



STEEL'S PREMIER TECHNOLOGY EVENT

AISTech[®] & ICSTI

4-7 MAY 2015
CLEVELAND CONVENTION CENTER
CLEVELAND, OHIO, USA



See page 215 for
more information.

AISTech[®]
& ICSTI **TRUCK GIVEAWAY**

Today's **Challenges.** Tomorrow's **Opportunities.**



AISTech[®] & ICSTI

The World's Largest Annual
Steel Conference and Exposition

TECHNICAL CONFERENCE

550+ Presentations

Learn about cutting-edge processes and technological
advancements that power today's progressive industry.

Plant Tours



See the latest technology and industry processes up close with tours of:

- ArcelorMittal Cleveland **SOLD OUT**
- Charter Steel – Cleveland
- TimkenSteel Corp. – Faircrest Plant

Plant tours typically sell out, so reserve your spot early.



Register by 13 April 2015
and save up to US\$100 on
full conference or one-day
registration.

REGISTRATION

Full Conference Member **US\$650**
Non-Member **US\$850***

One-Day Conference Member **US\$475**
Non-Member **US\$675***

Exposition Only Member **FREE**
Non-Member **US\$50**

**Includes AIST membership*

EXPOSITION

500+ Exhibitors

With 245,000 sq. ft. (22,760 m²) of exhibit space, AISTech 2015 is your opportunity to develop your contacts and promote your business with the individuals who specify, purchase, design and operate a variety of plants and facilities all over the world. Contact sales@aist.org to reserve your exhibit space and sponsorships today.



Lodging

AIST has reserved a block of rooms at several hotels in downtown Cleveland. We strongly encourage you to reserve your hotel room well in advance. *The block sells out quickly!*
Reserve your room today at AISTech.org.

NETWORK

8,000 Global Industry Professionals

Strengthen your network by interacting with your steel industry peers during AISTech's numerous events, programs and exposition.



Visas

AIST provides letters of invitation to registered international attendees and exhibitors. Visit the Housing & Travel page at AISTech.org to request a letter of invitation.

ICSTI 2015

The 7th International Congress on the Science and Technology of Ironmaking

ICSTI 2015 will be co-located with AISTech 2015 and will provide an opportunity for attendees to learn about and debate essential issues and challenges in ironmaking.



EXPO HOURS

Monday, 4 May

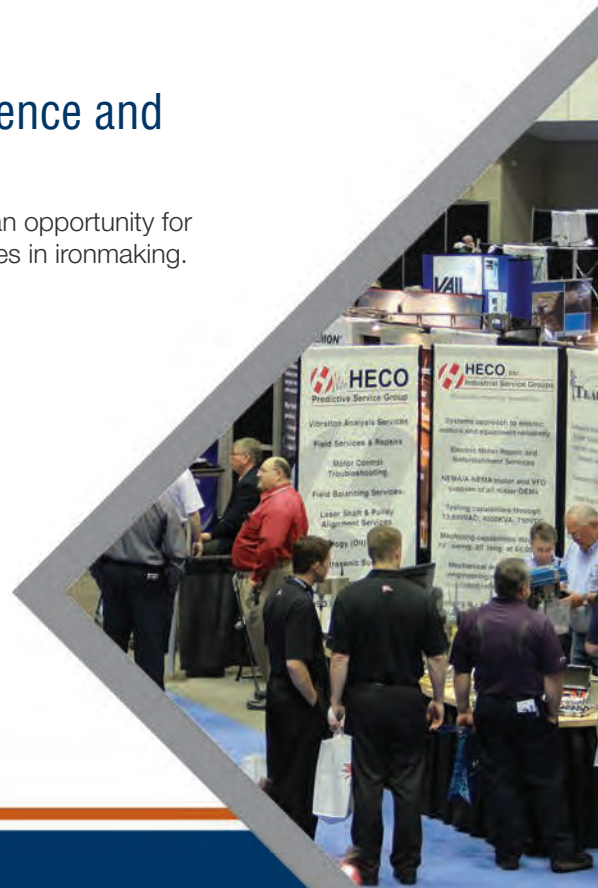
Show Floor: **9 a.m.–6 p.m.**
Welcome Reception: **5–6 p.m.**

Tuesday, 5 May

Show Floor: **9:30 a.m.–6 p.m.**
Reception: **5–6 p.m.**

Wednesday, 6 May

Show Floor: **11 a.m.–3 p.m.**

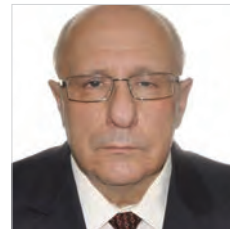


#AISTech

HOWE MEMORIAL LECTURE

Monday, 4 May • 8–9 a.m.

The Howe Memorial Lecture was established in 1923 to honor Henry Marion Howe, who helped turn steelmaking from an art into a science with his gift of observation and deduction. The lecturer is selected in recognition of outstanding individual contributions to the science and practice of iron and steel metallurgy or metallography. The 2015 Howe Memorial Lecturer is **Dr. Yakov Gordon**, technical director, ironmaking, Iron and Steel Business Unit, Hatch Ltd. His lecture is titled “The Role of Engineering Consultancy in the Transformation of a Technology Idea to a Working Process Plant.” The Howe Memorial Lecture is open to all attendees.



 **HATCH™**

PRESIDENT'S AWARD BREAKFAST

Tuesday, 5 May • 8–9:45 a.m.

Recognizing steel industry excellence, the President's Award Breakfast program will consist of the presentation of prestigious Board of Directors Awards, including AIST's Steelmaker of the Year, followed by a keynote presentation by **Lourenco Goncalves**, chairman, president and chief executive officer, Cliffs Natural Resources Inc. His lecture is titled “Global Iron and Steel Outlook.”

The breakfast will be held on Tuesday, 5 May 2015 from 8 to 9:45 a.m. Tickets can be purchased when you register for AISTech. Advance single tickets are US\$40, and a table of 10 is US\$350.



 **CLIFFS**

TOWN HALL FORUM

Wednesday, 6 May • 8:30–11:15 a.m.

The Town Hall Forum provides an insider's view into today's business climate from the people who know: a panel of respected leaders from some of the steel industry's best-regarded companies. The Town Hall Forum's moderated discussion format gives attendees a deeper understanding of the factors that help determine the direction of not just an individual company, but also the greater steel industry.

The Town Hall Forum is open to all exhibitors, students, all full conference registrants and those who have purchased a one-day conference registration for Wednesday, 6 May 2015.

PLANT TOURS

Thursday, 7 May

ArcelorMittal Cleveland • 7:30 a.m.–Noon *Sold Out!*



ArcelorMittal

ArcelorMittal Cleveland is recognized as one of the most productive integrated steelmaking facilities in the world, producing one ton of steel for slightly more than one worker hour. Part of the world's leading steel and mining company, the Cleveland facility is the company's third largest in the United States. The plant operates two blast furnaces that can feed two steelmaking facilities capable of producing 3.8 million tons of raw steel annually. In recent years, ArcelorMittal Cleveland has become a global center of excellence in producing advanced high-strength steel for the automotive industry. Products made at this location are hot rolled, cold rolled and hot-dip galvanized sheet and semi-finished (slabs). Markets this plant serves include automotive, service centers, converters, plate slabs and tubular applications.

Charter Steel – Cleveland • 7:30 a.m.–Noon



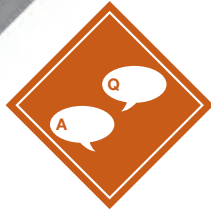
Charter Steel is a producer of high-quality carbon and alloy steel rod, bar and wire. It has melting, rolling and processing facilities located in Wisconsin and Ohio. The company employs a high-service model and continuous improvement to serve customers in mobile and construction-related industries. Charter Steel's Ohio melting and rolling facilities are located in Cuyahoga Heights, Ohio, USA. This site utilizes state-of-the-art technology in equipment and manufacturing systems to optimize steel cleanliness, precision rolling tolerances and coil handling. This has allowed Charter Steel to provide customers a superior product that can be utilized in the most demanding of applications.

TimkenSteel Corp. – Faircrest Plant • 7:30 a.m.–2 p.m.



TimkenSteel creates tailored steel products and services for demanding applications, helping customers push the bounds of what's possible within their industries.

The company reaches around the world in its customers' products and leads North America in large alloy steel bars and seamless mechanical tubing made of its special bar quality steel, as well as supply chain and steel services. At the Faircrest Plant, TimkenSteel develops some of the strongest alloy steels in the world. The plant's new jumbo bloom vertical caster is the biggest continuous vertical bloom caster globally and the only one of its kind in North America. The caster uses an optimized tundish design and advanced clean steelmaking technology to help create answers to customers' toughest engineering challenges.



TOWN HALL FORUM

Wednesday, 6 May • 8:30–11:15 a.m.

The Town Hall Forum is open to all exhibitors, students, all full conference registrants and those who have purchased a one-day conference registration for Wednesday, 6 May 2015.

2015 Panelists



Andrew Harshaw
president and CEO,
ArcelorMittal USA



George J. Koenig
president, **Berry Metal Co.**



Michael D. Lee
vice president and
general manager, **Nucor Steel-Decatur LLC**



David J. Rintoul
senior vice president
— Tubular Business,
United States Steel Corporation



Richard P. Teets Jr.
president and chief
operating officer — Steel
Operations, executive
vice president, **Steel Dynamics Inc.**



STEEL 2015:

Building, Innovating, Growing

Topics will include:

Workforce Development

- How does your company motivate its employees?
- Are we losing out to other industries when recruiting new talent?
- With an improved safety culture, why are fatalities on the rise?

Production Advancements

- Has the hype of natural gas and the DRI process delivered, or is it too soon to tell?
- Tell us about your latest technological R&D successes.
- Does your company work to develop new applications for steel?

Market Development

- How are low oil and natural gas markets impacting steel demand?
- Has the construction market returned to normal yet?
- How stiff is steel's competition with other materials?

Regulatory Issues

- How have record-level steel imports into the U.S. affected your company?
- Does your company place a high value on public advocacy?
- Do you perceive an anti-heavy-industry sentiment in the U.S. government?





Sold Out!

2015 GOLF CLASSIC

Sunday, 3 May

Firestone Country Club

Situated on the outskirts of Akron, Ohio, Firestone Country Club has the finest golf of any private club in the country. The challenging courses and friendly and professional staff create the ultimate golf experience.

The AIST Foundation outing will be held on two courses.

THANK YOU SPONSORS!

Corporate Sponsors



SCHEDULE

Registration, Practice
and Lunch

Noon–1 p.m.

Golf

1–6 p.m.

Dinner and Prizes

6–7 p.m.

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- S&B Industrial Minerals
- Graycor

Tee and Green Sponsors

- Missouri Refractories
- Magneco/Metrel
- SMS group
- Stevens Engineering & Constructors
- MMFX Steel Corp.
- Tube City IMS LLC

Become a Sponsor!

Contact Lori Wharrey at lwharrey@aist.org or +1.724.814.3044.

SCHEDULE OF EVENTS

Sunday, 3 May

Golf Registration, Practice, Lunch	Noon–1 p.m.
Student Plant Tour	Noon–4 p.m.
Technical Program	1–4 p.m.
Young Professionals' Plant Tour	1–4 p.m.
Conference Registration	Noon–5 p.m.
AIST Foundation Golf Classic	1–7 p.m.
Young Professionals' Reception <i>(by invitation)</i>	5–6 p.m.

Monday, 4 May

Author/Chair Breakfast	7–8 a.m.
Conference Registration	7:30 a.m.–5 p.m.
Howe Memorial Lecture	8–9 a.m.
Exhibit Floor Open	9 a.m.–6 p.m.
AIST Service Center Open	9 a.m.–6 p.m.
Graduate Student Poster Contest Display	9 a.m.–6 p.m.
Undergraduate Student Project Presentation Contest	9:30–11:30 a.m.
Technical Sessions	9:30–Noon
University-Industry Relations Roundtable	11:30 a.m.–1:45 p.m.
Technology Committee Meetings	Noon–2 p.m.
Technical Sessions	2–5 p.m.
AIST Welcome Reception — Exhibit Hall	5–6 p.m.
Steel to Students Reception	6–8 p.m.

Tuesday, 5 May

Author/Chair Breakfast	7–8 a.m.
President's Award Breakfast	8–9:45 a.m.
Conference Registration	8:30 a.m.–5 p.m.
Exhibit Floor Open	9:30 a.m.–6 p.m.
AIST Service Center Open	9:30 a.m.–6 p.m.
Technical Sessions	10 a.m.–Noon
Exhibit Hall Lunch	11:30 a.m.–1:30 p.m.
Technology Committee Meetings	Noon–2 p.m.
Technical Sessions	2–5 p.m.
Reception — Exhibit Hall	5–6 p.m.

Wednesday, 6 May

Author/Chair Breakfast	7–8 a.m.
Conference Registration	7:30 a.m.–2 p.m.
Town Hall Forum	8:30–11:15 a.m.
Exhibit Floor Open	11 a.m.–3 p.m.
AIST Service Center Open	11 a.m.–3 p.m.
Town Hall Lunch — Exhibit Hall	11:30 a.m.–1:30 p.m.
Vehicle Giveaway — Exhibit Hall	11:45 a.m.
Technology Committee Meetings	Noon–2 p.m.
Exhibitor Committee Meeting	1–2 p.m.
Technical Sessions	2–5 p.m.
AIST Prize Drawings	2:30–2:45 p.m.

Thursday, 7 May

Plant Tour of ArcelorMittal Cleveland	7:30 a.m.–Noon
Plant Tour of Charter Steel – Cleveland	7:30 a.m.–Noon
Plant Tour of TimkenSteel Corp. – Faircrest Plant	7:30 a.m.–2 p.m.

The AISTech schedule of events is subject to change.





HOUSING

To take advantage of the AISTech convention rates, be sure to book your reservation by 1 April 2015. After 1 April, changes can be made only to existing reservations.

- | | | | |
|--|--|--|---|
| 1. Cleveland Marriott Downtown at Key Center
127 Public Square
US\$189 | 5. Wyndham Cleveland at Playhouse Square
1260 Euclid Ave.
US\$159 | 9. Residence Inn Cleveland Downtown
527 Prospect Ave.
US\$179 SOLD OUT | 13. Aloft Cleveland Downtown
1111 W. 10th St.
US\$169 SOLD OUT |
| 2. Renaissance Cleveland Hotel
24 Public Square
US\$184 | 6. Hampton Inn Downtown Cleveland
1460 E. Ninth St.
US\$159 | 10. Holiday Inn Express Cleveland Downtown
629 Euclid Ave.
US\$169 SOLD OUT | 14. Cleveland Airport Marriott
4277 W. 150th St.
US\$149 |
| 3. Hyatt Regency Cleveland at the Arcade
420 Superior Ave. E
US\$184 | 7. The Westin Cleveland Downtown
777 St. Clair Ave. NE
US\$179 | 11. The Ritz Carlton Cleveland
1515 W. Third St.
US\$219 SOLD OUT | 15. Sheraton Cleveland Airport
5300 Riverside Dr.
US\$149 |
| 4. DoubleTree Cleveland Downtown – Lakeside
1111 Lakeside Ave. E
US\$135 SOLD OUT | 8. Radisson Hotel Gateway
651 Huron Road E
US\$129 SOLD OUT | 12. Hilton Garden Inn
1100 Carnegie Ave.
US\$139 | |



◆ CLEVELAND CONVENTION CENTER
300 Lakeside Ave.

P Parking

Empower Young Professionals With a FREE Year of AIST Membership

To support the iron and steel industry of tomorrow, we must get young professionals involved and engaged in all that AIST has to offer. Encourage anyone age 30 and under to take advantage of a free year of 2015 AIST membership.



Membership in AIST provides:

- Opportunities to network and meet with your peers.
- Annual subscription to *Iron & Steel Technology*.
- Free access to the AIST Digital Library, which includes nearly 10,000 technical papers and articles, conference proceedings, *Iron & Steel Technology* articles, industry roundups and industry statistics.
- Access to 29 Technology Committees.
- Regional network of 22 AIST Member Chapters.
- 91 Student Chapters at universities and colleges.
- Discounted registration for conferences, expositions and Specialty Training Conferences.
- Discounted AIST publications in our online Bookstore.
- Free access to Steel News and the AIST Buyer's Guide.

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Offer valid exclusively for new AIST members and can be redeemed only once. Membership valid through 31 December of current calendar year.





Awards

The following AIST Board of Directors Awards will be presented at the President's Award Breakfast on 5 May 2015.

2015 AIST Hunt-Kelly Outstanding Paper Award

First Place — “Stopper Rod Dithering Trials at ArcelorMittal Dofasco’s No. 1 Continuous Caster”



Stephen D. Chung
ArcelorMittal Dofasco Inc.



Joydeep Sengupta
ArcelorMittal Dofasco Inc.



Mehrnoosh Afnan-Alaie
ArcelorMittal Dofasco Inc.

Second Place — “An Overview of Steel Cleanliness From an Industry Perspective”



Eugene B. Pretorius
Nucor Steel–Berkeley



Helmut G. Oltmann
Nucor Steel–Berkeley



Brian T. Schart
Nucor Steel–Berkeley

Third Place — “Advanced Blowing and Stirring Conditions in the BOF Process”



Hans-Jürgen Odenthal
SMS Siemag AG



Pavlo Grygorov
SMS Siemag AG



Markus Reifferscheid
SMS Siemag AG



Jochen Schlüter
SMS Siemag AG



2015 AIST Benjamin F. Fairless Award (AIME)

Lawrence J. Heaslip
Interflow Techserv Inc.



2015 AIST John F. Elliott Lecturer

Richard C. Sussman
Enhanced Technology Service LLC



2015 AIST Tadeusz Sendzimir Memorial Medal

Frank L. Kemeny
Nupro Corp. and Nuflux LLC



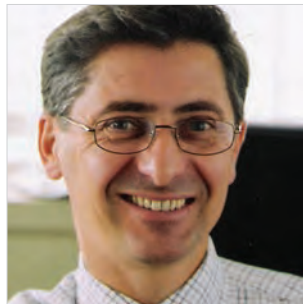
2015 AIST Distinguished Member and Fellow

Kenneth E. Blazek
ArcelorMittal Global R&D



2015 AIST Distinguished Member and Fellow

Anthony R. Bridge
Chester Engineers



2015 AIST Distinguished Member and Fellow

Bruno C. DeCooman
Pohang University of Science and Technology



2015 AIST Distinguished Member and Fellow

Andrew S. Harshaw
ArcelorMittal USA



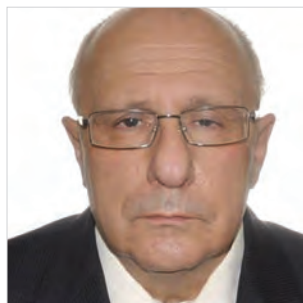
2015 AIST Steelmaker of the Year

Mario Longhi
United States Steel Corporation



2015 AIST William T. Hogan, S.J. Lecture Award

Lourenco Goncalves
Cliffs Natural Resources Inc.



2015 AIST Howe Memorial Lecture Award

Yakov Gordon
Hatch Ltd.



Technical Program

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Hold **AISTech** In the **PALM OF YOUR HAND**



SCHEDULE

Customize your agenda by choosing which sessions you want to attend based on your technical interest.



DISCOVER

Locate booths on the interactive floor plan, and download a personalized walking map.



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Add your voice to the #AISTech conversation on social media sites.



EXPERIENCE

Tap into local information and get AISTech updates and news in real time.





Preliminary Technical Program

Sunday, 3 May 2015 ICSTI Opening Plenary Session

1 p.m. — Ironmaking/ICSTI — Ironmaking Across the Globe Rooms 26B/26C

Session Chairs: Pinakin Chaubal, ArcelorMittal Steel; Mike Riley, Praxair Inc.; Conrad Fisher, Steel Dynamics Inc.

1 p.m. Ironmaking in North America

L. Lherbier, United States Steel Corporation; J. Ricketts, ArcelorMittal

1:30 p.m. Developments in Ironmaking in South America

J. Ribeiro de Oliveira, F. Domelas, E. Santos, J. Faria, E. Harano, ArcelorMittal

2 p.m. Current Status and Future Perspective of Japanese Ironmaking Technology for Environmental Solution

K. Saito, Y. Kurita, Nippon Steel & Sumitomo Metal Corp.

2:30 p.m. The Past, the Present and the Prospects of Ironmaking in China

X. Bi, Wuhan University of Science and Technology; S. Zhang, Wuhan Iron & Steel Co. Ltd.

3 p.m. Ironmaking in Western Europe

H. Lungen, Steel Institute VDEh; M. Peters, P. Schmöle, ThyssenKrupp Steel Europe AG

Monday, 4 May 2015 Morning Sessions

9:30 a.m. — Cokemaking/ICSTI — Coke Oven Battery Construction & State-of-the-Art Technology in Cokemaking Room 21

Session Chairs: Wehnua Zheng, ACRE; Rob Carlin, DTE Energy Services; John Angsman, Wingate Alloys

9:30 a.m. Construction and Operation of NSSMC Kashima 1E Coke Oven Battery

S. Ishikawa, K. Suzuki, H. Kunimasa, Y. Komai, R. Iki, Nippon Steel & Sumitomo Metal Corp.

10 a.m. Recent Experience in Commissioning Two Full Sets of Coke Oven Machines: Plant Features and Project Organization

A. Molinari, D. Zarcone, Paul Wurth Italia S.p.A.; K. Nowitzki, Schalker Eisenhütte Maschinenfabrik GmbH

Plenary Session

Howe Memorial Lecture

Monday, 4 May 2015
8–9 a.m.



Gordon

Role of Engineering
Consultancy in the
Transformation of a
Technology Idea to
a Working Process
Plant

Y. Gordon, HATCH Ltd.

Paper titles, authors and company names are confirmed as of 13 February 2015. The full AISTech 2015 program, including abstracts, is available online at AISTech.org.

The AISTech technical program is arranged according to the structure of the AIST Technology Divisions and Technology Committees.

More  Online

AISTech 2015 will host ICSTI 2015 — The 7th International Congress on the Science and Technology of Ironmaking. ICSTI provides an opportunity to learn about and debate the essential issues and challenges in ironmaking today.

Monday, 4 May • Morning**10:30 a.m.****Cokemaking:** PT Krakatau POSCO's Gas Treatment Plant in Cilegon, Indonesia*F. Cerutti, A. Esposito, Paul Wurth Italia S.p.A.; B. Otten, M. Petzsch, DMT GmbH & Co. KG***11 a.m.****Criteria to Evaluate Cokemaking Strategy for an Integrated Steel Plant***Y. Gordon, J. Busser, I. Cameron, HATCH Ltd.***11:30 a.m.****Automation of Coke Oven Batteries at Hyundai Steel in Korea***M. Schulz, K. Leuchtmann, ThyssenKrupp Industrial Solutions AG; C. Jin Hyung, K. Yong Mook, Hyundai Steel Co.***9:30 a.m. — Ironmaking/ICSTI — Ironmaking Modeling I — Prediction & Control
Room 23***Session Chairs: Kazuya Kunitomo, Kyushu University; Chenn Zhou, Purdue University Calumet; Keqian Liu, U. S. Steel Research and Technology Center***9:30 a.m.****Stable Blast Furnace Operation by the Application of Predictive Process Models***J. van der Stel, Tata Steel R&D; H. Jak, Tata Steel Mainland Europe; T. Bell, Tata Steel Long Products; J. Raleigh, Tata Steel Strip UK; T. Peeters, K. Andreev, Tata Steel R&D***10 a.m.****Analysis of Transient Processes in Blast Furnace***Y. Gordon, HATCH Ltd.; N. Spirin, V. Shvidkii, Y. Yaroshenko, B. Bokovikov, V. Moikin, Ural Federal University***10:30 a.m.****Development of Visualizing System of Blast Furnace Operation and Operational Application***A. Inayoshi, S. Matsuzaki, M. Ito, Nippon Steel & Sumitomo Metal Corp.***11 a.m.****Improvement of Blast Furnace Performance by Applying a High-Efficiency Expert System***X. Bi, P. Li, J. Zhou, W. Peng, Wuhan University of Science and Technology; K. He, S. Zhong, Shaogang Iron and Steel Group Co. Ltd.; X. Zhong, Kunlun Information Science and Technology Co.; D. Bai, W. Pan, K. Liu, Shaogang Iron and Steel Group Co. Ltd.***11:30 a.m.****General Mathematical Model of Adjusting Blast Volume of Blast Furnace Tuyeres***Y. Li, S. Cheng, University of Science & Technology Beijing; J. Gao, Jiuquan Iron & Steel (Group) Co. Ltd.; C. Chen, University of Science & Technology Beijing***9:30 a.m. — Ironmaking/ICSTI — Blast Furnace Operations I — Campaign Life & Productivity
Room 25B***Session Chairs: Charles McGovern, ArcelorMittal Burns Harbor; Trevor Shellhammer, Shellhammer Consulting; Oscar Lingiardi, Ternium Siderar***9:30 a.m.****ArcelorMittal Tubarão BF No. 1 First Campaign: Historical Results, Main Issues on Its Reline, Technological Updates, First Results of Second Campaign and Perspectives***C. da Costa, E. de Souza Belonia Filho, L. Wasem, E. Ribeiro, S. Pinto Jr, ArcelorMittal Tubarão***10 a.m.****Cleveland No. 6 Blast Furnace Hearth Campaign Extension***F. Huang, M. Andrade, O. Hassen, ArcelorMittal USA; P. Pergi, ArcelorMittal; D. Cronin, ArcelorMittal Steel***10:30 a.m.****AHMSA Blast Furnace No 5: Running the Third Campaign With an Accumulated 40 Million Tons of Hot Metal and a High Productivity***L. Castro, G. Perches, J. Villarreal, AHMSA; W. Teubl, BFT Blast Furnace Technical Assistance; J. Bortoni, AHMSA***11 a.m.****Longevity Technology Research and Practice of Baosteel No. 3 BF***R. Zhu, G. Sun, C. Lin, Baoshan Iron and Steel Co. Ltd.***11:30 a.m.****Operating Experiences at JSPL, BF-II (India) — Achieving Higher Performance Indicators With Inferior Raw Materials***H. Upadhyay, A. Bhagat, Jindal Steel & Power Ltd.***9:30 a.m. — Ironmaking/ICSTI — Sintering I
Room 25C***Session Chairs: Hugh Crosmun, Carmeuse Lime & Stone Inc.; Bernard Vanderhayden, CRM group; Enrique Somolinos, Pasek Minerals***9:30 a.m.****Chemistry, Structure and Quality of Iron Ore Sinter***L. Lu, CSIRO Mineral Resources Flagship***10 a.m.****Influence of Fluidity of Liquid Phase of Iron Ore on Sintering Indexes***B. Su, S. Wu, G. Zhang, Z. Que, T. Song, H. Xue, University of Science & Technology Beijing*

Monday, 4 May • Morning

10:30 a.m.

Use of Halide Solution to Improve the RDI and RI of Sinter: An Experience at JSPL

S. Srivastava, B. Badhadra, D. Ray, M. Raghuwanshi, Jindal Steel & Power Ltd.

11 a.m.

The Practice of Putting No. 4 Sintering Machine Into Production at Baosteel

L. Ma, X. Wang, Baoshan Iron and Steel Co. Ltd.

11:30 a.m.

Liquidus Composition on the FeOx-Rich Side of the FeOx-CaO-SiO₂

Y. Katahira, M. Hayashi, T. Watanabe, Tokyo Institute of Technology

9:30 a.m. — Ironmaking/ICSTI — Direct Reduction Ironmaking I — Use & Value of DRI
Room 26A

Session Chairs: Narayan Govindaswami; Henry Gaines, Midrex Technologies Inc.; Atilio Guillermo Graziutti, Tenaris-Siderca

9:30 a.m.

Economics and Value-in-Use of DRI in the USA

A. Manenti, Tenova Core

10 a.m.

DRI Processing With Blast Furnace, EAF or Jet Process — A Comprehensive Overview

G. Wimmer, W. Sterrer, K. Pastucha, Primetals Technologies

10:30 a.m.

Strategies for Implementing Direct Reduction Technologies in an Integrated Steel Plant

I. Cameron, N. Patel, Y. Gordon, HATCH Ltd.

11 a.m.

Characteristics of Hot, High-Carbon DRI: ENERGIRON Results and Performances in Operating Plants

A. Martinis, Danieli Centro Metallics

9:30 a.m. — Ironmaking/ICSTI — Ironmaking Raw Materials I
Room 26B

Session Chairs: Dennis Lu, ArcelorMittal Global R&D – East Chicago; Timothy Eisele, Michigan Technological University

9:30 a.m.

Trends in Ironmaking Given the New Reality of Iron Ore and Coal Resources

J. Noldin Jr., Lhoist; P. Schmöle, ThyssenKrupp Steel Europe AG; H. Längen, Steel Institute VDEh

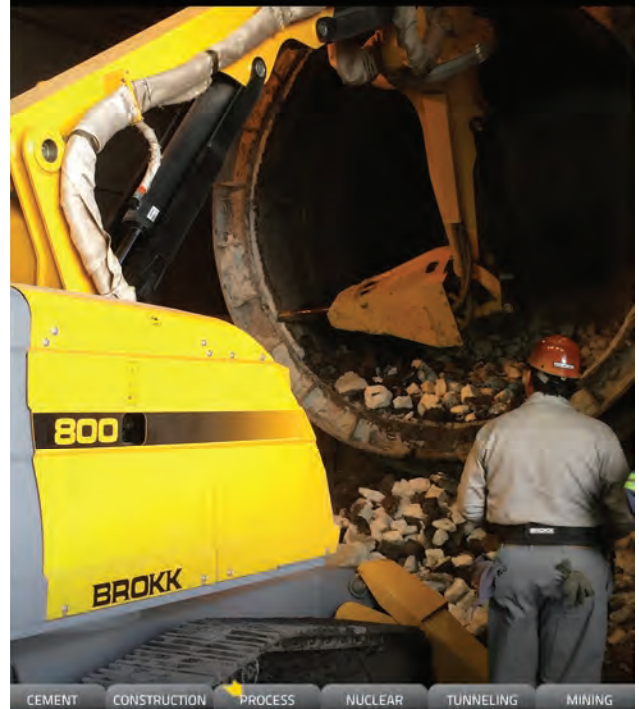
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Monday, 4 May • Morning**10 a.m.****Fundamentals of Iron Ore Concentrate Agglomeration Using Alternative Binders***J. Halt, S. Kawatra, Michigan Technological University***10:30 a.m.****Effect of Olivine Fineness and Thermal Profile on Oxidation-Sintering of Magnetite Concentrate Pellets***H. Ahmed, Luleå University of Technology; C. Andersson, Luossavaara-Kiirunavaara AB; B. Björkman, Luleå University of Technology***11 a.m.****Effects of Gangue Minerals and Temperature on Reduction Behavior of Fe₂O₃ Using Coke as a Reductant***G. Li, Y. Han, P. Gao, Y. Sun, Northeastern University***11:30 a.m.****Innovation and Application on Pelletizing Technology of Large Traveling Grate Machine***F. Zhang, Q. Wang, Z. Han, Beijing Shougang International Engineering Technology Co. Ltd.***9:30 a.m. — Ironmaking/Environmental/ICSTI — Ironmaking Environmental Developments I
Room 25A***Session Chairs: Bill Allan, ENVIRON; Ray Tedford, Schust Engineering Inc.***9:30 a.m.****Influence of Lime Coating Coke on NO_x Concentration in Sintering Process***M. Matsumura, K. Katayama, S. Kasama, K. Sato, Nippon Steel & Sumitomo Metal Corp.***10 a.m.****The EFATM Process — Most Modern Sinter Plant Offgas Treatment Technology***F. Reufer, Paul Wurth Umwelttechnik GmbH***10:30 a.m.****Influence of Iron Ores on the NO_x Emission of Coke Combustion in the Sintering Process***Y. Zhang, S. Wu, G. Zhang, B. Su, University of Science & Technology Beijing; Z. Que, Baoshan Iron and Steel Co. Ltd.; L. Zhang, University of Science & Technology Beijing***11 a.m.****The Design and Operation of a Dust Tower for Studying the Dustiness of Raw Materials for Ironmaking***J. Halt, S. Kawatra, Michigan Technological University***11:30 a.m.****Injecting Different Types of Biomass to the Blast Furnace and Their Impacts on the CO₂ Emission Reduction***C. Wang, M. Larsson, J. Wikström, Swerea MEFOS AB; J. Lövgren, L. Nilsson, SSAB Europe***9:30 a.m. — Electric Steelmaking — EAF Operations
Room 24***Session Chairs: Patrick Hansert, Badische Stahl Engineering GmbH; Harriet Dutka, Magnesita Refractories; Richard Phillips, Tube City IMS LLC***9:30 a.m.****Comparison of Temperature Measurement in Copper Elements Installed in the EAF***J. Bowers, INTECO Process Technology International; S. Miani, INTECO special melting technologies GmbH; C. Farmer, INTECO Process Technology International***10:30 a.m.****Highlights of the New EAF and FTP at Republic Lorain***M. Cudicio, S. Preda, M. Volpe, M. Milocco, SMS Concast Italia S.p.A.***11 a.m.****Q-REG+: The Innovative Approach to Electrode Regulation***M. Piazza, M. Ometto, D. Onesti, Danieli Automation S.p.A.***11:30 a.m.****Detection and Resolution of Adverse Meltshop Conditions Through the Use of the GrafTech ArchiTech System***T. Kurela, D. Kenemuth, N. Lugo, GrafTech International Holdings Inc.***9:30 a.m. — Oxygen Steelmaking — Environmental & Byproduct Management
Room 19***Session Chairs: Al Bentz, Al Bentz Group LLC; Dale Straughen, Berry Metal Co.; Joel Hatfield, Danieli Automation***9:30 a.m.****Beneficiation of BOF Steelmaking Converter Slag Fines With Weak Magnetic Separation***N. Ma, ArcelorMittal***10 a.m.****Systematic Study on Recycling of Waste Materials in an Integrated Steel Site***J. Riesbeck, Swerea MEFOS AB; A. Wedholm, SSAB Merox; K. Lundkvist, M. Brämning, Swerea MEFOS AB***10:30 a.m.****Benefit of Gas Purging in BOF With a Focus on Material Efficiency and CO₂ Emission Reductions***T. Kollmann, RHI AG; P. Bundschuh, Montanuniversität Leoben; V. Samm, RHI AG; J. Schenk, Montanuniversität Leoben*



Monday, 4 May • Morning

9:30 a.m. — Oxygen Steelmaking — Shop Floor Implementation of New Technology
Room 12

Session Chairs: Neal Pyke, ArcelorMittal Dofasco Inc.; Jerry Moscoe, ArcelorMittal Indiana Harbor; Jamie Lash, U. S. Steel – Great Lakes Works

9:30 a.m.
Operators' Panel Discussion — Shop Floor Implementation of New Technology

Moderator:

J. Moscoe, ArcelorMittal Indiana Harbor

Panelists:

I. Keskin, Ereğli Iron and Steel Works Co.

C. Tomazin, United States Steel Corporation

J. Lehner, voestalpine Stahl GmbH

9:30 a.m. — Ladle & Secondary Refining — Ladle Metallurgy Technology
Room 11

Session Chairs: Helmut Oltmann, Nucor Steel–Berkeley; Anna Voss, Nucor Steel–Decatur LLC; Sunday Abraham, SSAB Iowa Inc.

9:30 a.m.
Floating Chemistry Aims Model Based on Grade, Reduction Ratio and Residuals
K. Normofidi, P. Gorapalli, Quad Infotech Inc.

10 a.m.
A Quicker Response to H₂ Measurement at the LMF Station and Its Effects on Steel Quality and Productivity at EVRAZ Regina
R. Rodrigo, Heraeus Electro-Nite Co. LLC; C. D'Souza, K. Dunnett, EVRAZ NA; P. Van der Zalm, Heraeus Electro-Nite Co. LLC

10:30 a.m.
Fundamentals of Steel Deoxidation
L. Zhang, Y. Ren, University of Science & Technology Beijing



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Monday, 4 May • Morning**11 a.m.****Model for Dehydrogenation During Secondary Steelmaking**

A. Nunis, T. Ribeiro, J. Neto, Institute for Technological Research; A. Lotto, Institute for Technological Research of São Paulo State; C. Serantoni, Gerdau; M. Leite, Gerdau Special Steel Brazil; R. Badaraco, Gerdau Special Steel North America

9:30 a.m. — Continuous Casting — Caster Design & High-Speed Casting Room 22

Session Chairs: Rudolf Moravec, ArcelorMittal Global R&D – East Chicago; Dewey Humes, SMS Siemag LLC; Bill Schlichting, U. S. Steel Research and Technology Center

9:30 a.m.**Heavy Vertical Bloom Casting — Design Features and Operational Results**

F. Wimmer, H. Thoene, P. Pennerstorfer, Primetals Technologies Austria GmbH

10 a.m.**Give Me Five — Chinese Steel Producer Counts on Arvedi ESP for High-Quality Hot Strip Production**

A. Viehboeck, B. Linzer, A. Jungbauer, Primetals Technologies

10:30 a.m.**CSP® Casting Technology — 25 Years of Success**

J. Mueller, C. Geerkens, SMS Siemag AG; W. Emling, SMS Siemag LLC

11 a.m.**The Continuous Slab Caster in the 21st Century: Classical Mechanical Engineering Virtues Combined With State-of-the-Art Mechatronic Approaches**

M. Hirschmanner, H. Wahl, J. Guttenbrunner, Primetals Technologies Austria GmbH

9:30 a.m. — Cold Sheet Rolling — Mill Performance Room 14

Session Chair: Joani Phelps, AK Steel Corp. – Dearborn Works

9:30 a.m.**Improvement Activities for a Hitting Ratio of Direct Production in JFE Fukuyama No. 4 CAL**

H. Matsushima, T. Horisawa, S. Tomotsune, Y. Sawada, JFE Steel Corp.

10 a.m.**Adjustment of Cold Mill Capability by Intelligent Modernization — Latest References of SMS Siemag**

F. Töpfer, J. Schanderl, R. Holz, SMS Siemag AG

10:30 a.m.**Elimination of Third-Octave Mill Chatter Vibration in Cold Rolling — First Successful Pilot Installation**

G. Keintzel, K. Krimpelstaetter, Primetals Technologies

11 a.m.**Quality Improvement and Cost Savings With Modern Roll Grinding Technology**

D. Schmidt, M. Ansorge, Heinrich Georg GmbH Maschinenfabrik

11:30 a.m.**Six Weeks: Cold Mill Engineering to First Coil**

M. Oliveira, L. Robinson, Primetals Technologies USA LLC

9:30 a.m. — Metallurgy — Steelmaking & Casting — Steelmaking Metallurgy Room 20

Session Chairs: Tom Zorc, The Timken Co.; Chad Cathcart, U. S. Steel Canada – Lake Erie Works; William Slye, Vesuvius USA

9:30 a.m.**Transient Behavior of Dephosphorization Kinetics in Oxygen Steelmaking**

B. Rout, G. Brooks, Swinburne University of Technology; Z. Li, Tata Steel; A. Rhamdhani, Swinburne University of Technology

10 a.m.**Measuring Metallurgical Length and Application to Validating Dynamic Computational Model**

B. Petrus, D. Hammon, M. Miller, R. Williams, A. Zewe, Nucor Steel; Z. Chen, J. Bentsman, B. Thomas, University of Illinois at Urbana-Champaign

10:30 a.m.**Utilization of Waste Carbons as a Carburizing Resource: Dissolution of Carbon Into Molten Iron**

I. Mansuri, R. Khanna, V. Sahajwalla, University of New South Wales

11 a.m.**High-Temperature Reactions of Agricultural Wastes as Material Resources for EAF Steelmaking**

A. Ismail, N. Yunos, S. Jamaludin, M. Asri Idris, N. Najmi, University Malaysia Perlis

11:30 a.m.**Melting of a New Carbon-Free Waxed Sponge Iron in Electric Arc Furnace for Steelmaking**

J. Ahmed, Babylon University



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Monday, 4 May • Morning**9:30 a.m. — Metallurgy — Processing, Products & Applications — Product Metallurgy I**
Room 10

Session Chairs: C. Matthew Enloe, AK Steel Corp. – Dearborn Works; Kip Findley, Colorado School of Mines

9:30 a.m.
Effects of Thermomechanical Processing on Microstructure and Shear Properties of 22SiMnCrMoB TRIP-Aided Martensitic Steel
T. Hojo, Iwate University; K. Sugimoto, Shinshu University; J. Kobayashi, Ibaraki University; T. Kochi, Kobe Steel Ltd.

10 a.m.
Considerations for Induction Processing of Alloy Steels
K. Clarke, C. Van Tyne, A. Clarke, D. Coughlin, Los Alamos National Laboratory

10:30 a.m.
The Effects of Nickel Content and Tempering Temperature on the Strength, Toughness and Ductile-to-Brittle Transition Temperature of New High-Toughness Secondary Hardening Steels
C. Norwood, W. Garrison, Carnegie Mellon University

11 a.m.
First Principles Calculation of Point Defect Effects on Fe/(V,Nb)Cx Interface Properties
K. Limmer, J. Medvedeva, Missouri University of Science and Technology

11:30 a.m.
Effect of Mn and Heating Rate With Short Soaking Time on the Continuous Cooling Transformation of Steel 42CrMo
Y. Liu, B. Jiang, X. Wen, J. Sun, L. Zhou, C. Zhang, University of Science & Technology Beijing

9:30 a.m. — Energy & Utilities — EAF Energy Savings
Room 4

Session Chair: Dan Michael, Pyro Air International

9:30 a.m.
A New Consteel Evolution With iRecovery: Better Performances in Steel Production With Heat Recovery for District Heating and ORC Turbine Power Generation
C. Giavani, N. Monti, Tenova S.p.A.; U. De Miranda, R. Bontempi, Ori Martin S.p.A.

10 a.m.
Modeling Approach for the Analysis of Energy Recovery Benefits Applied in EAF Process for the Case of Elbe Stahlwerke Feralpi GmbH
P. Frittella, A. Ventura, S. Galassi, Centro Sviluppo Materiali – Rina; M. Baresi, Turboden; T. Bause, Elbe Stahlwerke Feralpi GmbH; L. Angelini, Feralpi Group; D. Forni, F.I.R.E. – Federazione Italiana per l'uso Razionale dell'Energia; N. Monti, Tenova

10:30 a.m.
Danieli Clean Heat Recovery (CHR): A Reliable Technology to Produce Electric Energy Recovering Heat From EAF Exhaust Fumes
C. Piemonte, F. Magris, Danieli & C. Officine Meccaniche SpA

11 a.m.
Novel Technologies for Particulate and Gaseous (NOx, SOx, HG, Dioxins) Pollution Control
T. Fisher, L. Raath, W.L. Gore & Associates

11:30 a.m.
Reliability of Electrical Systems: From Testing to Monitoring
A. Ross, J. Dennison, SD Myers; J. Rodriguez, Gerdau

9:30 a.m. — Electrical Applications — Electrical Application Case Studies
Room 13

Session Chairs: Jeff Mason, Integrated Mill Systems Inc.; Sean Marlow, Steel Dynamics Inc. – Flat Roll Div. – Butler; Kevin Bort, TMEIC Corp.; Ron Tessoroff, TMEIC Corp.

9:30 a.m.
California Steel 5-Stand Tandem Mill Modernization
T. Richards, TMEIC Corp.; T. Tran, California Steel Industries; G. Gepitulan, TMEIC Corp.

10 a.m.
DC Motors Reliability Problem Solved at EVRAZ Continuous Caster in Pueblo, Colo.
F. Ardines, EVRAZ NA; B. Sainz, H. Ortiz, AMI GE

10:30 a.m.
A Comparison of the Electrical Performance of Turn and Strand Insulation Systems Before and After Rapid Thermal Cycling
J. Covington, T. Reid, M. Nikrandt, Integrated Power Services

11 a.m.
Insulation Life Diagnostics for Large Industrial Motors
R. Tessoroff, TMEIC Corp.; T. Kanekawa, Toshiba Mitsubishi-Electric Industrial Systems Corp. (TMEIC); N. Morita, Motor & carbonBRUSH Lab. Co. Ltd; K. Sugimoto, Nippon Steel & Sumikin TEXENG Co. Ltd; R. Race, DSP Development Corp.; K. Yamada, Showa Sokki Co. Ltd.

11:30 a.m.
Rolling Mill Staff Training to Improve Performances in the Long Products Rolling Mill
M. Capitanio, R. Migliorati, AIC Capitanio Automation

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Monday, 4 May • Morning**9:30 a.m. — Computer Applications —
Applications of Information
Technology
Room 7**

Session Chairs: Christian Roth, Accenture; David Reynolds, Nucor Steel Gallatin

9:30 a.m.**Optimizing Capacity and Growing Your Business Through
Supply Chain Virtualization**

G. Marzec, Northrop Grumman

10 a.m.**Command Execution in Automated Systems From
Procedures Created by Maintenance and Process
Engineers Through the Use of a CNL and a Knowledge
Base**

F. Barreiro, A. Barreiro, J. Moody, ANT Automation

11 a.m.**Engineering Tools for the Steel Mill Environment**

M. Leer, CHL Systems

11:30 a.m.**Centralized Maintenance Scheduling System
Implemented at ArcelorMittal Dofasco**

D. Plant, R. Thomas, ArcelorMittal Dofasco Inc.

**9:30 a.m. — Maintenance & Reliability —
Reliability Culture
Room 6**

Session Chairs: Colleen Reeves, Andronaco Industries; Tim Canaley, Rexnord; Bill Hagenau, SSAB Americas

9:30 a.m.**Safety and Reliability — “Inseparable for a Reason”**

R. Heisler, Life Cycle Engineering

10 a.m.**The Future of Equipment Maintenance and Reliability —
Readily Accessible Information**

J. Hatfield, HECO Inc. Industrial Service Groups

10:30 a.m.**Improving Operations, Maintenance, and Reliability by
Improving Employee Engagement and Ownership**

L. Bufogle, R. Johnson, ArcelorMittal Cleveland

11 a.m.**Financial Return of the Performance Culture**

M. Broussard, SAMI Corp.

11:30 a.m.**Systematic Approach to Reliability-Centered
Maintenance in ArcelorMittal Montreal**

A. Rail, ArcelorMittal Montreal; K. Chatterjee, ArcelorMittal Americas

**9:30 a.m. — Refractory Systems —
Steelmaking & Casting Refractory
Technology
Room 15**

Session Chairs: Xin Zhang, ArcelorMittal Indiana Harbor; Rakesh Dhaka, United States Steel Corporation; Al Dainton, Vesuvius USA

9:30 a.m.**Statistical Data Analysis for Process Improvements at
Emirates Steel Abu Dhabi**

G. Lammer, RHI AG; A. Hanna, RHI Canada Inc.; P. Razza, A. Yaseen, Emirates Steel Industries PJSC; A. Rom, RHI AG

10 a.m.**High-Performance Ladle Bricks**

A. Torigoe, M. Yoshida, H. Tomiya, Shinagawa Refractories Co. Ltd.

10:30 a.m.**Taphole Free Opening Optimization in the EAF Through
Monitorized Grain Size Distribution Control of the EBT
Filler Sand: Laboratory Testing and Industrial Application**

E. Ruisanchez, E. Somolinos, J. Martinez, Pasek Minerales

11 a.m.**Novel Refractory Plate Sealing Technology**

J. Ovenstone, L. Sun, Vesuvius Advanced Ceramics (China) Co. Ltd.

11:30 a.m.**Ladle Refractory Cost Reduction**

Y. Matsuo, Godo Steel Ltd.

**9:30 a.m. — Cranes — Cranes
Room 1**

Session Chairs: Mike Urbassik, Hubbell Industrial Controls Inc.; Tom Berringer, Gantrex Inc.; Bobby Askew, Nucor Steel—Hertford County

9:30 a.m.**Wire Rope for Cranes — Bending Fatigue Life Calculation**

G. Menne, Gte. Industrial

10 a.m.**Improving Safety and Productivity by Using State-of-the-
Art Control Systems in Material Handling Equipment**

E. La Bruna, Janus Automation

10:30 a.m.**Technology-Based Crane Monitoring and Diagnostics**

S. Bailey, IVC Technologies

11 a.m.**Motion Analysis for Determining Behavior of Automated
and Manual Overhead Bridge Cranes and Other Rail-
Guided Vehicles**

T. Anderson, K. Förderer, B. Zimmerman, PSI Technics Ltd.



Monday, 4 May • Afternoon

11:30 a.m.

AC Motors That Are Drop-In Replacements for DC Mill Motors

R. Warriner, Flow In Motion LLC

**Monday, 4 May 2015
Afternoon Sessions**

**2 p.m. — Environmental — Air Treatment
Innovations
Room 5**

Session Chairs: Vern Martin, Flowcare Engineering Inc.; Dejan Zrelec, Tenova Goodfellow

2 p.m.

Innovative Gas Cleaning Solutions and Utilization of BOF Gases: Operational Results and Benefits

K. Alshurafa, SMS Siemag LLC; C. Fröhling, T. Wuebbels, M. Meyn, SMS Siemag AG

2:30 p.m.

Environmental Improvement for Steelmaking Plant at Funabashi Works

T. Tachibana, Godo Steel Ltd.

3 p.m.

Cyclone Development at Primetals Technologies Ltd.

D. Mason, S. Hollins, Primetals Technologies

3:30 p.m.

Dust Collection Efficiency Increase of Process Electrostatic Precipitator in Samarco Pelletizing Furnace

L. Cláudio von Sperling Cotta, M. Athayde, V. de Menezes Vidal, G. Ferreira Viana, M. de Castro Souza, S. Fernando Nunes, Samarco Mining S/A

4:30 p.m.

20 Economical Ways to Improve the Performance of a Baghouse Dust Collector

M. Allen, K. Zipsie, CLARCOR Industrial Air

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Monday, 4 May • Afternoon**2 p.m. — Cokemaking/ICSTI — Evaluation of Coke Quality & Its Impact on Blast Furnace Performance**
Room 21

Session Chairs: Sam Sheyn, AK Steel Corp. – Middletown Works; Saeid Kamalpour, Globlnk; Shiju Thomas, United States Steel Corporation

2 p.m.**Fundamental Coke Kinetic Studies Using a Coke Analogue**

A. Jayasekara, R. Longbottom, B. Monaghan, University of Wollongong

2:30 p.m.**Coke Degradation Under Blast Furnace Conditions**

X. Xing, University of New South Wales; H. Rogers, BlueScope Steel; K. Hockings, BHP Billiton; G. Zhang, University of Wollongong; P. Zulli, BlueScope Steel; O. Ostrovski, University of New South Wales

3 p.m.**Micro-CT Analysis of Coke and Its Relationship to Coke Quality Indicators**

H. Lomas, NIER, University of Newcastle; D. Jenkins, CSIRO; M. Mahoney, NIER, University of Newcastle; R. Roest, NIER, University of Newcastle; R. Pearce, R. Li, S. Mayo, D. Wang, CSIRO

3:30 p.m.**Evaluation of Coke Strength**

P. Bennett, A. Reifenstein, ALS Coal; F. Shi, The University of Queensland

4 p.m.**Quality and Classification of Metallurgical Coke**

R. Pearson, D. Pearson, H-K. Park, Y. Jiao, Paerson Coal Petrography

4:30 p.m.**Investigation of Coking Behavior of Coals Using an Automated Sapozhnikov Plastometer**

L. Lu, CSIRO Mineral Resources Flagship

2 p.m. — Ironmaking/ICSTI — Blast Furnace Operations II
Room 25B

Session Chairs: Jialong Yang, Anhui University of Technology; Bruce Stackhouse, ArcelorMittal Cleveland; Arthur Cheng, Vesuvius USA

2 p.m.**Managing a Blast Furnace Operation During Abnormally Cold Weather**

S. Street, AK Steel Corp. – Dearborn Works

2:30 p.m.**Innovative and Safety-Oriented Approach to Blast Furnace Revival From Chilled Hearth**

F. Cravino, C. Cristiano, C. Di Pietro, M. Bastieri, Paul Wurth Italia S.p.A.

3 p.m.**Blast Furnace Banking and Blowdown: A Theoretical and Practical Approach to Preparing for an Extended Outage and Start-Up**

M. Alter, C. McGovern, D. White, ArcelorMittal Burns Harbor; M. Kus, ArcelorMittal Poland

3:30 p.m.**A Case Study of Lower Furnace Heat Loss, Furnace Design, Process Efficiency and Their Interdependence**

R. Vaynshteyn, E. Engel, Danieli Corus BV

4 p.m.**Replacement and Start-Up of New Third Hot Stove for Kokura No. 2 Blast Furnace**

T. Kojima, T. Taniguchi, A. Ishikawa, T. Umesaki, Nippon Steel & Sumitomo Metal Corp.

4:30 p.m.**High Efficiency and Low Fuel Consumption Operation Performance on No. 8 BF at WISCO**

X. Li, L. Lu, Wuhan Iron & Steel Co. Ltd.

2 p.m. — Ironmaking/ICSTI — Sintering II
Room 25C

Session Chairs: Tao Jiang, Central South University; Liming Lu, CSIRO Mineral Resources Flagship; Hans-Bodo Lungen, Steel Institute VDEh

2 p.m.**Selective Agglomeration of Fine Materials for Sintering**

M. Zhang, ArcelorMittal Global R&D

2:30 p.m.**Assimilation Behavior of CaO Source in the Sintering Process**

C. Funada, Tohoku University; J. Okazaki, T. Nishimura, Nippon Steel & Sumitomo Metal Corp.

3 p.m.**Influence of Chemical Compositions on Liquid Fluidity of Ferrite**

B. Su, S. Wu, J. Bei, J. Zhu, W. Huang, University of Science & Technology Beijing

3:30 p.m.**On-Line Conveyor Belt Elemental Analysis for Sinter Feed Chemistry Control**

K. Gordon, S. Nel, G. Noble, Thermo Fisher Scientific

Monday, 4 May • Afternoon

4 p.m.

Evaluation of Hydration Characteristics of the Lime Used for Iron Ore Sintering Based on the Constant-Temperature Calorimetric Method

L. Zhang, Baoshan Iron and Steel Co. Ltd.; S. Wu, University of Science & Technology Beijing; Y. Zhang, M. Zhou, Baoshan Iron and Steel Co. Ltd.

4:30 p.m.

Characterization of Wetting Behavior Between Calcium Ferrite Series Melts and Al_2O_3 , MgO Substrate

X. Lv, B. Yu, S. Xiang, C. Bai, J. Yin, Chongqing University

2 p.m. — Ironmaking/ICSTI — Direct Reduction Ironmaking II — Gas-Based DRI

Room 26A

Session Chairs: Ian Cameron, HATCH Ltd.; Alberto Hassan, Intl. Iron Metallics Assoc.; Angelo Manenti, Tenova Core

2 p.m.

Developing the MIDREX® Direct Reduction Process — Technological Innovations and Process Enhancements

H. Gaines, Midrex Technologies Inc.

2:30 p.m.

The Effect of High Operating Pressure in ENERGIRON Reactor Design on Performance and Reactor Productivity

P. Duarte, Tenova HYL; J. Becerra, D. Sweitzer, Tenova

3 p.m.

Status and Start-Up of United Steel Co. (SULB) MIDREX® Combination CDRI/HDRI Plant

T. Ames, Midrex Technologies Inc.

3:30 p.m.

Performance of the New Alloy in DRI Processes

L. Quaranta, P. Imizcoz, P. Cardin, Schmidt+Clemens

4 p.m.

A Novel Test of Catalyst Activity

E. Chen, G. Tsvik, ArcelorMittal USA

4:30 p.m.

Micro-Module: The Optimum Approach for Small-Scale ENERGIRON DR Plants

J. Morales, P. Duarte, Tenova HYL; A. Manenti, Tenova Core

2 p.m. — Ironmaking/ICSTI — Ironmaking Environmental Developments II


Room 25A

Session Chairs: Al Bentz, Al Bentz Group LLC; Franz Reufer, Paul Wurth Umwelttechnik GmbH

2 p.m.

Research on Pelletizing Dynamics of Iron and Steel Plant Metallurgical Dust

S. Wu, H. Lu, M. Kou, F. Chang, K. Du, H. Li, University of Science & Technology Beijing




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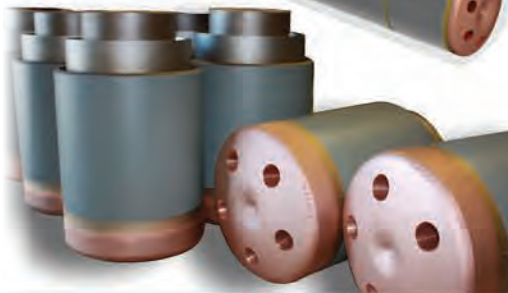
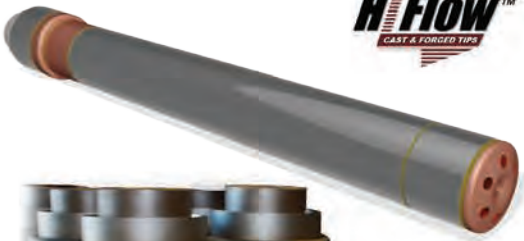

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Monday, 4 May • Afternoon**2:30 p.m.****Interaction Between Injected Waste Plastics and Coke Bed in the Blast Furnace***A. Babich, D. Senk, S. Benkert, RWTH Aachen University***3 p.m.****Optimized Waste Gas Recirculation Layouts for Environment-Friendly and Energy-Efficient Sintering of Iron Ores***B. Vanderheyden, F. van Loo, C. Mathy, J. Pierret, CRM Group***3:30 p.m.****Analysis of Influencing Factors of the Carbon Content of the Blast Furnace Offgas Dust***J. Sun, H. Chen, J. Wu, Shougang Research Institute of Technology***4 p.m.****Recycling Agricultural Waste as an Iron Reductant in Steelmaking Processes***N. Yunos, A. Ismail, M. Idris, University Malaysia Perlis***2 p.m. — Ironmaking/ICSTI — Ironmaking Raw Materials II
Room 26B***Session Chairs: Louis Giroux, Canmet ENERGY-OTTAWA; Peter Duncanson, GrafTech International Holdings Ltd.; Janice Bolen, HATCH Ltd.***2 p.m.****Stockhouse-Based Defreezing, Drying and Pre-Heating of Coke and Pellets***R. Vaynshteyn, E. Engel, Danieli Corus BV***2:30 p.m.****Increase of the Sinter Basicity Through the Insertion of Partially Inert Magnesium Silicate Mini Lumps With Mineralogically Stable Interphases***E. Somolinos, E. Ruisanchez, J. Martinez, C. Escudero, Pasek Minerale***3 p.m.****Chemistry vs. Morphology vs. Reducibility — Some (Non-) Existing Correlations***M. Hanel, J. Schenk, H. Mali, Montanuniversität Leoben; C. Thaler, voestalpine Stahl GmbH; F. Hauzenberger, Siemens VAI Metals Technologies GmbH; B. Kain-Bückner, Montanuniversität Leoben; H. Stocker, voestalpine Stahl Donawitz GmbH***3:30 p.m.****Effect of Simulant Ash on Wetting Behavior of Liquid Iron on Carbonaceous Material Substrate***K. Ohno, T. Miyake, S. Yano, C. Nguyen, T. Maeda, K. Kunitomo, Kyushu University***4 p.m.****Studying the Sintering Behavior of Oxidized Magnetite Pellet During Induration***K. Telkicherla, Luleå University of Technology; N. Viswanathan, Indian Institute of Technology – Bombay; H. Ahmed, Luleå University of Technology; C. Andersson, Luossavaara-Kiirunavaara AB; B. Bjorkman, Luleå University of Technology***4:30 p.m.****Analysis of the Low Reduction Index of North Africa Lump Ore***Z. Ma, J. Sun, H. Chen, Shougang Research Institute of Technology***2 p.m. — Ironmaking/Computer Applications/ICSTI — Ironmaking/Computer Modeling
Room 23***Session Chairs: Henrik Saxen, Abo Akademi University; Patrick Gallagher, Management Science Associates Inc.; William Slye, Vesuvius USA***2 p.m.****Investigation of High Rate of Natural Gas Injection Into Blast Furnace***Y. Chen, B. Wu, Y. Zhao, Purdue University Calumet; N. Macfadyen, Union Gas Ltd.; S. Crawford, U. S. Steel Canada – Lake Erie Works; J. Capo, United States Steel Corporation; C. Zhou, Purdue University Calumet; J. D'Alessio, U. S. Steel Canada – Lake Erie Works***2:30 p.m.****Multi-Phase Flow Simulation in Blast Furnace by MPS-CFD Coupling Model***T. Kon, S. Ueda, N. Maruoka, H. Nogami, Tohoku University***3 p.m.****Optimized Blast Furnaces Operation With Integrated Burden Control***M. Schaler, H. Fritschek, T. Kronberger, B. Schürz, Primetals Technologies***3:30 p.m.****Numerical Analysis of Injection of Liquid Hydrocarbons, Processed Waste Plastics and Pulverized Coal Into Blast Furnace Raceways***C. Maier, C. Jordan, Vienna University of Technology; C. Feilmayr, C. Thaler, voestalpine Stahl GmbH; M. Harasek, Vienna University of Technology***4 p.m.****Investigation of Co-Injection of Natural Gas and PCI in Blast Furnace***Y. Chen, B. Wu, T. Okosun, Purdue University Calumet; S. Street, AK Steel Corp. – Dearborn Works; C. Zhou, Purdue University Calumet*



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Monday, 4 May • Afternoon**4:30 p.m.**

Drain Rate and Liquid Level Simulation in Blast Furnace Hearth

*H. Upadhyay, Jindal Steel & Power Ltd.; T. Kundu, Indian Institute of Technology***2 p.m. — Electric Steelmaking — EAF Technology Innovations
Room 24***Session Chairs: Greg Buragino, Air Products & Chemicals Inc.; Zane Voss, Nucor Steel–Decatur LLC; Steven Meyer, Tenova Core***2 p.m.**

Controlling the Electric Arc Properties in an Industrial AC EAF: Simulations Versus Experiments

*F. Stahl, M. Kühnemund, Dörrenberg Edelstahl GmbH; K. Krüger, Max Aicher GmbH & Co. KG; M. Hergt, W. Hartmann, B. Dittmer, A. Döbbeler, T. Matschullat, Siemens AG; D. Tieseler, Primetals Technologies USA LLC***2:30 p.m.**

Water Leak Detection Using ZoloSCAN Laser Diagnostic System

*K. Grieshaber, Zolo Technologies; F. Martinez, AMI GE***3 p.m.**

Minimizing False Alarms in EAF Water Leak Detection

*I. Todorovic, M. Luccini, H. Alshawarghi, Tenova Goodfellow Inc.***3:30 p.m.**

New Burner Technology of Badische for Higher Energy Efficiency, Improved Reliability and Less Refractory Wear

*A. Volkert, K. Libera, A. Grosse, S. Buls, Badische Stahl-Engineering GmbH; P. Hansert, BSE America***4 p.m.**

Improvement of EAF Process and Refractory Consumption by Advanced Slag Modeling

*M. Kirschen, RHI AG; A. Hanna, RHI Canada Inc.; K. Zettl, RHI AG***4:30 p.m.**

Condition Monitoring for AC Electric Arc Furnace and Its Electrode Regulation System: System Benefits and Customer Feedback

*D. Tieseler, Primetals Technologies USA LLC***2 p.m. — Oxygen Steelmaking — Productivity & Process Optimization
Room 19***Session Chairs: Ho Yong Hwang, ArcelorMittal Global R&D – East Chicago; Shank Balajee, ArcelorMittal Indiana Harbor; Jim Kelly, Praxair Metals Technologies Inc.***2 p.m.**

BOF Lance Technology Enhancements and Process Improvements

*M. Mattich, T. Smith, Berry Metal Co.***2:30 p.m.**Flammability Limits of Offgas (CO-H₂-H₂O-CO₂-N₂ Mixtures at Elevated Temperatures) and Pressure Raise Rate in Case of Deflagration Inside of Electrostatic Precipitator (ESP)*W. Shim, W. Jang, POSCO E&C***3 p.m.**

Improving Hot Metal Desulfurization Process Performance — A Case Study

*S. Kumar, Y. Gordon, HATCH Ltd.***3:30 p.m.**

Scrap Volume Measurement Using Radar Technology

*M. Schönhofer, C. Augustin, J. Sagasti, F. Ahualli, AustralTek***2 p.m. — Ladle & Secondary Refining — Ladle Processing Technology
Room 11***Session Chairs: Mike Callahan, Nucor Steel Gallatin; Chase Ault, Steel Dynamics Inc. – Flat Roll Div. – Butler; Kamalesh Mandal, Steel Dynamics Inc. – Flat Roll Div. – Columbus***2 p.m.**

A New Vibration Ladle Slag Detection System

*L. Tian, J. Yang, A. Fei, RAMON Science & Technology Co. Ltd.***2:30 p.m.**

CFD Modeling to Simulate Gas Stirring Process Using Bottom Plugs in a Steel Ladle

*P. Shivaram, United States Steel Corporation***3 p.m.**

Optimal Mixing Condition for Top Stir Gas Injection at ArcelorMittal Burns Harbor

*H. Hwang, M. Pratt, K. Bury, ArcelorMittal***3:30 p.m.**

Thermal Operation of Ladle Furnace With the Gas Bubble Blowing

*Y. Gordon, HATCH Ltd.; V. Shvidkii, S. Novokreshenov, D. Cheremisin, Ural Federal University***4 p.m.**

Revisiting Slag Eye in Molten Steel

*R. Mishra, Indian Institute of Technology, Kanpur; A. Nandwana, R. Chaudhary, ABB Corporate Research Center***2 p.m. — Continuous Casting — Tundish & SEN Design
Room 22***Session Chairs: Jeff Brower, Siemens Industry Inc.; Asish Sinha, U. S. Steel Research and Technology Center*



Monday, 4 May • Afternoon

2 p.m.

Mold Flow Optimization in a Wide Slab Caster Through Water Modeling Experiments

X. Zhou, Y. Wang, S. Abraham, R. Bodnar, B. Baer, D. Brown, SSAB Iowa Inc.

2:30 p.m.

Tundish Flow Regulation With Advanced Refractory Designs

J. Rogler, Vesuvius USA; J. Richaud, Vesuvius France; W. Chung, Vesuvius USA

3 p.m.

ArcelorMittal Burns Harbor No. 2 Continuous Caster- Bitop Conversion

J. Frey, T. Preall, ArcelorMittal Burns Harbor; K. Wallace, D. Kanosky, Opta Minerals Inc.

3:30 p.m.

Effect of Refractory Design on Nitrogen Pickup and Sealing of Ladle Shroud/Collector Nozzle Joint

Q. Robinson, R. Stalter, A. Charnock, R. Maddalena, M. Hughes, Vesuvius Research

4 p.m.

Innovative Flow Control Refractory Products for the Continuous Casting Process

G. Hackl, G. Nitzl, Y. Tang, C. Eglsäer, RHI AG; D. Chalmers, RHI US Ltd.

4:30 p.m.

Understanding the Clogging Phenomenon During High-Al TRIP Steel Casting

R. Liu, L. Laus, Y. Lee, H. Yin, J. Macino, J. Cottrell, ArcelorMittal Global R&D; R. Gass, ArcelorMittal Indiana Harbor; M. Krug, ArcelorMittal Global R&D

2 p.m. — Continuous Casting/Metallurgy — Steelmaking and Casting — Caster Fluid Flow & Heat Transfer Modeling Room 12

Session Chairs: JC Rajes, Dover Hydraulics Inc.; David Wise, Evertz Technology Service USA; Tom Piccone, U. S. Steel Research and Technology Center



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Monday, 4 May • Afternoon**2 p.m.****The Fluid Dynamics and Impinging Behavior of Air Mists Used for Secondary Cooling of Thin Slabs***A. Castillejos, M. de León, M. Huerta, Center for Research and Advanced Studies, CINVESTAV***2:30 p.m.****Thermomechanical Behavior of a Wide-Slab Casting Mold***G. Hamilton, L. Hibbeler, B. Thomas, University of Illinois at Urbana-Champaign***3 p.m.****Advanced Technologies for the Casting of Slabs, Blooms and Billets: New Developments in Casting Technologies***R. Wolf, Lechler Inc.***3:30 p.m.****Modeling of Non-Isothermal Melt Flows in a Tundish***S. Chatterjee, K. Chattopadhyay, University of Toronto***4 p.m.****Belt Casting Technology — Experiences Based on the World's First BCT Caster***J. Wans, C. Geerkens, H. Cremers, D. Austermann, SMS Siemens AG***4:30 p.m.****Metallurgical Behavior of the Ultra-Wide-Slab Continuous Casting Mold***Y. Wang, C. Du, S. Li, J. Zhang, University of Science & Technology Beijing***2 p.m. — Hot Sheet Rolling/Electrical Applications Sensors Systems — New Sensor Technology & Hot Rolling
Room 13***Session Chairs: Nathan Dykstra, ArcelorMittal Dofasco Inc.; John Wallace, SES LLC; Michael Peretic, SMS group; Chris Burnett, Thermo Fisher Scientific***2 p.m.****A New Generation Optical Flatness Measurement***P. Kierkegaard, L. Classon, Shapeline***2:30 p.m.****Practical Applications of Surface Inspection System at the Hot Mill***R. Pavlosky, L. Galey, M. Assar, ArcelorMittal Cleveland; L. Zhang, ArcelorMittal Global R&D Center — East Chicago***3 p.m.****Q-VID: A Revolutionary Approach to Vision-Based Measurements and Control***R. Ferrari, A. Ardesi, I. Visentini, Danieli Automation S.p.A.***3:30 p.m.****Technological Developments for the Production of High-Strength Steels***J. Lee, J. Hinton, P. Hunt, Primetals Technologies***4 p.m.****Development of Looper Shapemeter in Hot Rolling***N. Migakida, H. Furumoto, K. Hayashi, R. Kinose, T. Owada, Primetals Technologies Japan Ltd.; S. Kanemori, S. Sueda, Mitsubishi Heavy Industries Ltd.***4:30 p.m.****Specialty Hot Strip Mill Surface Defect Detection Utilized in a Unique Configuration and Product Mix — SIAS® NextGen System***B. Smith, A. Nasserian, Primetals Technologies***2 p.m. — Cold Sheet Rolling — Annealing & Rolling Theory
Room 14***Session Chairs: Matt Baur, AK Steel Corp. — Middletown Works; Tad Sendzimir, T. Sendzimir Inc.***2 p.m.****Hydrogen Batch Annealing, Performance Comparison of Convection Systems***M. McDonald, RAD-CON Inc.; D. Weaver, Robinson Fans Inc.***2:30 p.m.****Numerical Solution of von Karman on Elastic Foundation With Loading and Unloading Processes in Material Work Hardening Curve***R. Guo, Tenova I2S***3 p.m.****Transverse Roll Gap Model Validation Based on Empirical Studies of Mill Deformation, Shape Actuation Behavior and Incoming Strip Profile***M. Zipf, Cold Rolling Technologies Inc.***3:30 p.m.****Optimizing Strip Speed Measurements for Mass Flow-AGC and Elongation Control With Laser Velocimeters — A Case Study***G. Bering, Polytec GmbH; P. Nawfel, Polytec Inc.***4 p.m.****Hydroprime® Modular Plants Provide Low-Cost, Reliable Hydrogen for Steel Processing***G. Shahani, Linde Engineering; K. Finley, Hydro-Chem; T. Palermo, N. Onelli, Linde Gas; L. Lyda, Hydro-Chem***4:30 p.m.****Exposed Panel Surface Production Process: Understanding the Contribution of an Annealing Furnace in Achieving Exposed Surface Quality Requirements***K. Kahoul, Danieli Centro Combustion***2 p.m. — Rod & Bar Rolling — SBQ Rolling
Room 9***Session Chairs: Kevin Barbee, Danieli Corp.; Tracy Schutz, Nucor Steel Seattle Inc.; Matt Blich, Nucor Steel-Nebraska*



Monday, 4 May • Afternoon

2 p.m.

Sizing the Opportunities: The New 14-Inch Mill With PSM® Precision Sizing at Steel Dynamics Engineered Bar Division, Pittsboro

M. Fabro, SMS Meer Inc.; B. Schneider, C. Gionti, G. Hoefgen, Steel Dynamics Inc.; G. Schnell, SMS Meer GmbH

2:30 p.m.

The New 4-Roll Primetals Technologies Sizing Mill: The Evolution of Bar Sizing

A. Nardini, M. Langè, E. Osto, Primetals Technologies

3 p.m.

Optimization of Machinery Design and Process Parameters With the 3-Roll RSB SCS® for Perfect SBQ Production

P. Connell, Kocks Pittsburgh Co.; S. Filippini, W. Ammerling, Friedrich Kocks GmbH & Co.

3:30 p.m.

Upgrading an Existing Bar Mill for SBQ Production by Retrofitting a High-Performance Abrasive Cutoff Machine

N. Asamer, BRAUN Machine Technologies LLC; G. Richter, BRAUN Maschinenfabrik GmbH; A. Chowdhary, V. Akarasanon, P. T. TATA Steel Thailand/N.T.S. Steel Group Public Co. Ltd.

4 p.m.

Possibilities and Limitations of Free Size Rolling With Respect to Size and Temperature Variations of Different Materials

C. Overhagen, P. Mauk, University of Duisburg-Essen

4:30 p.m.

Shaping Up for the Future: The NYS1 Mill Upgrade With the New SMS CCS® Finishing Stands

M. Fabro, SMS Meer Inc.; C. Ziegler, M. Dugan, J. Shelton, J. Miller, Nucor-Yamato Steel Co.; M. Minnerop, SMS Meer GmbH



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Monday, 4 May • Afternoon**2 p.m. — Rolls — Roll Shop Processing**
Room 15

Session Chairs: Terry Boyd, Nucor Steel–Arkansas; Bob Bennett, Nucor Steel–Indiana; Ray Schleiden, United Rolls Inc.

2 p.m.

Roll Loadings and Their Effects on Stresses and Strains in Big Work and Backup Rolls for Plate and Strip Mills
R. Braun, M. Hinnemann, P. Mauk, V. Goryany, University of Duisburg-Essen; C. Zybill, Karl Buch Walzengießerei GmbH & Co. KG

2:30 p.m.

Finite Element Analysis and Hot Compression Studies of High-Speed Steel Work Rolls
C. Hrizo, K. Redkin, WHEMCO Inc.; I. Garcia, University of Pittsburgh

3 p.m.

High-Speed Correction Grinding With Carbon Fiber Grinding Wheels — A Milestone in Grinding Technology
J. Jörgens, Maschinenfabrik Herkules

3:30 p.m.

New Surface Finishes for Cold Rolling Mills
R. McWhirter, M. Cavallari, P. Gaboardi, C. Trevisan, M. Perassolo, Tenova S.p.A.

4 p.m.

Development of Sarclad Carbide Deposition Texturing (CDT) as a Method for Increasing Campaign Length of Temper Mill Work Rolls
G. Evans, T. Lowbridge, Sarclad Ltd.

4:30 p.m.

Results With the Next-Generation Eddy Current Technology for Roll Inspection Systems
R. van Kollenburg, S. Mul, E. van den Elzen, Lismar Engineering B.V.

2 p.m. — Metallurgy — Steelmaking & Casting — Clean Steel — Inclusion Formation Fundamentals
Room 20

Session Chairs: Scott Story, U. S. Steel Research and Technology Center; Thinium Natarajan, U. S. Steel Research and Technology Center; Roger Maddalena, Vesuvius USA

2 p.m.

The Aluminum-Oxygen Equilibrium in High-Al Steels
B. Zhou, H. Pielet, P. Kaushik, ArcelorMittal Global R&D

2:30 p.m.

Thermodynamics of N and O in High-Mn and High-Al Alloyed Liquid Steels
M. Paek, S. Chatterjee, I. Jung, McGill University

3 p.m.

Condition to Suppress Spinel Formation in Ladle Treatment Predicted by the Kinetic Simulation Model
S. Kim, Tohoku University; A. Harada, JFE Steel Corp.; S. Kitamura, Tohoku University

3:30 p.m.

Reduction of Slags and Refractories by Al in Steel and Inclusion Modification
H. Mu, B. Webler, R. Fruehan, Carnegie Mellon University

4 p.m.

Improving the Castability and Increasing the Sequence Length of IF-TiSULC Steel Grades at ArcelorMittal Lázaro Cárdenas and Tubarão
P. Kaushik, ArcelorMittal Global R&D; R. Lule, G. Castillo, J. Delgado, F. Lopez, ArcelorMittal Mexico; C. Perim, B. Henriques, A. Nascimento, G. Pigatti, F. Barbosa, ArcelorMittal Tubarão

4:30 p.m.

Reoxidation of Inclusions After Aluminum Deoxidation and Calcium Treatment
J. Tan, B. Webler, Carnegie Mellon University

2 p.m. — Metallurgy — Processing, Products & Applications — Product Metallurgy II
Room 10

Session Chairs: Dan Baker, AK Steel Corp. — Dearborn Works; Kester Clarke, Los Alamos National Laboratory

2 p.m.

Behavior of a Complex Shaped Steel Part During Hardening Heat Treatment
V. Marje, Bharat Forge Ltd.; S. Kulkarni, Kalyani Carpenter Special Steels Ltd.; A. Puranik, Bharat Forge Ltd.; G. Balachandran, Indian Institute of Technology – Madras

3 p.m.

Cold Stampable 1,550-MPa Flash Bainite Sheet Metal for B-Pillars
G. Cola, SFP Works Inc.

3:30 p.m.

Inclusion Treatment With Solid Core Calcium Wire
Q. Liu, S. Story, B. Jones, United States Steel Corporation

4 p.m.

Improving Spheroidization Effectiveness of Medium-Carbon Alloy Wire Rod
L. Li, Z. Bay, Y. Kuo, Y. Lin, China Steel Corp.

4:30 p.m.

On the Mechanism of Microalloying and Macroseggregation Coupled Phenomena for Interdendritic Longitudinal Midface Surface Crack in Continuous Casting of Steel
M. El-Bealy, Royal Institute of Technology

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Monday, 4 May • Afternoon**2 p.m. — Energy & Utilities — Natural Gas Supply & Demand Dynamics**
Room 4

Session Chairs: Richard Ricks, Columbia Gas/NiSource; Dave Rohaus, U. S. Steel Research and Technology Center

2 p.m.**Panel Discussion: Natural Gas Supply and Demand Dynamics**

Panelists:

J. Cardiff, ConocoPhillips

B. Barruss, America's Natural Gas Alliance

Also representatives from pipeland infrastructure, steel pipe, LNG export and power generation

2 p.m. — Project & Construction Management — Project Management Success
Room 3

Session Chairs: Barry Felton, ArcelorMittal Burns Harbor; Kurt Schmiegel, DLZ Industrial Surveying Inc.; Ted Vrehas, Graycor Industrial Constructors Inc.; John McKenna, Hayes Mechanical

2 p.m.**ArcelorMittal Indiana Harbor No. 7 Blast Furnace Campaign Extension Project**

J. Seaman, ArcelorMittal Indiana Harbor

2:30 p.m.**Successfully Constructing a Partnership While Building a Remelting and Forging Facility**

J. Seitz, Carpenter Technology Corp.; M. Pace, L. Sellenraad, Turner Construction Co.

4:30 p.m.**Conversion to the World's First Top-Loading Twin-Shell Fin-Type® Anode at SSAB Iowa**

R. Strain, Primetals Technologies USA LLC; T. Sprague, D. Begyn, SSAB

2 p.m. — Maintenance & Reliability — Rolling Mill Reliability
Room 6

Session Chairs: Ken Flowers, Butech Bliss; Bridget Darby, Hyson; Randy Heisler, Life Cycle Engineering

2 p.m.**Comparison of Driveshaft Concepts for Rolling Mill Main Drives**

J. Mackel, Voith Turbo GmbH & Co. KG; B. Schlecht, H. Graneß, Technische Universität Dresden; P. Grawenhof, Voith Turbo GmbH & Co. KG

2:30 p.m.**Modernized Lock Ring Design Optimizes Roll Assembly Process**

T. Gaines, D. Frank, Hyson

3 p.m.**New DanJoint High-Performance Oil-Lubricated Gear Spindles for Essar Algoma Hot Strip Mill, Ontario, Canada**

F. Palagiano, A. Donadon, M. Codarin, G. Tiussi, P. Palma, M. Rugo, Danieli

3:30 p.m.**Bearing Failures in Steel Mill Applications**

B. Nathwani, NSK Corp.

4 p.m.**New Coiling/Uncoiling Technology for Steel Industry**

R. Aidun, Parker Hannifin Corp.

4:30 p.m.**The Estimation and Improvement to Mill Spindle Fatigue Strength at the Shape Mill**

N. Marukado, K. Yamamura, S. Tanaka, JFE Steel Corp.

Tuesday, 5 May
Morning Sessions**10 a.m. — Safety & Health — Safety & Health**
Room 23

Session Chairs: Bernie Quinn, AM Health & Safety Inc.; Malcolm Dunbar, Edw. C. Levy Co.; Pat McCon, Zurich Services Corp.

10 a.m.**Qualified People – It Is a Safety Thing**

J. Rachford, Nucor Steel Gallatin

10:30 a.m.**Case Studies of 23 Workplace Accidents and Their Causes**

D. Kobernuss, D&B Kobernuss Consultants

10 a.m. — Environmental — Water Systems & Treatment Optimization
Room 5

Session Chairs: Kevin Deliman, Baltimore Aircoil Co.; David Gilles, Sage Environmental

10 a.m.**Modern Wastewater Treatment in Cokemaking Plants – A New Way for Water Recycling!**

K. Stenzel, H. Thielert, ThyssenKrupp Industrial Solutions AG

10:30 a.m.**Water Quality Improvement of Cooling Water for Heating Furnace**

T. Hamamoto, Godo Steel Ltd.

Tuesday, 5 May • Morning

11 a.m.

Application of Process Water Treatment and Reuse Technologies to Minimize Mill Makeup Water Supply and Wastewater Discharges

G. Amendola, Amendola Engineering Inc.; M. Grabigel, Thomas Strip Steel Corp.; M. Oxsalida, M. Amendola, Amendola Engineering Inc.

11:30 a.m.

Case History for Upgrade of the Biological Wastewater Treatment System at a Coke Plant in China

S. Shelby Jr., R. Kirkland, ENVIRON International Corp.

10 a.m. — Cokemaking/ICSTI — Safety & Environmental Performances — The Two Core Values of Cokemaking
Room 21

Session Chairs: Mike Best, Shenango Inc.; Toni Brayton, U. S. Steel – Gary Works

10 a.m.

NFPA Combustible Dust Standards and Cokemaking — How These Regulations May Affect You

F. Owens, V. Jones, HOH Engineers Inc.

10:30 a.m.

Determination of “End of Coking” in Byproduct Recovery Metallurgical Cokemaking

M. Lumadue, S. Thomas, S.J. McKnight, S. Pisula, M. DeLibero, United States Steel Corporation

11 a.m.

Full-Scale Treatment of Coke Oven Wastewater Using Immersed Membrane Biological Reactor Technology

A. Kuljian, Tetra Tech; J. Penny, GE Water & Process Technologies; P. Champagne, Tetra Tech

10 a.m. — Ironmaking/ICSTI — Ironmaking Energy Studies
Room 25A

Session Chairs: Chris Pistorius, Carnegie Mellon University; Yongzhi Sha, CISRI; Parwaiz Khan, Tuvawraqi Steel Mill

10 a.m.

Carbonization of Coal and Wood and Rate Enhancement: Effect of Semi-Char and Semi-Charcoal in Composite Pellets

T. Usui, H. Konishi, Osaka University; K. Ichikawa, JFE Steel Corp.; F. Pena, M. Souza, A. Xavier, P. Assis, Universidade Federal de Ouro Preto

10:30 a.m.

Development of Nut Coke Activation for Energy-Efficient Blast Furnace Operation

M. Lundgren, L. Sundqvist Ökvist, Swerea MEFOS AB; C. Brandell, Luossavaara-Kiirunavaara AB (LKAB)

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Tuesday, 5 May • Morning**11 a.m.****Economical Feasibility of the Use of Biogas in Iron- and Steelmaking***K. Calixto, M. Martins, P. Santos Assis, Universidade Federal de Ouro Preto***11:30 a.m.****Natural Gas in Ironmaking: On the Use of DRI and LRI in the Blast Furnace Process***J. Gibson, P. Pistorius, Carnegie Mellon University***10 a.m. — Ironmaking/ICSTI — Blast Furnace Slags****Room 25B***Session Chairs: Taijun Yang, Beijing Iron and Steel; Alexander Babich, RWTH Aachen University; Glenn Biever, Vesuvius USA***10 a.m.****Influence of Al_2O_3 Content on the Properties of the Slag and Blast Furnace Efficiency***F. Rocha da Silva, S. Guerra, A. Baltazar, G. Defendi, Vale S.A.***10:30 a.m.****Primary Slags Formation Behaviors of Pellets in Cohesive Zone of Blast Furnace***S. Wu, X. Liu, M. Kou, University of Science & Technology Beijing; J. Zhu, Baoshan Iron and Steel Co. Ltd.; K. Zhang, W. Huang, University of Science & Technology Beijing***11 a.m.****Research on Blast Furnace Operation With High-Alumina Slag in Meishan Steel***H. Han, Meishan Steel; F. Shen, Northeastern University; Z. Zhang, Meishan Steel; X. Jiang, Northeastern University; L. Li, Anhui University of Technology; G. Wei, Northeastern University***11:30 a.m.****Theoretical Analysis of Al_2O_3 Behaviors in Blast Furnace Ironmaking and Proper MgO/Al_2O_3 Ratio in Slag***H. Zheng, F. Shen, X. Jiang, G. Wei, Northeastern University; Y. Shen, Monash University***10 a.m. — Ironmaking/ICSTI — Blast Furnace Cohesive Zone****Room 25C***Session Chairs: Cyro Takano, University of São Paulo; Ryan Hershey, Vesuvius USA***10 a.m.****Behavior of Different Ferrous Materials in the Blast Furnace Cohesive Zone***C. Loo, University of Newcastle; D. O'Dea, BHP Billiton***10:30 a.m.****Experimental Analysis of the Interfacial Wetting Phenomena Between Slag and Coke Surface Under Simulated Conditions of the Bosh Region of Blast Furnace***A. Bhattacharyya, J. Schenk, G. Arth, Montanuniversität Leoben; H. Stocker, voestalpine Stahl Donawitz GmbH; C. Thaler, voestalpine Stahl GmbH***11 a.m.****Influence of Burden Softening and Melting Properties on Cohesive Zone Shape and Gas Flow in Blast Furnace***G. Zhao, S. Cheng, J. Zhao, Y. Li, C. Li, University of Science & Technology Beijing***11:30 a.m.****Wettability of Graphite Substrates Against Molten $CaO-SiO_2-Al_2O_3-MgO$ Slags***N. Saito, K. Yasutake, S. Sukenaga, K. Nakashima, Kyushu University***10 a.m. — Ironmaking/ICSTI — Direct Reduction Ironmaking III — DRI Raw Materials****Room 26A***Session Chairs: Elaine Chen, ArcelorMittal USA; Ranjit Panigrahi, CV Engineering; Jeffrey Myers, Midrex Technologies Inc.***10 a.m.****Characterization of DR Pellets for DRI Applications***B. Monsen, E. Thomassen, I. Bragstad, E. Ringdalen, P. Høgaas, SINTEF Materials and Chemistry***10:30 a.m.****Improvement of Coating to the Iron Ore Pellet at the Direct Reduction Plant of Tenaris-Siderca***A. Graziutti, H. Nuccetelli, D. Guido, F. Ajargo, Tenaris-Siderca***11 a.m.****DRI Formation and Carbon Precipitation in Shaft Furnaces***J. D'Abreu, Pontifical Catholic University, PUC-Rio; H. Kohler, Iron & Steelmaking Group; M. Otaviano, Samarco; E. Tinoco Falero, Pontifical Catholic University, PUC-Rio***11:30 a.m.****Sticking/Clustering Test of Optimization for RD Iron Ore Pellets***M. Oreggioni, Instituto Argentino de Siderurgia; A. Graziutti, Tenaris-Siderca; O. Baglivo, D. Costoya, Instituto Argentino de Siderurgia; D. Guido, H. Nuccetelli, Tenaris-Siderca*

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Tuesday, 5 May • Morning**10 a.m. — Ironmaking/ICSTI — Blast Furnace Equipment & Maintenance I — Staves**
Room 26B

Session Chairs: Rudy Tolkamp, CIM-Tech Inc.; Edward Burns, Fedmet Resources Corp.

10 a.m.**ArcelorMittal IH-7 Blast Furnace Stave Circuit Failure Remediation Techniques**

J. Bobek, S. Trenkinshu, D. Zuke, T. Langdon, ArcelorMittal

10:30 a.m.**Thermal Deformation and Stress Analysis of Blast Furnace Copper Stave**

Q. Liu, S. Cheng, Y. Li, University of Science & Technology Beijing; J. Niu, D. Liu, Hebei Wanfeng Metallurgical Spare Parts Co. Ltd.

11 a.m.**Thermal and Mechanical Parametric Study for Copper Staves in the Blast Furnace**

H. Yoon, W. Choi, Hyundai Steel Co.

11:30 a.m.**Blast Furnace Copper Staves Performance and Enhancements**

T. Smith, M. Mattich, Berry Metal Co.

10 a.m. — Electric Steelmaking — EAF Start-Ups & Revamps
Room 24

Session Chairs: Sam Matson, CMC Americas; Bob LaRoy, Steel Dynamics Inc. – Flat Roll Div.; Christer Carlsson, Agellis Group AB

11 a.m.**Start-Up and Commissioning of the DRI Handling System for Nucor Hertford's EAF**

K. Shoop, Tenova Core; B. Trumble, Nucor Steel; F. Memoli, Tenova Core

11:30 a.m.**Investigation of Foaming Slag in Electric Arc Furnace**

W. Bielefeldt, R. Almeida, D. Vieira, F. Almeida, A. Vilela, Federal University of Rio Grande do Sul

10 a.m. — Oxygen Steelmaking — Maintenance & Refractories
Room 19

Session Chairs: James Finley, ArcelorMittal Indiana Harbor; Nenad Radoja, Connors Industrials Inc.; Jeff Jones, Magnesita Refractories; Hans Joerg Junger, RHI Canada

10 a.m.**AOD Mouth Cleaning Results in APERAM South America Using Slagless Cleanup®**

B. Maia, B. Orlando de Almeida Santos, F. Silveira Garajau, M. De Souza Lima Guerra, Lumar Metals Ltda; O. Augusto Cunha Teixeira, M. Coelho, H. Souza Barcelos, APERAM South America

11 a.m.**Improved Q-BOP Lower Hood Design Leads to a Longer Life**

P. Cianci, C. Fahs, U. S. Steel – Gary Works; R. Tolkamp, F. Hyle, CIM-Tech Inc.

11:30 a.m.**BOF Slop Detection — Savings Potential With Real-Time Slop Detection and Mitigation Technology**

J. Kafie, B. Babaei, V. Scipolo, Tenova Goodfellow Inc.

10 a.m. — Specialty Alloy & Foundry — Specialty Alloy — Part I
Room 12

Session Chairs: Andy Pinskey, Holland Manufacturing Corp.; Kevin Ninehouser, Latrobe Specialty Metals Inc.; Allen Chan, Praxair Inc.

10 a.m.**Latest Developments in Abrasive Cutting and Grinding of Large-Scale Cast Parts**

M. Foerster, BRAUN Machine Technologies LLC; G. Richter, BRAUN Maschinenfabrik GmbH

10:30 a.m.**A Comparative Study of Test Material and Castings to Predict Mechanical Properties of Steel Castings and Design of Heat Treatment Cycle**

M. Gomes, Harrison Steel Castings Co.; M. Al Siraj, Institute of Materials Research

11 a.m.**High-Performance Abrasive Cutoff Machines for Forging Applications**

C. Lieberknecht, BRAUN Machine Technologies LLC; G. Richter, BRAUN Maschinenfabrik GmbH

11:30 a.m.**High-Manganese Steels — A Promising Material for Automobile Industry and Structural Application in Future Generation**

D. Kumar, Indian Institute of Technology – Kharagpur

10 a.m. — Continuous Casting — Mold Technology for High Productivity & Long Life
Room 22

Session Chairs: Phil Ponikvar, SARRALLE USA Inc.; Chad Donovan, SMS Millcraft LLC

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Tuesday, 5 May • Morning**10 a.m.****High-Speed Casting of Billets in Ege Çelik (Alliaga, Turkey) With Siemens MT Casting Solutions***N. Kapaj, Primetals Technologies USA LLC; J. Morton, Primetals Technologies Austria GmbH***10:30 a.m.****Special Technologies and New Developments to Improve Slab Quality***W. Emling, SMS Siemag LLC; D. Lieftucht, J. Wans, C. Geerkens, SMS Siemag AG***11 a.m.****Results From New Danieli Power Mould® Applications and Further Development of This Technology***E. Franceschinis, R. Buffoli, Danieli & C. Officine Meccaniche SpA***11:30 a.m.****Smart Modernization Makes Your Slab Caster Fit for Future Demands***J. Guttenbrunner, R. Suess, Primetals Technologies Austria GmbH***10 a.m. — Hot Sheet Rolling — Technological Methods for Improving the Hot Sheet Rolling Process****Room 13***Session Chairs: Nancy Hake, Falk PLI; Rob Brunelli, TMEIC Corp.***10 a.m.****An On-Line Model of Work Roll Temperature With Variable Cooling Rate Along the Roll Length***E. Nikitenko, United States Steel Corporation***10:30 a.m.****New Control Technique for Reducing the Likelihood of Cobbles in the Tandem Rolling of Hot Metal Sheet***J. Pittner, University of Pittsburgh; M. Simaan, University of Central Florida***11 a.m.****Gauging Wear on Hot Strip Mill Pusher Furnace Hearth/Reduction of Furnace Hearth Tears in Product***L. Gansho, J. Chapko, R. Svenningsen, ArcelorMittal; N. Hake, Falk PLI***11:30 a.m.****Cause and Solution of the Slab Camber in the Slab Sizing Press***T. Onishi, JFE Steel Corp.***10 a.m. — Cold Sheet Rolling — Pickling & Welding****Room 14***Session Chair: David Price, ArcelorMittal USA***10 a.m.****Pickling and Tandem Cold Rolling Technologies for Ternium Mexico***M. Fujii, Primetals Technologies Japan Ltd.; R. Freitas, F. Rodríguez P., C. Gómez de la Garza, J. Mendez, TERNIUM; I. Maeno, Y. Kai, Primetals Technologies Japan Ltd.; H. Takahashi, Hitachi Ltd.***10:30 a.m.****Energy Savings in the System Pickling/Acid Recovery: The New Eco-Mode***F. Baerhold, A. Stingl, S. Mitterecker, Andritz AG***11 a.m.****Application of Lower-Cost Gas to a Laser Welding***Y. Tatara, T. Matsuko, JFE Steel Corp.***11:30 a.m.****Development of New Mash Seam Welder (Cross Seam Welder, CSW) Compatible With Continuous Rolling of Steel Sheets at Thicknesses up to 6.5 mm***Y. Watanabe, Mitsubishi Heavy Industries Ltd.; N. Tominaga, H. Ishii, H. Tadokoro, Primetals Technologies Japan Ltd.; K. Sato, H. Tagata, Mitsubishi Heavy Industries Ltd.***10 a.m. — Rod & Bar Rolling — Rod & Bar Rolling Innovations****Room 9***Session Chairs: Dan Davies, ANDRITZ METALS Inc.; John Sadler, ArcelorMittal Indiana Harbor; Gary Henderson, Nucor Steel—Berkeley***10 a.m.****Q-Robot ROLL — Vision-Based Automatic Deburring Robot for Cold Billets***R. Ferrari, F. Romano, I. Visentini, Danieli Automation S.p.A.***10:30 a.m.****Modern Rolling for Long Products — Upgrading the Electrics***E. Thorstenson, Russula Corp.***11 a.m.****WINLINK Innovative Concept for Direct Rolling of Bars***F. Toschi, Primetals Technologies; G. Hohenbichler***11:30 a.m.****Increasing Annual Production Capacity of Bar Rolling Mill No. 2 Plant by 30% Through Small Investment Utilizing Existing Plant Equipment***H. Osman, A. Sewaif, AL-EZZ Dekheila Steel Co. (EZDK)***10 a.m. — Pipe & Tube — Pipe & Tube Technology — Part I****Room 16***Session Chairs: Russ Olgin, California Steel Industries Inc.; David Johnson, Paragon Industries Inc.; Susan Conley, Quaker Chemical Corp.*



Tuesday, 5 May • Morning

10 a.m.

In the Hot Spot of the OCTG Market — The Vallourec 7-Inch OD Seamless Pipe Mill Plant in Ohio
G. Grandi, E. Cernuschi, V. Della Rocca, Danieli & C. Officine Meccaniche SpA

10:30 a.m.

Developing and Manufacturing Larger-Diameter P110 Seamless Tube at TMK-IPSCO
K. Li, M. Panzeri, TMK-IPSCO

11 a.m.

Modernization of Rolling Mills for Seamless Tubular Products
T. Wagner, SMS Meer GmbH

11:30 a.m.

New State-of-the-Art Roller Hearth Furnace for Stress Relieving, Annealing and Normalizing of Steel Tubes at Michigan Seamless Tube
S. Brown, CMI Industry Americas Inc.; L. Whitver, C. Tinsley, R. Barber, Michigan Seamless Tube

10 a.m. — Metallurgy — Steelmaking & Casting — Clean Steel — Characterization Techniques
Room 20

Session Chairs: Howard Piolet, ArcelorMittal USA Research Laboratories; Bryan Webler, Carnegie Mellon University; Bill Jones, U. S. Steel – Granite City Works

10 a.m.

Step Milling as a Tool for Characterizing Defects in Slabs at ArcelorMittal
F. Demmon, ArcelorMittal USA; R. Gass, ArcelorMittal Indiana Harbor; H. Yin, ArcelorMittal Global R&D

10:30 a.m.

Improved Methodology for Automated SEM/EDS Non-Metallic Inclusion Analysis of Mini-Mill and Foundry Processed Steels
O. Adaba, M. Harris, S. Lekakh, R. O'Malley, V. Richards, Missouri University of Science and Technology

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Tuesday, 5 May • Morning**11 a.m.****Optimizing the Speed and Quality of Automated Inclusion Analysis***D. Tang, P. Pistorius, Carnegie Mellon University***10 a.m. — Metallurgy — Processing, Products and Applications — Non-Metallic Inclusions****Room 10***Session Chairs: Qiulin Yu, Nucor Steel Tuscaloosa Inc.; Yury Krotov, Steel Dynamics Inc. — Structural & Rail Div.***10 a.m.****Effect of Rare Earth Oxides on the Rolling Performance of Grain-Refined 1030***R. Tuttle, Saginaw Valley State University; J. Lewandowski, R. Tomazin, Case Western Reserve University***10:30 a.m.****Characterization of MnS Inclusions in Heavy Rail Steels***L. Zhang, X. Zhang, University of Science & Technology Beijing***11 a.m.****FeSi Residuals and Its Effects on Steel Cleanliness***A. Pitts, Nucor Steel Tuscaloosa Inc.***11:30 a.m.****Numerical Simulation on Migration Behavior of Inclusions Accompanied by Voids Formation and Evolution During CSP Hot Rolling Process***J. Li, Jiuquan Iron & Steel (Group) Co. Ltd.; J. Ge, S. Cheng, Y. Li, University of Science & Technology Beijing; C. Chang, Y. Zheng, Jiuquan Iron & Steel (Group) Co. Ltd.***10 a.m. — Energy & Utilities — Practical Energy Savings Projects Implemented by Steel Producers****Room 4***Session Chairs: Rishabh Bahel, ArcelorMittal; Matt Druciak, Tenova Core***10 a.m.****Review of Compressed Air Demand and Supply***R. Geist, United States Steel Corporation***10:30 a.m.****Nucor Continuously Improves Energy Efficiency and Savings***B. Linton, C. Prior, Nucor Steel***11 a.m.****Panel Discussion: Practical Energy Savings Projects Implemented***Panelists:**R. Geist, United States Steel Corporation**B. Linton, Nucor Steel***10 a.m. — Computer Applications — Using Data****Room 7***Session Chairs: Michael Dudzic, ArcelorMittal Dofasco Inc.; Mike McCabe, U. S. Steel – Great Lakes Works***10 a.m.****Asset and Energy Optimization: Calming Cloud Over Operations***O. Bascur, OSIsoft LLC***10:30 a.m.****The Dirty Little Secrets of Cleansing Big Data***P. Gallagher, Management Science Associates Inc.***11 a.m.****Use of Historian Data for Time Balance Analysis of EAF Process***J. Sagasti, AustralTek***10 a.m. — Maintenance & Reliability — Analysis Methods for Maintenance & Reliability****Room 6***Session Chairs: John Schlobohm, American Chemical Technologies Inc.; David Aguirre, California Steel Industries Inc.; Jim Smith, IVC Technologies***10 a.m.****Structural Integrity Analysis and Stability Improvement for a Hot Metal Car***J. Martins, L. Brandão, Magnor***10:30 a.m.****Improved Reliability and Cost Avoidance at ArcelorMittal Steel Through the Root Cause Failure Analysis Process***C. Kuntz, L. Frey, ArcelorMittal Burns Harbor***11 a.m.****Monitoring of Stave and Castable Refractory Wear in Blast Furnaces***A. Sadri, W. Ying, HATCH Ltd.***11:30 a.m.****Analysis of the Root Cause and Consequences of Extreme Overheating of Dry Rolls in a CSP Tunnel Furnace***J. Echlin, R. Pankiw, Duraloy Technologies Inc.; B. Seres, Steel Dynamics Inc.; J. Pellegrino, RJ Lee Group***10 a.m. — Lubrication & Hydraulics — New Technology in Lubrication & Machinery Components to Improve Equipment Efficiency****Room 11***Session Chairs: Salvatore Rea, Anderol Specialty Lubricants; Jim Sidow, Fuchs Lubricants Co.*

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Tuesday, 5 May • Morning**10 a.m.****Anatomy of Circulating Oil Systems for Lubrication***K. Marthaler, SKF Lubrication Systems USA***10:30 a.m.****The Timken ADAPT® Bearing***N. Los, The Timken Co.; J. Durand, Timken Europe***11 a.m.****Oil Condition Monitoring and Interpretation of Test Results***A. Guven, Shell Global Solutions***11:30 a.m.****Study on the Lubricating Performance of Nano-TiO₂ in Water-Based Cold Rolling Fluid***J. Sun, Y. Li, Z. Zhu, P. Xu, University of Science & Technology Beijing***10 a.m. — Refractory Systems — Refractories for Blast Furnace Maintenance
Room 15***Session Chairs: Jimmy Barrett, Allied Mineral Products Inc.; Rob Doty, IMACRO Inc.; Lionel Rebouillat, Pyrotek Canada Inc.***10 a.m.****Wear Monitoring of Furnace Refractories***T. Smith, Berry Metal Co.; F. Schneck, FP International; B. Stackhouse, ArcelorMittal Cleveland***10:30 a.m.****The Application Progress of High-Radiative Coating Technology in Ironmaking Industry***H. Zhou, C. Liu, L. Li, X. Yang, S. Zhang, Shandong Huimin Science & Technology Co. Ltd.***11 a.m.****Study of Blast Furnace Taphole Comprehensive Repair Technology***X. Tang, H. Li, X. Liu, Y. Fan, Central Research Institute of Building and Construction Co. Ltd.***11:30 a.m.****Determination of Maximum Admissible Stress on Coke Oven Walls***M. Landreau, D. Isler, CPM***10 a.m. — Material Handling/Transportation & Logistics — Addressing Challenges of Moving Steel
Room 3***Session Chairs: Donnie Spencer, Nucor Steel Tuscaloosa Inc.; David Haslar, TimkenSteel Corp.***10 a.m.****Panel Discussion: Addressing Challenges of Moving Steel***Moderator:**A. Welch, Olympic Steel Inc.**Panelists:**D. Spencer, Nucor Steel**M. Wastchak, Kinder Morgan Bulk Terminals**L. Iharosy, CN North America**K. Jordan, CRST Logistics Inc.***Tuesday, 5 May
Afternoon Sessions****Noon — Ironmaking/ICSTI — Ironmaking
Poster Session
Outside Rooms 25–26***Session Chairs: Al Dzermejko, Magneco/Metrel Inc.; Clay Piper, DMM Technical Services LLC***Technological Improvements to Increase Intensity of Operation of Titania-Magnetite Blast Furnace***Y. Gordon, HATCH Ltd.; S. Filatov, NLMK Russia; S. Zagainov, Ural Federal University; V. Filippov, NTMK-EVRAZ***Numerical Study on Combustion Process of Top Combustion Hot Blast Stove***K. Yang, S. Cheng, C. Chen, University of Science & Technology Beijing***Crushing and Grinding: How to Turn the Iron Ore Processing More Economic and Efficient***G. Gois, Universidade Federal de Ouro Preto***Preparation of Wüstite by Decomposition of Hydrrous Ferrous Oxalate and Redox Between Ferric Oxide and Iron***C. Bai, J. Xu, D. Wang, Z. Hu, W. He, L. Wen, Chongqing University***Origin and Migration Behavior of Zinc in Blast Furnace Hearth Brittle Layer***Z. Liu, K. Jiao, J. Zhang, University of Science & Technology Beijing; Z. Zhao, Shougang Research Institute of Technology; D. Huang, X. Jia, University of Science & Technology Beijing; Q. Tang, Anshan Iron and Steel Group Corp.; T. Yang, University of Science & Technology Beijing***Research of Comprehensive Regulation Technology for Hearth Protective Layer of Blast Furnace Longevity***K. Jiao, Z. Jianliang, L. Zhengjian, Y. Tianjun, N. Xiaojun, University of Science & Technology Beijing***Theory and Practice of Carbon Composite Brick Applied in Blast Furnace Hearth and Bottom***Z. Jianliang, K. Jiao, L. Zhengjian, Y. Tianjun, X. Tao, University of Science & Technology Beijing***Reduction Roasting of Boron-Bearing Iron Concentrate for Boron and Iron Recovery***P. Gao, J. Yu, Y. Han, Northeastern University; X. Wei, The State University of New York Polytechnic Institute; Y. Sun, Northeastern University*



Tuesday, 5 May • Afternoon

Contribution to the Understanding and Modeling of Iron Ore Granulation Inside Industrial Drums

J. Douce, ArcelorMittal; F. Radjai, University of Montpellier 2; A. Koltsov, ArcelorMittal; N. Berger, E. Azema, University of Montpellier 2

Ore-Blending Optimization Expert System Based on the High-Temperature Characteristics of Iron Ores

T. Song, S. Wu, B. Su, G. Zhang, F. Pimenta, H. Pimenta, University of Science & Technology Beijing

Liquid Absorbability of Limonite and Its Influence on the Sinter Indexes

H. Xue, S. Wu, B. Su, G. Zhang, T. Song, Z. Que, University of Science & Technology Beijing

Mineralization of Iron Ore Fines in the Process of CAP

G. Li, T. Jiang, Z. Yu, Y. Zhang, Q. Li, Central South University

Kinetics of Phosphorus Migration During Coal-Based Reduction of Phosphorus-Contenting Oolitic Iron Ore

Y. Han, Z. Li, P. Gao, Y. Sun, Northeastern University

Numerical Analysis on Operation Parameters Optimization of Shaft Furnace With Different Areal Gas Distribution Pipe Arrangement

M. Kou, K. Du, S. Wu, Z. Zhang, F. Chang, X. Liu, University of Science & Technology Beijing

Proper Methods of Adding MgO-Bearing Flux in Blast Furnace Process

F. Shen, Q. Wen, X. Jiang, H. Zheng, Q. Gao, Y. Hu, G. Wei, Northeastern University; Y. Shen, Monash University

Reaction Characteristics of Carbothermic Reduction With High Pellets Bed

X. Jiang, Northeastern University; S. Liu, China Steel Corp.; W. Lu, McMaster University; T. Huang, China Steel Corp.; G. Zhang, H. Guo, Northeastern University; G. Shiao, China Steel Corp.; H. Zheng, F. Shen, Northeastern University

Discussion on Relationship Between Smelting Parameters of Large-Capacity BF and Metallurgical Performance of Iron-Bearing Burden

J. Sun, H. Chen, Z. Ma, J. Wu, Shougang Research Institute of Technology

The Art and Beauty of Damascus Steel

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Tuesday, 5 May • Afternoon**Competitiveness Analysis of Large-Capacity Blast Furnace***H. Chen, J. Sun, Z. Ma, J. Wu, Shougang Research Institute of Technology***Research on Metallurgical Properties of Different Types of Titanium Resources***J. Wu, H. Chen, Z. Ma, J. Sun, Shougang Research Institute of Technology***Optimal Method for Renewal Sintering Exhaust Gas Treatment System***S. Mori, JFE Steel Corp.***A Thermo-Energetic Balance About the Use of Biogas in Blast Furnaces***K. Calixto, M. Eleutério, P. Assis, Universidade Federal de Ouro Preto***Effect of SiO₂ on the Compressive Strength and Hot Resistance Abrasion of Self-Reducing Pellets Bonded With Portland Cement***A. Nogueira, C. Takano, M. Breda Mourão, Universidade de São Paulo; A. Pillihuaman Zambrano, Pontificia Universidad Católica del Peru***Research on Gas-Solid Reduction Reaction Characteristics of Packed Bed in COREX Melter Gasifier***S. Wu, Z. Zhang, M. Kou, H. Lu, L. Chen, K. Du, University of Science & Technology Beijing***Effect of Coke Breeze Distribution on Coke Combustion Rate of the Quasi-Particle***H. Ogi, T. Maeda, K. Ohno, K. Kunitomo, Kyushu University***Analysis of the Carbon-Saving Potential for Blast Furnace With the Injection of the Gas Made From Coal***Q. Lyu, Y. Qie, S. Zhang, X. Zhang, Hebei United University; X. Liu, Northeastern University***Effect of Mill Scale Adding Methods on NO_x Emission of Coke Combustion During Iron Ore Sintering***S. Wu, Z. Que, B. Su, G. Zhang, C. Hou, University of Science & Technology Beijing***Research on Transfer and Its Significance of MgO in Blast Furnace Burden From Sinter to Pellet in Shougang Jingtang***P. Yuan Dong, Shougang Research Technology Beijing; W. Shengli, University of Science & Technology Beijing; Z. Zhixing, Shougang Research Institute of Technology; A. Gang, Shougang Jingtang***2 p.m. — Safety & Health — Don B. Daily Grant Awardees
Room 23***Session Chairs: Brad Bradley, California Steel Industries Inc.; Jim Alesia, Steel Dynamics Inc. – Structural & Rail Div.; Pat McCon, Zurich Services Corp.***2 p.m.****Ergonomic Interventions for Steel Manufacturing Workers***X. Ning, B. Hu, I. Almuhaideb, F. Alessa, J. Kang, West Virginia University***2:30 p.m.****Near-Miss Reporting to Enhance Safety in the Steel Industry***E. Marks, I. Awolusi, X. Shen, University of Alabama***3 p.m.****Interactive Incident Visualization for Steel Industry Safety Training***J. Moreland, S. Nakayama, J. Zhang, N. Arteaga, Purdue University Calumet; J. Zaraliakos, U. S. Steel Canada – Hamilton Works; C. Zhou, Purdue University Calumet***3:30 p.m.****Leading Safety, Making a Difference in People's Lives!***M. Dunbar, Edw. C. Levy Co.***4 p.m.****Differences in Surface Lead Concentrations in a Steel Mill***J. Hoover, Steel Dynamics Inc.; J. Harney, CDC; J. Steensma, Washington University in St. Louis***4:30 p.m.****Learning Management System (LMS): Integrated Solution for Compliance Requirements***E. La Bruna, M. Barbieri, Janus Automation***2 p.m. — Environmental — Energy Efficiency & Management of Wastes
Room 5***Session Chairs: Conrad D'Costa, ArcelorMittal Dofasco Inc.; Peter Petrov, Siemens Industry Inc.***2 p.m.****Producing Synthetic Fuel From CO₂ Emissions and Excess Heat From Steel Facilities***D. Banitt, J. Horn, NewCO2Fuels Ltd.***2:30 p.m.****Upgrade Your Fans to Reduce Power Consumption, Carbon Footprint and Manufacturing Costs***A. Ray, ProcessBarron***3 p.m.****EAF ID Fan Energy Efficiency Upgrade Retrofit Process***D. Banyay, Robinson Fans Inc.***3:30 p.m.****Fan Energy Optimization Projects: What Approach Provides the Best Odds for Success?***V. Martin, FLOWCARE Engineering Inc.***4 p.m.****Raw Material Cost Reduction in Steelmaking by Reclaiming Calcium and Other Metals From Slag Piles***M. Wyrsta, Lixivia*



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Tuesday, 5 May • Afternoon**4:30 p.m.**

Studies on Multi-Gravity Separator for Iron Enrichment and Zinc Rejection From the BOF Sludge

*U. Kodukula, ArcelorMittal; M. Andrade, ArcelorMittal USA; D. Amariei, COREM***2 p.m. — Cokemaking/ICSTI — Prolongation of the Life of a Coke Oven Battery — How to Protect the Asset****Room 21***Session Chairs: Tim Wojtowicz, Dorchester Energy Holding Inc.; Rob Carlin, DTE Energy Services; Matt Kraeuter, ThyssenKrupp Industrial Solutions AG***2 p.m.**

The Latest Developments on the EnviBAT Oven Pressure Regulation System

*J. Kühn-Gajdzik, F. Huhn, F. Krebber, K. Überschär, ThyssenKrupp Industrial Solutions AG***2:30 p.m.**

Coking Pressure — Fundamentals and Measurement Methodology in the Aspect of Safe Coke Oven Battery Operation

*A. Sobolewski, M. Sciazko, B. Mertas, Institute for Chemical Processing of Coal***3 p.m.**

Development and Production of High-Density Silica for Coke Ovens

*S. Dvorak, K. Lang, L. Vasica, P-D Refractories CZ***3:30 p.m.**

Coke Oven Life Prolongation — A Multi-Disciplinary Approach

*J. Madias, Metallon; M. de Cordova, Nu Energy Argentina***4 p.m.**

Predictive Model for Blending Coking Coals Part 2: USA Coals

R. Leeder, Canadian Carbonization Research Association; L. Giroux, CanmetENERGY-Ottawa; T. Todoschuk, ArcelorMittal Dofasco Inc.; C. Howey, Teck Coal

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Tuesday, 5 May • Afternoon**4:30 p.m.**

Industrial Study on Coal Handling Bulk Density Control
T. Todoschuk, ArcelorMittal Dofasco Inc.; K. Ng, CanmetENERGY-Ottawa

2 p.m. — Ironmaking/ICSTI — Reduction Phenomena
Room 25A

Session Chairs: Stuart Street, AK Steel Corp. – Dearborn Works; Seiji Nomura, NSSMC; Tateo Usui, Osaka University

2 p.m.

Effects of CaO/CaCO₃ on the Carbothermic Reduction of Titanomagnetite Ores
S. Jung, Pohang Univ. of Science and Technology; E. Choi, POSCO

2:30 p.m.

Influence of Al₂O₃ and Basicity on Reducibility of Sinter Containing High-Al₂O₃-Containing Ore
S. Shin, Yonsei University; W. Kim, POSCO Research Group; D. Min, Yonsei University

3 p.m.

Self-Reducing Briquettes From Ironmaking Residues: Liquid and Solid Reduction
J. D'Abreu, E. Tinoco Falero, Pontifical Catholic University, PUC-Rio; L. Ravaiole, M. Bentes, PUC-Rio Iron & Steelmaking Group

3:30 p.m.

Effect of Hydrogen-Enriched Gas on Reduction-Disintegration and Reducibility of Sinter
X. Jiang, F. Shen, Northeastern University; L. Wang, Shenyang Institute of Engineering; C. Yang, H. Zheng, G. Wei, Q. Tan, Northeastern University

4 p.m.

Density Functional Theory Study on the Interaction Mechanism of CO and FeO Surface
H. Zhong, L. Wen, Chongqing University; C. Zou, Xi'an University of Architecture and Technology; J. Xu, J. Tu, Chongqing University

4:30 p.m.

Reduction Mechanism of Rare Earth Bayan Obo Complex Iron by Carbon Monoxide
X. She, J. Wang, G. Wang, Q. Xue, University of Science & Technology Beijing

2 p.m. — Ironmaking/ICSTI — Blast Furnace Hearth
Room 25B

Session Chairs: Thomas Colander, Magneco/Metrel Inc.; Jerry Capo, U. S. Steel Research and Technology Center

2 p.m.

The End of Carbonaceous Blast Furnace Hearth Working Linings?
A. Dzermejko, Magneco/Metrel Inc.

2:30 p.m.

A CFD Model for Estimating Refractory Erosion and Skull Buildup in the Blast Furnace Hearth
L. Shao, Northeastern University; S. Louhenkilpi, Aalto University; Z. Zou, Northeastern University; H. Saxén, Abo Akademi University

3 p.m.

Influence of Gas Flow Distribution as an Approach to the Blast Furnace Hearth Phenomena
A. Hirano, B. Silva, ThyssenKrupp CSA; F. Fujihara, Fergus Consult

3:30 p.m.

Techniques for Controlling Wear of Hearth Sidewall of Large Blast Furnace at Baosteel
W. Xu, Baosteel group Co. Ltd.; L. Zhang, Baoshan Iron and Steel Co. Ltd.; X. Mao, Baosteel group Co. Ltd.; J. Zhu, W. Song, Baoshan Iron and Steel Co. Ltd.

4 p.m.

Research and Application on Temperature Distribution Control Technology of Blast Furnace Hearth and Bottom
F. Zhang, Beijing Shougang International Engineering Technology Co. Ltd.; C. Shusen, H. Zhao, USTB; S. Qian, Beijing Shougang International Engineering Technology Co. Ltd.

4:30 p.m.

Migration of Erosion and Relationship Between Bottom and Hearth Temperature of Blast Furnace
Y. Li, P. Zhang, S. Cheng, University of Science & Technology Beijing; J. Gao, Jiuquan Iron & Steel (Group) Co. Ltd.

2 p.m. — Ironmaking/ICSTI — Blast Furnace Injection
Room 25C

Session Chairs: Jerry Nelesen, AKJ Industries Inc.; Frank Huang, ArcelorMittal USA; Veena Sahajwalla, University of New South Wales

2 p.m.

Coal-Gas Coinjection in Blast Furnaces: Are There Hidden Benefits?
M. Geerdes, Geerdes Advies

2:30 p.m.

Transport Behavior Characterization of Pulverized Coal for Blast Furnace
P. Gupta, H. Pierret, E. Hess, J. Eymond, G. Lesoin, A. Daelman, S. Zaimi, J. Lebonvallet, D. Vogt, ArcelorMittal

3 p.m.

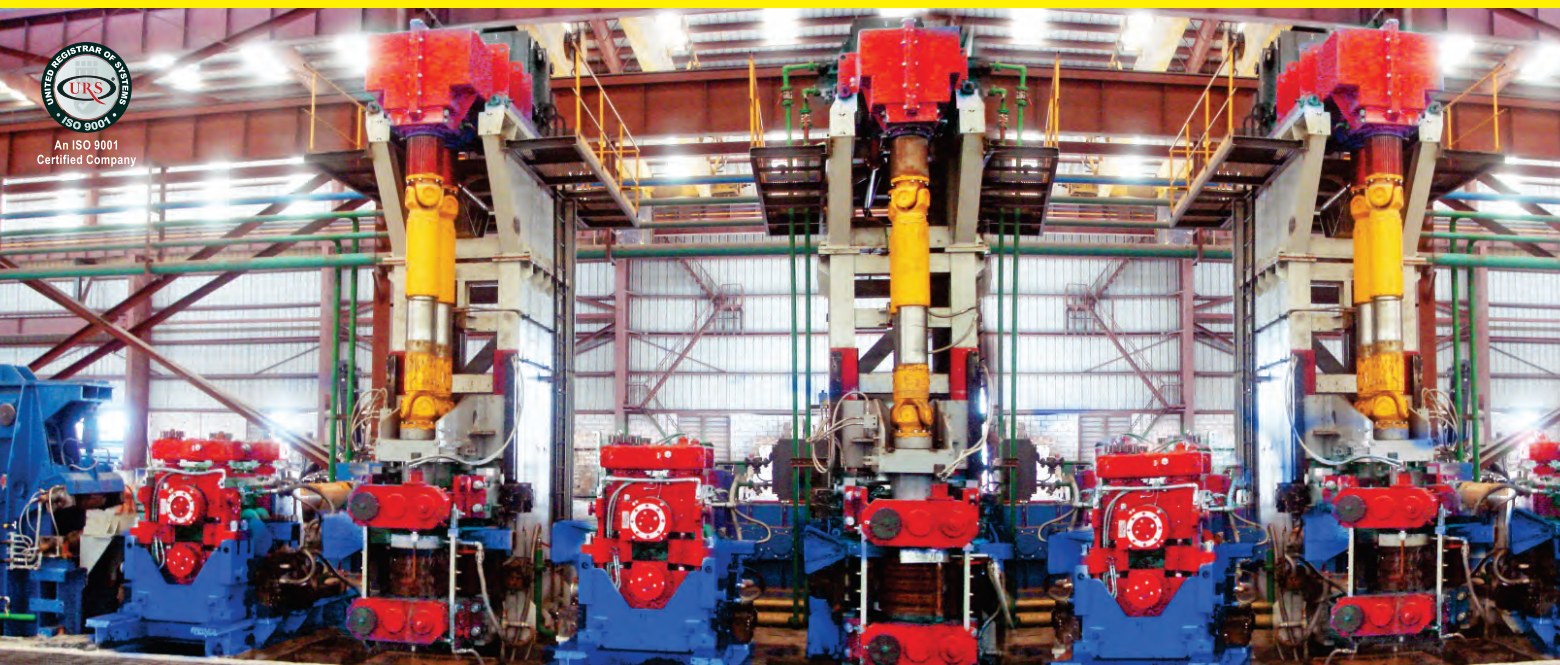
Evaluation of PCI Coals in New Injection Facility at CanmetENERGY-Ottawa
S. Ray, L. Giroux, T. MacPhee, K. Ng, CanmetENERGY-Ottawa; T. Todoschuk, ArcelorMittal Dofasco Inc.

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Tuesday, 5 May • Afternoon**3:30 p.m.**

Combined Blast and Supplemental Fuel Injection Is the Major Way to Improve the Energy Efficiency of Blast Furnace

Y. Gordon, HATCH Ltd.; N. Spirin, V. Shvidkij, Y. Yaroshenko, Ural Federal University

4 p.m.

Analysis of Pulverized Coal and Natural Gas Injection on 5,500-m³ Blast Furnace in Shougang Jingtang

X. Meng, F. Zhang, W. Wang, L. Li, J. Dai, Beijing Shougang International Engineering Technology Co. Ltd.

4:30 p.m.

Coke Degradation in Oxygen Blast Furnace Process With High Injection of Hydrogenous Fuel

P. Wang, Q. Zhang Yue, L. Xming, L. Xin, Anhui University of Technology

**2 p.m. — Ironmaking/ICSTI — Direct
Reduction Ironmaking IV — Coal-
Based DRI
Room 26A**

Session Chairs: Mike Riley, Praxair Inc.; Jan van der Stel, Tata Steel R&D; James Simmons, Tenova Core

2 p.m.

Start-Up and Operation of World's First Coal Gasification-Based MXCOL[®] DRI Plant

T. Wieslaw, Midrex Technologies Inc.

2:30 p.m.

DRI Production Using Coke Oven Gas (COG): Results of DRI Thermal Reactor System[®] (TRST[™]) Testing and Future Commercial Application

G. Metius, H. Gaines, Midrex Technologies Inc.; M. Riley, L. Bool, B. Damstedt, Praxair Inc.

3 p.m.

The Physics Simulation Result for Baosteel COREX Reduction Shaft

X. Mao, H. Xu, Baosteel group Co. Ltd.; J. Zhu, Baoshan Iron and Steel Co. Ltd.; W. Xu, Baosteel group Co. Ltd.; M. Kou, University of Science & Technology Beijing

3:30 p.m.

Analysis of Influencing Factors on Silicon Content in Hot Metal From COREX Process

S. Wu, Y. Jiang, M. Kou, W. Shen, K. Du, University of Science & Technology Beijing

4 p.m.

Recent Update of BF and FINEX Route Ironmaking Technologies in Korea

H. Lee, S. Yi, POSCO

**2 p.m. — Ironmaking/ICSTI — Ironmaking
Raw Materials III — Flux
Room 26B**

Session Chairs: Larry Wolfe, Carmeuse Lime & Stone Inc.; Jan-Olov Wikstrom, Swerea MEFOS

2 p.m.

Economical Flux Addition in the Pellet Plant, DR and EAF Production Stream

M. Okrutny, J. Bolen, HATCH Ltd.

2:30 p.m.

Increasing the Value-in-Use of Magnesium Silicate Fluxes: Tailor-Made MgO/SiO₂ Ratio for Each Application

E. Somolinos, E. Ruisanchez, J. Martinez, Pasek Minerale

3 p.m.

Evaluation of Proper Dolomite Addition on the Quality and Mineralogy of Vanadium-Titanium Sinter

X. Xue, M. Zhou, S. Yang, T. Jiang, Northeastern University

3:30 p.m.

Effect of the Flux Added From Furnace Top on BF Operation at Meishan Steel

H. Han, Meishan Steel; F. Shen, Northeastern University; Z. Zhang, Meishan Steel; X. Jiang, Northeastern University

4 p.m.

Influence of MgO, Al₂O₃ and CaO/SiO₂ on Viscosity of Blast Furnace-Type Slag

X. Lv, J. Zhang, Z. Yan, C. Bai, Chongqing University

4:30 p.m.

Study on the Modification and Crystallization Behaviors of Blast Furnace Smelt Slag for Mineral Fiber Material

J. Li, K. Zhao, Y. Zhang, W. Liu, J. Li, Hebei United University

**2 p.m. — Electric Steelmaking — EAF
Experiences With DRI
Room 24**

Session Chairs: Brett McGee, GrafTech International Holdings Inc.; Lauren Jellison, Nucor Steel-Indiana; Andrew Spencer, Steel Dynamics Inc. – Flat Roll Div.; Stephan Ferenczy, Steel Dynamics Inc. – Flat Roll Div.

2 p.m.

Myth and Realities of Charging DRI/HBI in Electric Arc Furnaces

J. Madias, Metallon; S. Hornby, Global Strategic Solutions; F. Torre, REFRATEC S.R.L.

2:30 p.m.

Optimizing Fe Yield in an All-DRI-Fed EAF

R. González, F. Acosta, ArcelorMittal Lázaro Cárdenas; M. Lowry, ArcelorMittal R&D USA; D. Kundrat, A. Wyatt, H. Fuchs, SGL Group

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Tuesday, 5 May • Afternoon**3 p.m.****Flexibility in EAF Operations at Nucor Steel–Arkansas With DRI***T. Tirabassi, I. Valdez, G. Wilson, J. Hicks, D. Pantello, Nucor Steel–Arkansas***3:30 p.m.****Behavior and Benefits of High-Fe₃C DRI in the EAF***F. Memoli, Tenova Core***4 p.m.****Process Model for Phosphorus Reaction in EAF Steelmaking: DRI, Scrap and Mix Cases***M. Tayeb, Carnegie Mellon University/SABIC; R. Fruehan, Carnegie Mellon University; S. Sridhar, University of Warwick; P. Pistorius, Carnegie Mellon University***4:30 p.m.****Capacity Enhancement at Emirates Steel Industries: Continuous Improvement in EAF Performance With Hot DRI Charge***D. Patrizio, Danieli; P. Razza, Emirates Steel Industries; A. Pesamosca, Danieli***2 p.m. — Oxygen Steelmaking — BOF Operation & Modeling
Room 19***Session Chairs: Neal Pyke, ArcelorMittal Dofasco Inc.; Chuck Tomazin, United States Steel Corporation; Joachim Lehner, voestalpine Stahl GmbH***2 p.m.****Impact of Different Heat Capacity Functions on Thermodynamic and Kinetic Modeling of the Basic Oxygen Furnace***P. Bundschuh, J. Schenk, Montanuniversität Leoben; M. Hiebler, Siemens VAI Metals Technologies GmbH; H. Panhofer, A. Sormann, G. Klösch, voestalpine Stahl Donawitz GmbH***2:30 p.m.****Cavity Profile Induced by the Jets Impinging Onto Liquids Surface in BOF Steelmaking***Q. Li, M. Li, Northeastern University; M. Feng, LiaoNing Institute of Science and Technology; Z. Zou, Northeastern University***3 p.m.****Numerical Study of a Basic Oxygen Process***G. Tang, B. Wu, Purdue University Calumet; J. Lash, U. S. Steel – Great Lakes Works; L. Borges, U. S. Steel – Gary Works; C. Zhou, Purdue University Calumet***4 p.m.****Acceleration of Quicklime Dissolution Into Slag by Internally Formed Gas***N. Maruoka, H. Nogami, Tohoku University***4:30 p.m.****Continuous Developments at the Steel Plant 1 Usiminas Ipatinga Through Slagless® Technology***B. Totti Maia, B. Orlando de Almeida Santos, F. Silveira Garajau, M. de Souza Lima Guerra, Lumar Metals Ltda; C. Alberto de Souza, A. Roberto Ribeiro, USIMINAS***2 p.m. — Specialty Alloy & Foundry — Specialty Alloy — Part II
Room 12***Session Chairs: Tom Kantor, Latrobe Specialty Metals Inc.; Mark Suer, Special Metals Corp.; Danielle Baird, TimkenSteel Corp.***2 p.m.****Effect of MgO–Al₂O₃–SiO₂ Complex Inclusion on the Solidification Structure of 430 Stainless Steel***Z. Chen, Y. Xu, Baoshan Iron and Steel Co. Ltd.***2:30 p.m.****Microstructure and Dynamic Mechanical Properties of Fe-0.08C-18Mn-2.6Si-3.4Al-0.03Nb Alloy***Z. Tang, M. Ma, N. Zan, Z. Wu, Northeastern University; R. Misra, University of Texas at El Paso***3 p.m.****Effect of Mg–Al–Fe Alloy Deoxidation on Inclusions in Hot Work Die Steel H13***G. Du, J. Li, Z. Wang, C. Shi, University of Science & Technology Beijing***3:30 p.m.****Study on Decarburization and Denitrogenation in VOD Process for Ultra-Purity Ferritic Stainless Steel***Z. Chen, Y. Xu, Baoshan Iron and Steel Co. Ltd.***4 p.m.****Static Softening Behavior of a Super Duplex Stainless Steel During Double-Pass Compression Tests***M. Ma, H. Ding, Z. Tang, Z. Jiang, Northeastern University; G. Fan, Shanxi Taigang Stainless Steel Co. Ltd.***4:30 p.m.****Research on Precipitation Behavior of Primary Carbides in 8Cr13MoV Martensitic Stainless Steel During Electroslag Remelting***W. Yu, J. Li, C. Shi, Q. Zhu, University of Science & Technology Beijing***2 p.m. — Ladle & Secondary Refining — Vacuum Treatment Technology & Process Control
Room 11***Session Chairs: Dean Lovewell, Ellwood Quality Steels; Kevin Cotchen, SMS Siemag LLC; Matt Hallam, Steel Dynamics Inc. – Structural & Rail Div.*



Tuesday, 5 May • Afternoon

2 p.m.

Hydrogen Removal Efficiency

A. Partyka, R. Gottardi, L. Gemo, S. Miani, INTECO special melting technologies GmbH

2:30 p.m.

Innovative Vacuum Tank Degassing Technologies: High Level of Metallurgical Performance Figures Achieved by Using Dry Mechanical Pumps

F. Gandin, H. Koblenzer, Danieli & C. Officine Meccaniche SpA

3:30 p.m.

Assets and Drawbacks of the Metallurgical Processing of Stainless Steels Regarding the Argon and Vacuum Decarburization Process

R. Pierer, INTECO special melting technologies GmbH; U. Jendrysek, GRIPS Software GmbH

4 p.m.

Safe Operation of Mechanical Vacuum Pumps in Secondary Metallurgy Processes With Oxygen Blow

A. Teeuwsen, J. Chantry, G. Deng, Edwards GmbH

4:30 p.m.

RH Field Experience With Mechanical Vacuum Pump System

A. Teeuwsen, Edwards GmbH; Z. Dong, Chongqing Steel; G. Deng, Edwards GmbH

2 p.m. — Continuous Casting — Mold Powder & Mold Level Control Room 22

Session Chairs: Eric Rosenow, Nalco, an Ecolab company; Steve Thomas, Nucor Steel Gallatin; Darrell Sturgill, Stollberg Inc.

2 p.m.

Effects of Electromagnetic Brake on Steel Flow in the Mold of a Thin-Slab Caster — A Numerical Simulation

G. Zhang, L. Gao, Kunming University of Science and Technology; Y. Yang, P. Wu, A. McLean, University of Toronto

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Tuesday, 5 May • Afternoon**2:30 p.m.****Mold Level Scanning — A New Tool to Monitor Steel Flows Into the CC Mold***J. Galpin, M. Cornille, T. Brulot, ArcelorMittal Maizières Research SA; M. Dussud, Vesuvius; M. De Doncker, ArcelorMittal Gent***3 p.m.****Measuring the Thermal Properties of Mold Flux Films***K. Assis, P. Pistorius, Carnegie Mellon University***3:30 p.m.****Local Heat Transfer Through Mold Flux Film and Optimal Narrow Face Taper Adjustment***A. Krasilnikov, F. Fanghanel, SMS; D. Lieftucht, SMS Siemag AG; M. Reifferscheid, SMS Siemag AG; J. Laughlin, SMS USA LLC***4 p.m.****Achieving Tighter Control Over the Slidegate Proportional Valve***L. Kalra, A. Dasgupta, ArcelorMittal Indiana Harbor; K. Zheng, ArcelorMittal USA Research Laboratories; W. Umlauf, ArcelorMittal Global R&D***4:30 p.m.****Mold Solidification Control at High Casting Speed Over 7.0 m/Minute in the CEM®, POSCO***S. Kim, J. Hwang, S. Lee, POSCO***2 p.m. — Hot Sheet Rolling/Rolls — Roll Manufacturing Technology
Room 13***Session Chairs: Homero Ortiz, ArcelorMittal USA Research Laboratories; Jim Murphy, Quaker Chemical Corp.; Tom Potts, T.S.T.D. Inc.***2 p.m.****Development of Rolling Mill Rolls for the Latest Stands of HSM With a Focus on Abrasive Wear***J. Noguera, Villares Rolls; M. Matsumoto, C. Serantoni, M. Oliveira, Gerdau***2:30 p.m.****ESW's Research and Development: A Combination of Trials and Simulation***M. Brandner, T. Nylén, L. Elizondo, T. Tricki, A. Paar, Eisenwerk Sulzau-Werfen***3 p.m.****Key Structure–Property Relationships for Conventional and Enhanced Indefinite Chill Work Rolls***C. Hrizo, K. Redkin, K. Marsden, WHEMCO Inc.; W. Betts, consultant roll metallurgy; B. Kapadia, metallurgical consultant***3:30 p.m.****Characteristics of Fujico Co. Ltd. CPC/HSS Rolls for Hot Strip Mills and Long Bar Mills and Its Application Results***G. Lee, MBI Rolls LLC; M. Sasaki, Fujico Co. Ltd.***4 p.m.****Determination of Stress and Strain Fields in Cast and Heat-Treated Bimetallic Rolling Mill Rolls***I. Neira Torres, Universidad de Concepción; J. Tchoufang Tchoundjang, University of Liège; M. Sinnaeve, Marichal Ketin; P. Flores, Universidad de Concepción; J. Lecomte-Beckers, A. Habraken, University of Liège***4:30 p.m.****Investigation on Work Roll Corrosion and Oxidation Mechanisms in a Hot Strip Mill***S. Flament, G. Walmag, CRM Group; M. Sinnaeve, Marichal Ketin***2 p.m. — Cold Sheet Rolling/Electrical Applications Sensors Systems — Shape & Surface
Room 14***Session Chairs: Dave Woodward, Nidec Avtron Automation; Brian Smith, Primetals Technologies U.S.A. Holdings Inc.; Eric Huelson, Zolo Technologies Inc.***2 p.m.****The Self-Curability and Explicit and Implicit Heritability of Shape Defects in Cold Rolling***Y. Liu, Quad Engineering Inc.; S. Liu, Yanshan University***2:30 p.m.****Impact of Yield Strength and Work Hardening on Efficiency of Shape Setup in the Tandem Cold Mill***E. Nikitenko, United States Steel Corporation***3 p.m.****Resolving Complex Shape Distortions on Narrow, Thin-Gauge Strip Having an Asymmetric Transverse Thickness Profile***M. Zipf, Cold Rolling Technologies Inc.***3:30 p.m.****Surface Microstructure of Normal and Defected Cold Rolled Sheet, Investigated by SEM/EDS and Surface Profilometry***R. Smits, B. Smeulders, Quaker Chemical Corp.***4 p.m.****Application of Automatic Surface Inspection System in Automotive Sheet Production***J. He, Baoshan Iron and Steel Co. Ltd.***4:30 p.m.****Integrating Width Measurement in Thickness Gauges With Range-Independent Precision, Using Laser Profile Sensors***A. Sonntag, Micro-Epsilon Messtechnik GmbH & Co. KG*

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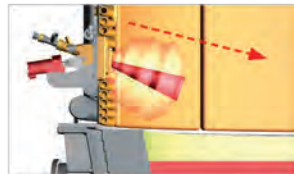
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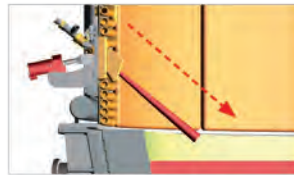
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Tuesday, 5 May • Afternoon**2 p.m. — Plate Rolling — Plate Mill Technologies**
Room 15

Session Chairs: *Charlie Bender, NTN Bearing Corp. of America; Eric Thokar, Primetals Technologies U.S.A. Holdings Inc.; Tom Bovalina, Tenova Core; Larry Charbonneau, Vishay Precision Group Canada ULC (KELK)*

2 p.m.
Collaborative Creativity Spurs State-of-the-Art Descaling System
D. Sawhill, CHL Systems; C. Lewis, ArcelorMittal Americas

2:30 p.m.
GearLink — A Quantum Leap in Drive Line Technology for the Next-Generation Heavy Plate Rolling Mills
J. Mackel, Voith Turbo GmbH & Co. KG; H. Krenn, Buma Engineering & Anlagenbau GmbH; P. Grawenhof, Voith Turbo GmbH & Co. KG

3 p.m.
Life Prediction of a Roughing Mill Stand at a Steel Plant
Y. Sun, B. Wu, Purdue University Calumet; M. Nollar, J. Cox, ArcelorMittal USA; C. Zhou, Purdue University Calumet

3:30 p.m.
Research of Advanced Accelerated Cooling System for Ultra-Heavy Steel Plate Heat Treatment
T. Fu, Z. Wang, X. Deng, G. Wang, Northeastern University

4 p.m.
Enhanced Product Quality and Product Range Based on Fully Automated Process Proven at Three Recent Plate Mill Modernizations
W. Spies, SMS Siemag AG; K. Bu, Handan Iron & Steel Group Co. Ltd.

4:30 p.m.
Thin and Wide Plate Production Using SmartCrown Technology
I. Robinson, A. Harvey, J. Stevens, Primetals Technologies

2 p.m. — Rod & Bar Rolling — Wire Rod Rolling
Room 9

Session Chairs: *Jeff Richards, Charter Steel – Saukville, Wisconsin; Dick Delaney, Jersey Shore Steel Co.; Mario Fabro, SMS Meer Inc.*

2 p.m.
SILAT's New 600,000 Tpy Rod and Bar Mill in Brazil
M. Arredondo, K. Fiorucci, Russula Corp.

2:30 p.m.
The Most Advanced Systems for Perfect Coil Production: The Loop Laying Head Is a Top Cost-Winning Solution for the Latest Generation of H3 High-Speed Wire Rod Mills
M. Dorigo, A. Taurino, M. Vasi, Danieli Morgårdshammar; A. Mestroni, Danieli Automation S.p.A.; A. De Luca, Danieli & C. Officine Meccaniche SpA

3 p.m.
Straightening of Oil and Gas Tubes: A Field to Be Explored
D. Carleton, Heiko machine tools LLC; G. Pecorelli, D. Carnevale, Galdabini SPA

2 p.m. — Pipe & Tube — Pipe & Tube Technology — Part II
Room 16

Session Chairs: *Brian Frye, Nucor Steel Gallatin; Keith Tuma, United States Steel Corporation*

2 p.m.
Successful Implementation of Robotic Applications in the Tubular Industry
M. Zecchi, E. La Bruna, Janus Automation

2:30 p.m.
High-Frequency Welded HSLA Steels — A Guide to Changing Your Process to Accommodate New Chemistries
L. Frame, Thermatool Corp.

3 p.m.
Utilization of Laser Gauging for Improving Process Control and Product Quality in Pipe and Tube Production Applications
J. Dapore, NDC Technologies

3:30 p.m.
Kocks KRM — An Innovative New Method for Cross-Roll Elongation of Seamless Tubes
P. Connell, Kocks Pittsburgh Co.; J. Surmund, E. Bartel, Friedrich Kocks GmbH & Co.

4 p.m.
Fluid Lubrication and Insert Wear in the Thread Cutting of High-Strength Pipe Materials
B. Evans, E. Platt, Quaker Chemical Corp.; F. Hoogendoorn, Quaker Chemical B.V.; E. DeMeter, S. Shtub, The Pennsylvania State University

4:30 p.m.
The Future of High-Frequency Welded Tube and Pipe Quality: Process Control
M. Nallen, L. Frame, Thermatool Corp.

2 p.m. — Metallurgy — Steelmaking & Casting — Casting Solidification Fundamentals
Room 20

Session Chairs: *P. Chris Pistorius, Carnegie Mellon University; Peter Glaws, The Timken Co.; Brian Thomas, University of Illinois at Urbana-Champaign*

Tuesday, 5 May • Afternoon

2 p.m.

The Peritectic Phase Transition and Continuous Casting Practice

S. Moon, R. Dippenaar, University of Wollongong; S. Kim, POSCO

3 p.m.

Billet Defects: Pinhole and Blowhole Formation, Prevention and Evolution

J. Madias, Metallon; A. Moreno, Technoconsultancy

3:30 p.m.

Mechanism and Control of Hydrogen-Induced Stickers in Continuous Casting of Steel Slabs

P. Sahoo, P. Palai, Tata Steel Ltd.

4 p.m.

Study on Assessment of Solidification Structure and Solidification Process in High-Carbon Steel Billet Continuous Casting

C. Du, Y. Yuan, J. Zhang, X. Zhang, P. Li, Y. Min, University of Science & Technology Beijing

4:30 p.m.

Influence of Superheat on Centerline Porosity in the Continuous Casting of Microalloyed Steel Bloom

A. Puranik, V. Marje, Bharat Forge Ltd.; G. Balachandran, Indian Institute of Technology – Madras

2 p.m. — Metallurgy — Processing, Products & Applications — Process Quality & Technology
Room 10

Session Chair: Amy Woods, Steel Dynamics Inc. – Flat Roll Div. – Butler

2 p.m.

The New Paradigm of Surface Inspection Performance

G. Gutmann, ISRA VISION Parsytec; S. Burkhardt, ISRA Parsytec

2:30 p.m.

Up-to-Date Software Decision Support Tools Integrate Quality Data From All Relevant Gauges for Holistic Decisions

G. Gutmann, ISRA VISION Parsytec; M. Hoenen, ISRA Parsytec

3 p.m.

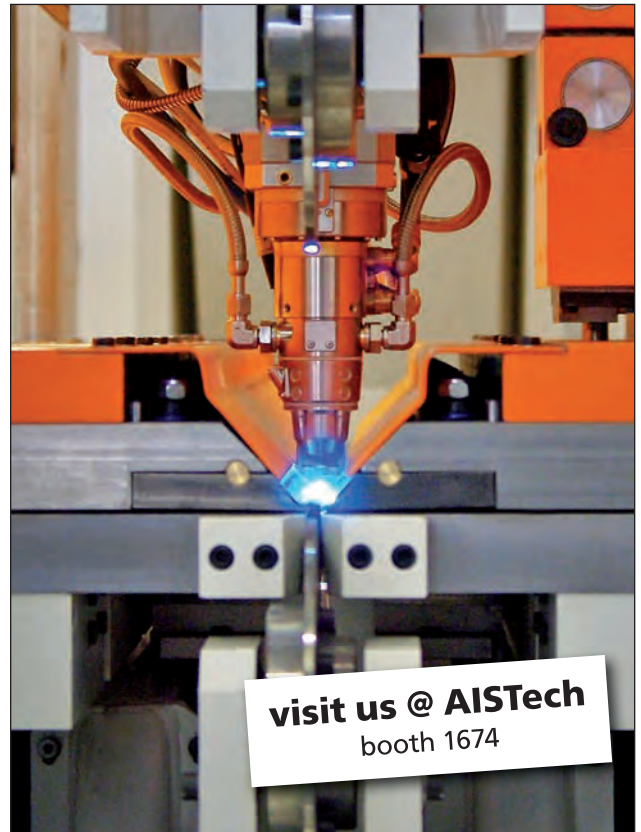
World's First Application of New idRHa[®] Rail Hardening Technology in Baogang Rail Mill

A. Lainati, F. Pegorin, Primetals Technologies; A. Mazzarano, Centro Sviluppo Materiali S.p.A.; Y. Zou, Y. Wang, Baotou Iron & Steel Co. Ltd.

3:30 p.m.

Mobile Application of 3D Thermodynamic Alloys Phase Diagram

H. Shen, H. Abramowitz, Purdue University Calumet



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Tuesday, 5 May • Afternoon**4 p.m.****Determination of Thermal Contact Conductance Based on Unsteady Temperature Measurement***J. Horsky, J. Kvapil, Brno University of Technology;
R. Moravec, K. Blazek, ArcelorMittal Global R&D – East Chicago***4:30 p.m.****Evaluation of Surface Defects in High-Strength Hot Rolled Strips — A Case Study***S. Kumar, V. Hernandez, HATCH Ltd.***2 p.m. — Energy & Utilities — Energy Efficiency Savings****Room 4***Session Chairs: Lou York, Case Engineering Inc.; Mark Kampe, CEC Combustion Safety***2:30 p.m.****Intelligent Energy-Saving Technology for Steel Industry***H. Imanari, M. Kihara, K. Kitagoh, K. Kubota, Toshiba Mitsubishi-Electric Industrial Systems Corp. (TMEIC)***3 p.m.****Next-Generation Advanced Level 1 Reheat Furnace Control Using ZoloSCAN Laser Technology***D. Giltner, K. Grieshaber, Zolo Technologies***3:30 p.m.****Integrated Condition Monitoring Can Play a Significant Role in Reduction of Electrical Power Consumption of Plant Machinery***S. Ram, P. Agrawal, S. Bhansali, Jindal Steel & Power Ltd.***4 p.m.****Novel SVC Yard Configuration to Increase Availability, Productivity and Efficiency in Steel Plant***S. Tambe, K. Futter, A. Kumar, H. Lor, ABB Inc.***4:30 p.m.****Oxygen Vacuum Pressure Swing Adsorption Systems Enhance Steelmaking***T. Geisler-Kahlert, Linde AG***2 p.m. — Computer Applications — Automation & Control****Room 7***Session Chairs: Paul Hanyzewski, ArcelorMittal Burns Harbor; Charles Cinkowski, U. S. Steel – Great Lakes Works***2 p.m.****Enterprise Central Control System — A Case Study of Remote Monitoring, Diagnostics and Information Exchange for Steel Operations***D. Hreha, Schneider Electric***2:30 p.m.****Modernization of ArcelorMittal Cleveland Works HSM***J. Mason, Integrated Mill Systems***3 p.m.****Automatic EAF: Technological Improvements for a More Accurate Operability and Process Control***M. Piazza, M. Ometto, Danieli Automation S.p.A.***3:30 p.m.****Automation Upgrade of Outokumpu Avesta Steckel Mill Accomplished Within Regular Production Stops***W. Spies, D. Ehlert, SMS Siemag AG***4 p.m.****ArcelorMittal Indiana Harbor 84-Inch Hot Strip Mill Level 2 Replacement Project***C. Forjan, ArcelorMittal Indiana Harbor***4:30 p.m.****Profit Optimization in Steel Industry: Profit Hawk Application***Y. Krotov, Steel Dynamics Inc.; A. Bielat, M. Golovnykh, Profit Hawk***2 p.m. — Project & Construction Management — Planning Major Maintenance Outages****Room 3***Session Chairs: David Marshall, Performance Improvement Inc.; Don Salisbury, R.E. Warner & Associates Inc.***2 p.m.****Panel Discussion: Planning Major Maintenance Outages***Panelists:**T. Charters, U. S. Steel Canada – Hamilton Works**J. Seaman, ArcelorMittal Indiana Harbor**S. Bohm, JNE Consulting Ltd.**T. Vrehas, Graycor Industrial Constructors Inc.***2 p.m. — Maintenance & Reliability/ Lubrication & Hydraulics — Practical Solutions for Everyday Problems to Improve Equipment Reliability****Room 6***Session Chairs: Walt Kusnier, Messinger Bearings – a Kingsbury Brand; Jeff Johnson, Nucor Steel–South Carolina; Sig Johansen, Nucor Steel–Texas***2 p.m.****Rolling Mill Bearing Failures: Causes and Corrections***R. Glutting, J. Oliver, SKF USA Inc.***2:30 p.m.****Using Mechanical Actuators in Place of Hydraulic Cylinders in Metals Applications***K. Foster, J. Della Villa, SKF USA Inc.***3 p.m.****Chock Deflection and Bearing Life***P. Brda, NSK Corp.*



Tuesday, 5 May • Afternoon

3:30 p.m.

Improved Sealing Solutions for Rolling Mill and a Caster Application

T. Suchy, B. Corgill, SKF USA Inc.

4 p.m.

Energy Optimization of High-Energy Pumps

R. Jennings, K. Babusiak, Hydro Inc.

4:30 p.m.

Fan Reliability Improvement

W. Doerner, W. Dudik, SKF USA Inc.

2 p.m. — Material Handling/Transportation & Logistics — Material Handling, Transportation & Logistics Room 1

Session Chairs: Doug Nicksch, Mi-Jack Products Inc.; Everette Davis, Nucor Steel-Berkeley; Larry Guinn, Nucor Steel-Berkeley

2 p.m.

Modern Logistics: A Case Study on Jindal Steel Works' CRM2 Project With Automatic YMS and ASRS

J. Rajagopalan, Pesimal South Asia and USA; G. Rathore, M. Verma, JSW Steel Ltd.; J. Suksi, Pesimal OY

2:30 p.m.

Bulk Loading of Railroad Cars to Improve Productivity and Safety

D. Haslar, TimkenSteel Corp.; D. Nicksch, Mi-Jack Products

3 p.m.

Scrap Inventory Management

A. Nath, Nucor Steel Gallatin

3:30 p.m.

Benefits of the Implementing a State-of-the-Art Slab Tracking System

M. Zecchi, E. La Bruna, Janus Automation

4 p.m.

AGV Technology and Design

C. Russell, Transbotics

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Wednesday, 6 May • Afternoon**Wednesday, 6 May 2015
Afternoon Sessions****2 p.m. — Safety & Health — Safety
Innovations
Room 23**

Session Chairs: Robbie Woods, California Steel Industries Inc.; Malcolm Dunbar, Edw. C. Levy Co.; Joanne Zaraliakos, U. S. Steel Canada – Hamilton Works

2 p.m.
Radio-Based Distance and Positioning Systems Applied to Tracking and Safety Applications
M. Zecchi, E. La Bruna, Janus Automation; D. Brunnengraber, Simeo GmbH

2:30 p.m.
Fire-Resistant Greases in Steel Mills
J. Garrett, Summit Lubricants – a Quaker Chemical subsidiary

3 p.m.
Accountability 4-3-3: The Critical Steps, Pivotal Moments and Types of Performers That Drive Organizational Excellence
D. Crouch, Caterpillar Inc.

3:30 p.m.
Safety in the Workshop: How Do We Know If Our Steel Plant Is Safe Enough?
L. Llanes Arenas, Asesoría Industrial Especializada

**2 p.m. — Environmental — Management of
Wastes
Room 5**

Session Chairs: Gary Amendola, Amendola Engineering Inc.; Neal Young, CLARCOR Industrial Air | BHA

2 p.m.
Reaction Behavior During Heating of Tokadeh Magnetite Ore With Carbonaceous Material Generated From Waste “Pure Water Sachets”
J. Dankwah, University of Mines and Technology;
J. Dankwah, Kwame Nkrumah University of Science and Technology; D. Asamoah, G. Agyei, University of Mines and Technology; P. Koshy, University of New South Wales

2:30 p.m.
Utilization of Waste Automotive Engine Oil and Its Blends With Biomass as Reductants in Ironmaking
J. Dankwah, University of Mines and Technology;
J. Dankwah, Kwame Nkrumah University of Science and Technology; K. Boateng, University of Mines and Technology; P. Koshy, University of New South Wales

3 p.m.
Recovery of Gallium From Secondary Vanadium-Depleted Ferrous Slag by Alkali Fusion
L. Gao, University of Toronto; G. Zhang, Kunming University of Science and Technology; Y. Yang, University of Toronto; Z. Shi, Kunming University of Science and Technology; A. McLean, K. Chattopadhyay, University of Toronto

3:30 p.m.
Full Recovery of Steelmaking Waste Streams in a Dedicated Plasma Reactor
E. Malfa, Centro Sviluppo Materiali & TenarisDalmine; L. Di Sante, A. DiDonato, Centro Sviluppo Materiali S.p.A.; F. Praolin, S. Tosato, P. Traini, TenarisDalmine S.p.A.

4 p.m.
Selective Hydrometallurgical Extraction of Zn/Pb From Blast Furnace Sludge
L. Piezanowski, S. Raynal, J. Hugentobler, M. Houbart, Paul Wurth S.A.

4:30 p.m.
Contamination Control — Case Studies in the Primary Metals Market
M. Mahapatro, Pall Corp.

**2 p.m. — Cokemaking/ICSTI — Replacement
of Equipment & Improvements at
Existing Cokemaking Facilities
Room 21**

Session Chairs: Jean-Paul Gaillet, Centre de Pyrolyse de Marienau; Karen Brinker, ThyssenKrupp Industrial Solutions AG; Richard Westbrook, Westbrook Thermal Technology LLC

2 p.m.
No. 1 Battery Collecting Main Replacement and Roof Repair Project
N. Singh, T. Candiano, D. Heinz, ArcelorMittal Burns Harbor

2:30 p.m.
Exploring Alternative Options to Refurbishing Valves
R. Stone, AVK UK Limited Donkin Valves

3 p.m.
Radar Technology-Based Oven Identification, Auto Machine Positioning, Interlocking and Level 2 Coke Oven Batteries Heating Control Management System
M. Singh, Lotus Wireless Technologies India Private Ltd.

3:30 p.m.
Improvements in the Operation of Coke Plants Through Alignment Process Optimization
F. Marsonet, E. La Bruna, Janus Automation



Wednesday, 6 May • Afternoon

2 p.m. — Ironmaking/ICSTI — Ironmaking Modeling II — Process Studies
Room 25A

Session Chairs: Michael Pomeroy, ArcelorMittal Dofasco Inc.; Jose D'Abreu, Pontifical Catholic University of Rio de Janeiro; Joseph Poveromo, RMI Global Consulting

2 p.m.

Mathematical Models Development and Practical Tasks Solution of Ferrous Metallurgy

A. Dmitriev, Ural Federal University; Y. Gordon, HATCH Ltd.; Y. Chesnokov, G. Vitkina, Ural Federal University

2:30 p.m.

Use of Artificial Neural Network in Determination of Bed Permeability During Drying Stage of Iron Ore Pellets

M. Chagas, M. Machado, J. de Souza, E. de Jesus, Instituto Federal do Espírito Santo

3 p.m.

Fundamental Analysis of Passing Behavior of Powder Particle Through Packed Bed by DEM

H. Nogami, Tohoku University; M. Fukuda, T. Honda, J. Suzuki, Muroran Institute of Technology

3:30 p.m.

The Effect of Burden Distribution Mode on the Gas Distribution Inside COREX Shaft Furnace by Numerical Simulation

M. Kou, S. Wu, W. Shen, K. Du, Z. Zhang, F. Chang, University of Science & Technology Beijing; J. Zhu, Baoshan Iron and Steel Co. Ltd.

4 p.m.

DEM Simulation of Particle Size Segregation of Binary Particle Mixtures in a Quasi-2D Model

Z. Hu, D. Wang, F. Guo, C. Chen, J. Xu, Chongqing University



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Wednesday, 6 May • Afternoon**4:30 p.m.**

CFD Analysis of Lining Erosion Phenomenon at the Outlet of Top Combustion Hot Blast Stove

*D. Wu, P. Zhou, Z. Sun, C. Zhou, Central South University***2 p.m. — Ironmaking/ICSTI — Blast Furnace Equipment & Maintenance II — Burden Distribution
Room 26B***Session Chairs: Jianlinag Zha, Beijing Iron and Steel; Albert Dzermejkó, Magneco/Metrel Inc.; David Walnoha, Vesuvius USA***2 p.m.**

Improvement of a Bell-Less-Type Charging System for Lower Coke Ratio (CR) Operation at the Blast Furnace

*T. Otomo, JFE Steel Corp.***2:30 p.m.**

Assessment of Top Charging Hoppers Design Through Reduced-Scale Models

*T. Campos, J. Iezzi, J. Eymond, E. Begrem, A. Bidoli, ArcelorMittal Global R&D***3 p.m.**

Effect of Conveyor Angle on Particle Size Segregation in Parellel-Hopper Bell-Less Top by Discrete Element Method

*C. Li, S. Cheng, G. Zhao, Y. Li, University of Science & Technology Beijing; J. Zhao, Northeastern University***3:30 p.m.**

New Innovations in Blast Furnace Charging

*P. Whitfield, Primetals Technologies; J. Saxiner, Woodings Industrial Corp.***4 p.m.**

On-Line Laser Detector for BF Burden Surface Profile Measurement

*Z. Gao, J. Dai, J. Zhang, University of Science & Technology Beijing; J. Luan, Jinan Iron and Steel Group Co. Ltd.; J. Lu, Handan Iron and Steel Co. Ltd.; T. Gao, X. Yang, Shenwang Pioneer Tech. Corp. Beijing***4:30 p.m.**

Modern Equipment Facilitating Ironmaking at Reduced Cost

*D. Berdusco, L. Hausemer, P. Bermes, F. Hansen, P. Tockert, S. Köhler, Paul Wurth S.A.***2 p.m. — Ironmaking/ICSTI — Alternate Ironmaking & Resource Recovery
Room 25C***Session Chairs: Marka Okrutny, HATCH Ltd.; Yakov Gordon, HATCH Ltd.; Thomas Daum, TMEIC Corp.***2 p.m.**

The Hlsarna Ironmaking Process — A Sustainable Way Forward

*J. van der Stel, K. Meijer, Tata Steel***2:30 p.m.**

A New Process of Oxidation Roasting-Gas-Based Direct Reduction/Electric Furnace Smelting Separation for High-Chromium Vanadium-Titanium Magnetite

*M. Chu, J. Tang, Z. Liu, C. Feng, Y. Tang, X. Xue, Northeastern University***3:30 p.m.**

Electrowinning of Iron From Waste Solutions

*T. Eisele, Michigan Technological University***4 p.m.**

Application of Hls melt Smelting Reduction Process in China

*X. Meng, L. Li, F. Zhang, C. Cao, Beijing Shougang International Engineering Technology Co. Ltd.***2 p.m. — Ironmaking/ICSTI — Ironmaking Raw Materials IV — Composite Pellets
Room 26A***Session Chairs: Jose Noldin, Lhoist Group; Koji Saito, NSSMC; Paulo Nogueira, Vale Inco***2 p.m.**

Effect of Heating Condition on Carbothermic Reduction Behavior of Coal-Containing Composite Pellets Packed in Tall Bed

*T. Huang, S. Liu, G. Shiao, China Steel Corp.***2:30 p.m.**

Effect of Charcoal Particle Size on the Reduction Rate of Iron Ore-Carbon Composite

*E. Mousa, RWTH Aachen University***3 p.m.**

Melting Acceleration of Iron Ore Composite Using Two Kinds of Carbonaceous Materials

*T. Murakami, K. Owaki, E. Kasai, Tohoku University***3:30 p.m.**

Effects of Coke Mixed Charging Ratio on Softening-Dripping Performance of Vanadium-Titanium Composite Burdens Smelted in Blast Furnace

*M. Chu, Z. Liu, J. Tang, S. Wang, Northeastern University***4 p.m.**

Comprehensive Utilization of Boron-Bearing Iron Concentrate Based on Carbon Composite Pellet Iron Nugget Technology

G. Wang, J. Wang, X. She, G. Xue, University of Science & Technology Beijing



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Wednesday, 6 May • Afternoon**4:30 p.m.****Research on After-Reduction Compressive Strength of Preheated Carbon-Bearing Pellets With Different Coal Size***J. Yang, C. Xie, J. Li, Q. Meng, C. Liang, Anhui University of Technology***2 p.m. — Ironmaking/ICSTI — Blast Furnace Operating Improvements****Room 25B***Session Chairs: Frederick Hyle, CIM-Tech Inc.; Maarten Geerdes, Geerdes Advies; Xuegong Bi, Wuhan University of Science and Technology***2 p.m.****Perspective and Challenges of Ironmaking in China***Y. Sha, J. Cao, China Iron & Steel Research Institute***2:30 p.m.****A Numerical Study of Oxygen Blast Furnace Operation***M. Helle, H. Saxen, Abo Akademi University***3 p.m.****The Pilot Expert System to Control Blast Furnace Operation***Y. Gordon, HATCH Ltd.; N. Spirin, V. Lavrov, L. Gileva, Ural Federal University***3:30 p.m.****New Taphole Drilling Hammer Technology***C. Bodeving, R. Clesen, F. Helsper, TMT Tapping and Measuring Technology; S. Kaindlbauer, BBG Baugeräte GmbH; J. Pithan, TMT Tapping and Measuring Technology***4 p.m.****Technological Progress and Prospect of 5,500-m³ Blast Furnace in Shougang Group***W. Zhang, H. Chen, J. Wu, B. Ren Yi, Shougang Research Institute of Technology; H. Zhang, L. Ren, Shougang Jingtang United Iron and Steel Co. Ltd.***4:30 p.m.****The Cause and Countermeasures of BF Blowpipe Burnout at Tangsteel of HBIS***J. Zhao, Y. Jin, Tangshan Iron and Steel Group Ltd.; Z. Gao, J. Zhang, University of Science & Technology Beijing; Y. Gao, X. Yang, Shenwang Pioneer Tech. Corp. Beijing***2 p.m. — Electric Steelmaking — EAF Equipment Updates****Room 24***Session Chairs: Gerry Gillen, Nucor Steel–Indiana; Peter Petrov, Primetals Technologies; Rob Strain, Primetals Technologies***2 p.m.****ArcSave, Innovative Solution for Higher Productivity and Lower Cost in the EAF***H. Hackl, ABB AB; A. Jones, N. Pinto, Steel Dynamics Inc.; L. Teng, ABB AB***2:30 p.m.****Latest Developments on Gas Purging Systems in EAF***M. Kirschen, RHI AG; R. Ehrenguber, Stopinc AG; A. Hanna, RHI Canada Inc.; K. Zettl, RHI AG***3 p.m.****Performance Experience of the MultiROB at BSW — How Safety, Productivity and Accuracy Go Hand in Hand***P. Hansert, BSE America; R. Stech, M. Quant, Badische Stahl-Engineering GmbH***3:30 p.m.****Slag Door Pusher for Electric Arc Furnaces***M. Jobe, KT-Grant Inc.***4 p.m.****EAF Operational Test of the SIS Injector***H. Odenthal, S. Buess, P. Starke, R. Nörthemann, SMS Siemag AG; K. Alshurafa, SMS Siemag LLC***4:30 p.m.****Next-Generation EFSOP[®] Offgas Analysis Technology: A Hybrid Extractive-Optical Solution***V. Scipolo, D. Zuliani, A. Pal, O. Negru, Tenova Goodfellow Inc.***2 p.m. — Oxygen Steelmaking — BOF Chemistry & Quality****Room 19***Session Chairs: Jürgen Cappel, Cappel Stahl Consulting GmbH; Neslihan Dogan, McMaster University; Karim Alshurafa, SMS Siemag LLC; Edward Liu, United States Steel Corporation***2 p.m.****Influence of the Slag Properties in the Steel Dephosphorization Efficiency***J. de Oliveira, F. Costa, Instituto Federal do Espírito Santo; S. Oliveira, São Paulo University; H. Clem, F. Cristo, Instituto Federal do Espírito Santo***2:30 p.m.****Phosphorus Equilibrium Between Liquid Iron and Slag: An Improved Correlation and Plant Data Analysis***A. Assis, M. Tayeb, Carnegie Mellon University; S. Sridhar, University of Warwick; R. Fruehan, Carnegie Mellon University***3 p.m.****Kinetics of Dephosphorization of Metal Droplets During Oxygen Steelmaking***K. Coley, K. Gu, B. Jamieson, X. Zhu, N. Dogan, McMaster University***3:30 p.m.****Endpoint Prediction Technology of BOF Based on Flame Information***Z. Liu, L. Tian, R. Wang, RAMON Science & Technology Co. Ltd.*



Wednesday, 6 May • Afternoon

4 p.m.

Dissolution of Lime in Cr₂O₃-Containing Converter Slags

W. Yan, University of Toronto; W. Chen, University of Science & Technology Beijing; Y. Yang, University of Toronto; X. Zhao, University of Science & Technology Beijing; A. McLean, University of Toronto

2 p.m. — Continuous Casting — Design for Quality Steel Production

Room 22

Session Chairs: Rich Besich, ArcelorMittal Indiana Harbor; Ron O'Malley, Missouri University of Science and Technology; David Tackett, Siemens Industry Inc.

2 p.m.

25 Years of Refractory Development for Thin-Slab Application

J. Rogler, Vesuvius USA; J. Richaud, Vesuvius France; G. Baehren, Vesuvius China

2:30 p.m.

New Extra-Large 350-mm-Thick x 2.6-m-Wide Slab Caster at Yingkou

S. Baf, G. Busolin, Danieli & C. Officine Meccaniche SpA

3 p.m.

Establishment of Minimum Mold Heat Removal and Control for Continuous Casting

X. Zhou, D. Brown, S. Abraham, R. Bodnar, SSAB Iowa Inc.

3:30 p.m.

Major Billet Caster Revamp to Produce SBQ Grades at Ovako

P. Ponikvar, Sarralle USA Inc.; A. Chiogna, Sarralle Equipos Siderúrgicos S.L.

4 p.m.

Implementation of Innovative Advanced Mold Tubes at Hadeed SPLP1

C. Pinheiro, SABIC/Hadeed; T. Katakam, Y. Al-Sehati, H. Al-Bugami, Hadeed-Saudi Iron and Steel Co.

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New Developments in Dynamic Soft Reduction in Continuous Casting of Blooms for Rail Steel
L. Cestari, A. Sgrò, M. Motta, Danieli & C. Officine Meccaniche SpA

2 p.m. — Plate Rolling/Metallurgy — Processing, Products & Applications — Plate Heat Treating
Room 15

Session Chairs: Blane Vines, Nucor Steel Tuscaloosa Inc.; Corey Ivey, Nucor Steel—Hertford County

2 p.m.

Plate Shape Prediction by Using Thermo-Mechanical and Metallurgical Model During Water Quenching
A. Fall, M. Hamide, A. Baur, C. Romberger, ArcelorMittal

2:30 p.m.

Influence of Reheat Conditions on Secondary Recrystallization and Precipitation Behavior in HSLA Steels
D. Ringinen, A. Chastukhin, G. Khadeev, Vyksa Steel Works; L. Efron, United Metallurgical Co. (OMK)

3 p.m.

Advanced Technologies for Heat Treatment of Steel Plate
J. Stubenbort, Tenova Core; H. Kehler, LOI Thermprocess GmbH

3:30 p.m.

Effect of the Low- and Mild-Carbon HSLA Steels on Hot Rolling Parameters Under Precipitation Temperatures
Q. Yu, J. Hebert, Nucor Steel

4 p.m.

Primetals Technologies Plate Normalizing Line at AHMSA
G. Safford, V. Sox, Primetals Technologies

4:30 p.m.

Leveling Heat Treat Plate
D. Withrow, T. Allor, Allor Manufacturing Inc.

2 p.m. — Metallurgy — Steelmaking & Casting — Clean Steel — Cast & Final Product
Room 20

Session Chairs: Pallava Kaushik, ArcelorMittal Global R&D – East Chicago; Shahrooz Nafisi, EVRAZ Regina; Naveen Gupta, U. S. Steel Research and Technology Center

2 p.m.

Enhancing Grain Refinement of Austenitic Steel With Ti Additions by Melt Treatment Sequence Optimization
S. Lekakh, J. Ge, V. Richards, R. O'Malley, Missouri University of Science and Technology

2:30 p.m.

Effect of Steelmaking and Casting Practices on Product Inclusion Content
S. Story, Q. Liu, U. S. Steel Research and Technology Center

3 p.m.

The Deformation Behavior of Different Inclusions for Super-Clean Steel Wire During Drawing Process
H. Jang, W. Huang, C. Wu, G. Chang, C. Wang, China Steel Corp.

3:30 p.m.

Effects of Non-Metallic Inclusions and Their Shape Modification on the Properties of Pipeline Steel
X. Yin, University of Toronto; Y. Sun, University of Science & Technology Beijing; Y. Yang, A. McLean, University of Toronto

4 p.m.

Behavior of Carbonitride (Ti,Nb,V)(C,N) Precipitating on Oxide Inclusion in AISI H13 ESR Tool Steel Modified With Niobium
Y. Xie, G. Cheng, University of Science & Technology Beijing; L. Chen, Y. Zhang, Q. Yan, Xining Special Steel Co. Ltd.

4:30 p.m.

Experimental Research and Thermodynamic Calculation on the Precipitation Behavior of Second-Phase Particles in Ti-IF Steel
Y. Mei, University of Science & Technology Beijing; J. Li, Jiuquan Iron & Steel (Group) Co., Ltd.; J. Ge, S. Cheng, Y. Li, University of Science & Technology Beijing

2 p.m. — Computer Applications — Modeling II
Room 7

Session Chairs: Tony Kmita, ArcelorMittal Burns Harbor; Jim Cole, TimkenSteel Corp.

2 p.m.

CFD Analysis of Hot Metal Desulfurization Process for Improved Mixing in a Torpedo Vessel
X. Zhang, Purdue University Calumet; T. Bhattacharya, ArcelorMittal Global R&D; B. Wu, A. Silaen, C. Zhou, Purdue University Calumet

2:30 p.m.

Reduction of Sticker Formation During Batch Annealing Cooling
J. Pond, Analysis and Applications Associates Inc.; G. Goldsmith, U. S. Steel – Gary Works; G. Woods, Analysis and Applications Associates Inc.

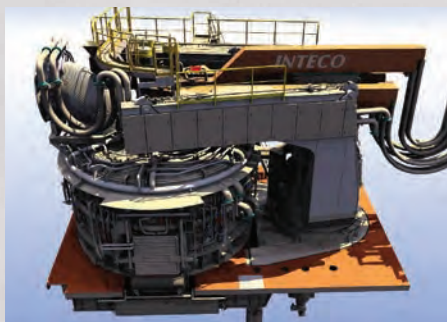
3 p.m.

Thermal Profile and Energy Level Calculation for a Mannesmann Rolling Mandrel Using the Finite Differences Method
R. Venâncio da Silva, L. Soares, Vallourec Tubos do Brasil S.A.; R. Hübner, Universidade Federal de Minas Gerais

3:30 p.m.

CFD Analysis of Steelmaking Kinetics and Slag Foaming Using IMPHOS Pilot Plant Data
A. Hewage, G. Brooks, J. Naser, Swinburne University of Technology

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4 p.m.
Simulation and Modeling of an Air Separation Unit in China Steel Corp.
M. Lee, T. Chen, H. Kao, Y. Li, China Steel Corp.

4:30 p.m.
FEM Simulation and Industrial Validation of Void Closure in a Large Cross-Section Hot Rolled Low-Alloy Steel
R. Nalawade, P. Patil, Bharat Forge Ltd.; G. Balachandran, Indian Institute of Technology – Madras

**2 p.m. — Maintenance & Reliability
— Maintenance & Reliability
Technology
Room 6**

Session Chairs: Denny Smith, Brilex Industries Inc.; Bob Miller, IVC Technologies; Bill Bennett, Steel Dynamics Inc. – Structural & Rail Div.

2:30 p.m.
Preventive Maintenance Reconsidered
L. Llanes Arenas, Asesoría Industrial Especializada

2 p.m.
Online Data Collection at ArcelorMittal Burns Harbor
L. Frey, J. Baechle, ArcelorMittal Burns Harbor

3 p.m.
Mobile Technologies for Plant Maintenance and Compliance Applications
D. Hreha, Schneider Electric

3:30 p.m.
Predictive Advanced Condition Diagnostics of Processing Equipment and Process With Acoustic Emission Technology — Practical Applications and Cases
K. Aura, Andritz Oy; H. Haase, Andritz AG; B. Bahr, ANDRITZ METALS Inc.

4 p.m.
Maintenance of Your Electrical System for Maximum Reliability
A. Holt, Premier Power Maintenance

4:30 p.m.
Maintenance Basics in Conjunction With Integrated Condition Monitoring Is the Simplest Way of Enhancing Machine Reliability and Availability
S. Ram, P. Agrawal, S. Bhansali, N. Tripathi, A. Gangopadhyay, Jindal Steel & Power Ltd.

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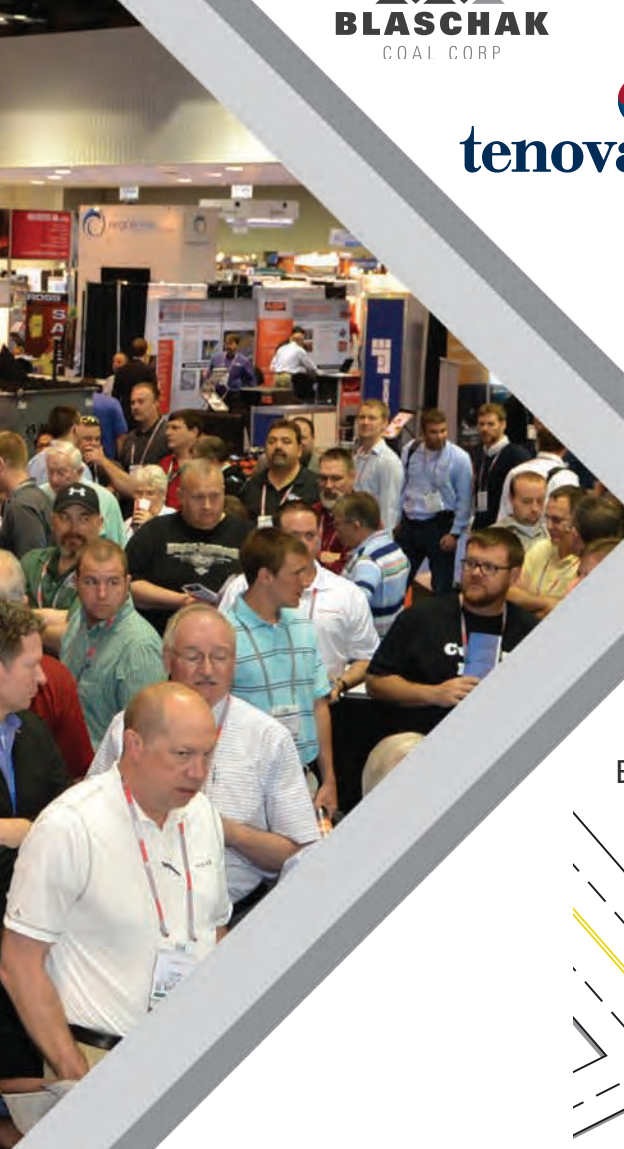
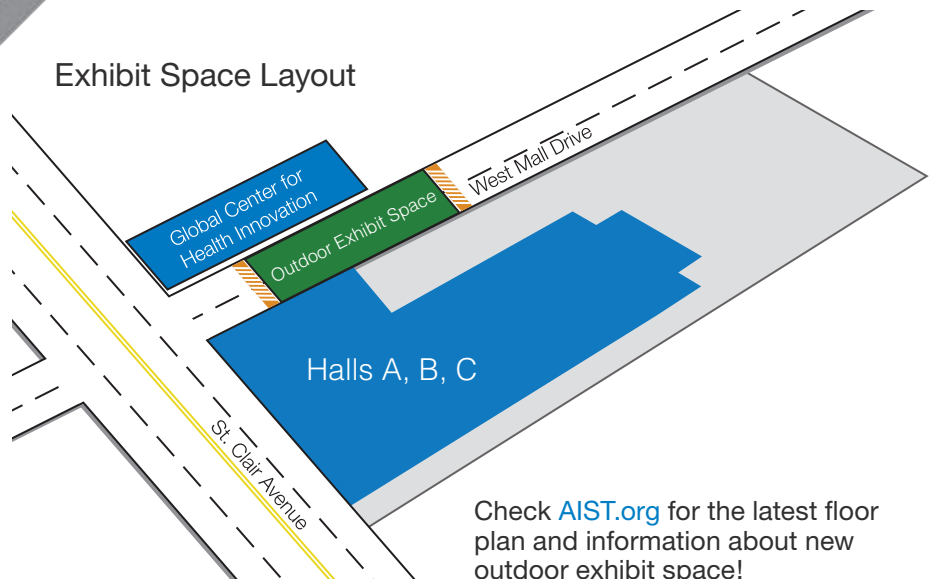


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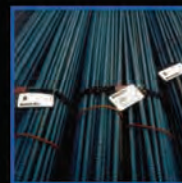
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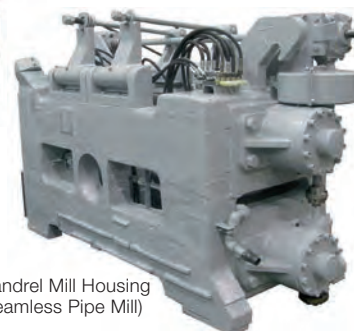
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Visit us at AISTech in Booth 1770.

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Visit AIST.org for the full press release.



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AISTech[®] 2015 & ICSTI

TRUCK GIVEAWAY

*Estimated cash value: US\$45,000.
Actual truck may differ.

Visit booth #2701 and enter to win a BRAND-NEW, FULLY LOADED 2015 Chevy™ Silverado.*
The final drawing will be held in the Exhibit Hall at 11:45 a.m. on Wednesday, 6 May 2015.

Visit AISTech.org for official rules.



Must be present at final drawing to win! One entry per person!

Visit pages 217-220 to learn about AISTech sponsorship opportunities.

MUST REGISTER FOR AISTECH 2015 IRON & STEEL TECHNOLOGY CONFERENCE AND EXPOSITION. NO PURCHASE NECESSARY TO REGISTER. VOID WHERE PROHIBITED. Sweepstakes runs from 9:00 AM EST on 4 May 2015 through 11:45 AM EST on 6 May 2015 ("Sweepstakes Period"). Entrants must appear in person to register and to enter during Sweepstakes Period at the Cleveland Convention Center, 300 Lakeside Avenue, Cleveland, OH 44113. Winner randomly selected at the end of Sweepstakes Period. Must be present to win. Odds of winning depend on number of entrants. One prize with value of \$45,000 awarded. Must be 18 years or older to enter. Sponsor and Promoter of the Sweepstakes is the Association for Iron and Steel Technology with an address of 186 Thorn Hill Road, Warrendale, PA 15086-7528. Sweepstakes subject to Official Rules.

AISTech Sponsorship Opportunities

A sponsorship is a cost-effective way to reach a new audience at Steel's Premier Technology Event for 2015. Be seen. Get noticed. Boost your business today!

YOUR
LOGO
HERE

Global Event Sponsor

2 available or exclusive at TBD

Sponsorship includes:

- Company logo on all major event signage, including Exhibit Hall entrance
- Recognition as global event sponsor on AISTech 2015 website, e-blast promotions and plenary event PowerPoint presentations
- Recognition at President's Award Breakfast, Town Hall Forum, and President's Reception and Dinner
- Unlimited passes for the Exhibit Hall
- Ten AIST memberships for 2015 (new members only)
- Exhibit Hall booth
- Full-page color ad in show issues (April, May) and post-show issue (August) of *Iron & Steel Technology*
- Full-page B&W ad in the On-Site Program distributed to all conference attendees
- Additional items for a complete marketing campaign, including a video display near entrance



President's Award Breakfast

4 1 available at US\$15,000

Sponsorship includes:

- Company logo or name on all President's Award Breakfast signage, including the breakfast program and the slideshow presentation prominently displayed on two large video screens
- Company logo on breakfast tickets
- Verbal acknowledgment from the AIST president at the conclusion of the event
- Tickets for one table of 10 at the breakfast
- Two registrations to attend the AISTech technical conference, including the Town Hall Forum
- Full-page B&W ad in the On-Site Program distributed to all conference attendees
- Full-page 4-color ad in the August issue of *Iron & Steel Technology*
- Five AIST memberships for 2015 (new members only)



President's Reception and Dinner

SOLD US\$15,000

Sponsorship includes:

- Company logo or name on all President's Reception and Dinner signage
- Introduction as a sponsor at the President's Reception and Dinner
- Cocktail napkins with logo
- Name recognition on the dinner menu
- Two invitations (including spouses) to attend the reception and dinner
- Two registrations to attend the AISTech technical conference, including the Town Hall Forum
- Full-page B&W ad in the On-Site Program distributed to all conference attendees
- Full-page 4-color ad in the August issue of *Iron & Steel Technology*
- Five AIST memberships for 2015 (new members only)



Vehicle Giveaway Feature

Unlimited at US\$1,000 each

Sponsorship Includes:

- Company logo on backdrop
- Company logo on AISTech 2015 website and in *Iron & Steel Technology*

See sponsor logos on page 215.

Monday Welcome Reception

SOLD US\$3,500

Sponsorship includes:

- B&W company logo on the napkins
- Premium signage at reception
- Half-page B&W ad in the On-Site Program distributed to all conference attendees





SunCoke Energy™

Tuesday Reception

Sponsorship includes:

- B&W company logo on the napkins
- Premium signage at reception
- Half-page B&W ad in the On-Site Program distributed to all conference attendees

SOLD US\$12,000



Thermo
SCIENTIFIC

Town Hall Forum Coffee Break

Sponsorship includes:

- Company name or logo on the signage at coffee break location
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Table to supply logoed cups as giveaways (optional)

4 3 available at US\$3,500



HERR-VOSS
STAMCO

Berry
METAL COMPANY

Town Hall Forum Lunch

Sponsorship includes:

- B&W company logo on the napkins at lunch stations
- Signage on lunch tables
- Half-page B&W ad in the On-Site Program distributed to all conference attendees

6 1 available at US\$3,500

REA JET
REAL DEMANDS. REAL SOLUTIONS.

Nidec
-All for dreams



NORTH AMERICA, INC.

Town Hall Forum Video

Sponsorship includes:

- Signage and recognition at the Town Hall Forum
- Inclusion of two 15-second commercial messages in the PowerPoint presentation before the event and during the coffee break

4 3 available at US\$5,000

CONDUCTIX
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On-Site Program

Sponsorship includes:

- Company logo on the front cover of the On-Site Program distributed to all conference attendees
- Full-page 4-color ad on the back cover of the On-Site Program

SOLD US\$7,500



EMPCO
INNOVATIVE TECHNOLOGY FOR STEEL

On-Site Program Bookmark

Sponsorship includes:

- 4-color ad on the front and back of a 2 x 9-inch perforated bookmark in the On-Site Program distributed to all conference attendees

SOLD US\$2,500



ace
World Companies
Overhead Cranes, Components
and Engineered Systems

Exhibitor Guide

Sponsorship includes:

- Company name or logo on the front and back of the Exhibitor Guide distributed to all conference attendees

SOLD US\$4,000



DANIELI

PRIMETALS
TECHNOLOGIES

Hotel Room Keycards

Sponsorship includes:

- Company logo and message on hotel room keycards
- Half-page B&W ad in the On-Site Program distributed to all conference attendees

3 1 available at US\$5,000





AIST Service Center Internet Café and Giveaway Feature: Tablet

SOLD US\$7,500

Sponsorship includes:

- Company logo featured on the desktop screens of PCs with Internet and email access
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Tablet giveaway
- Eight-foot table to display marketing materials



Exhibit Hall Giveaway Feature: iPad and US\$500 Best Buy Gift Card

SOLD US\$7,500

Sponsorship includes:

- Company name and logo on signage at the feature
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Company logo on the sign hung directly above the feature
- iPad and US\$500 Best Buy Gift Card Giveaway
- Eight-foot table to display marketing materials



Exhibit Hall Giveaway Feature: Microsoft Surface Tablet

SOLD US\$5,000

Sponsorship includes:

- Company name and logo on signage at the feature
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Company logo on the sign hung directly above the feature
- Microsoft Surface Tablet giveaway
- Eight-foot table to display marketing materials



**STRONG PARTNERS.
TOUGH TRUCKS.™**

Show Floor Internet Café

SOLD US\$4,000

Sponsorship includes:

- Company logo featured on the desktop screens of PCs with Internet and email access
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Giveaway TBD
- Eight-foot table to display marketing materials



Exhibit Hall Giveaway Feature: Large-Screen TV

SOLD US\$5,000

Sponsorship includes:

- Company name or logo on signage at the feature
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Company logo on the sign hung directly above the feature
- Large-screen TV giveaway
- Display of company's new products and services on the TV
- Eight-foot table to display marketing materials



Exhibit Hall Giveaway Feature: Golf Clubs and Bag

SOLD US\$5,000

Sponsorship includes:

- Company name or logo on signage at the feature
- Half-page B&W ad in the On-Site Program distributed to all conference attendees
- Company logo on the sign hung directly above the feature
- Golf clubs and bag giveaway
- Daily putting contests for a chance to win a putter
- Eight-foot table to display marketing materials





Pens

Sponsorship includes:

- Company-supplied pens staged at all registration tables for attendee use (AISTech Show Management must approve pens prior to distribution)
- Half-page B&W ad in the On-Site Program distributed to all conference attendees

SOLD US\$4,000



Event Bags

Sponsorship includes:

- Company-supplied bags (no plastic) placed in the AISTech registration area for attendee utilization (AISTech Show Management must approve bags prior to distribution)
- Half-page B&W ad in the On-Site Program distributed to all conference attendees

SOLD US\$4,000



Lanyards

Sponsorship includes:

- Company-supplied lanyards placed at the AISTech registration counter for attendee utilization (AISTech Show Management must approve lanyards prior to distribution)
- Half-page B&W ad in the On-Site Program distributed to all conference attendees

SOLD US\$4,000



Online Registration Page

2 1 available at US\$3,500 per position

Sponsorship includes:

- Top Position sponsorship includes company banner at the top of six online registration pages, and AISTech.org registration home page **SOLD**
- Bottom Position sponsorship includes company banner at the bottom of six online registration pages, and AISTech.org registration home page



Online Floor Plan Banner Ads

SOLD US\$2,000

Sponsorship includes:

- Company banner ad placed at the bottom of online floor plan



AISTech 2015 Smartphone App

SOLD US\$7,500

Sponsorship includes:

- Company logo on the home page of the smartphone app, with exposure prior to and during AISTech 2015
 - App will be available on AIST.org, AISTech.org and numerous marketing pieces
 - Available for Apple and Android
- Half-page B&W ad in the On-Site Program distributed to all conference attendees



Plant Tour and Coffee

SOLD US\$3,000

- ArcelorMittal Cleveland
- Charter Steel – Cleveland
- TimkenSteel Corp. – Faircrest Plant

Sponsorship includes:

- Coffee station from 6:30 to 7:30 a.m. day of tour
- Eight-foot table with four feet available for promotional brochures (sponsor can provide logoed cups)
- Signage at bus area and on bus
- Half-page B&W ad in the On-Site Program distributed to all conference attendees



YOUR
LOGO
HERE

Airport Shuttle/Baggage Check Area

2 available at US\$4,000

- Shuttle will be available Wednesday, 6 May, 4 to 8 p.m.
- Baggage Check will be available Wednesday, 6 May, 8 a.m. to 7 p.m.

Sponsorship includes:

- Eight-foot table for promotional brochures
- Company name and logo on signage in specific areas
- Half-page B&W ad in the On-Site Program distributed to all conference attendees



AISTech Proceedings on Flash Drive

SOLD US\$3,500

Sponsorship includes:

- Company logo on the back of the flash drive distributed to all Technical Conference registrants
- Banner ad on flash drive main menu linking to the company website



NEW! Phone Charge Kiosk

10 9 available at US\$3,000

- 1 located in Technical Session area
- 2 located in the Exhibit Hall

Sponsorship includes:

- Inclusion of one 30-second commercial message on a 30-inch monitor at each charging station; commercials will loop continuously during the conference and exhibit hours

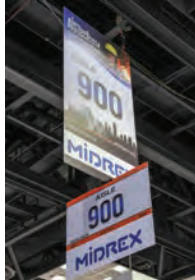


Aisle Signage

17 7 available at US\$2,500 per aisle

Sponsorship includes:

- Company logo on the bottom of selected aisle sign



Aisle 1300 	Aisle 1400 	Aisle 1500
Aisle 1600 AVAILABLE	Aisle 1700 AVAILABLE	Aisle 1800
Aisle 1900 	Aisle 2000 AVAILABLE	Aisle 2100
Aisle 2200 	Aisle 2300 	Aisle 2400 AVAILABLE
Aisle 2500 	Aisle 2600 	Aisle 2700
Aisle 2800 	Aisle 2900 AVAILABLE	

Check AISTech.org frequently for new opportunities and the latest updates!

For more information about AISTech sponsorship opportunities, contact sales@aist.org.

All sponsorships include company logo on a sponsorship sign placed in the registration area, company name in a slideshow presentation at the AIST President's Award Breakfast, and recognition on the sponsorship page of AISTech.org, in the May Show Issue and in the August post-conference issue of *Iron & Steel Technology*.