salzmann, Primetals Technologies

9 a.m. The Next Generation of Steel Coil Conveying System
F. Wei, Shougang Group China

Hohenlimburg GmbH; A. Thekale, D. Wassermann, Primetals Technologies Germany GmbH