



# Preliminary Technical Program

AISTech  
2010

The Iron & Steel Technology Conference and Exposition • May 3–6, 2010 • Pittsburgh, Pa., USA

## Brimacombe Memorial Lecture

Visualizing the Future in Steel Manufacturing  
C. Zhou, Purdue University Calumet

## Safety & Health/Project & Construction Management

Managing Contractor Safety  
R. Cooper, Nucor Steel

Pre-Start Health and Safety Review (PSR) – A Third-Party  
Independent Review Conducted at the Start of the Project in  
Preparation for Certification Upon Conclusion  
C. Dupuis, JNE Consulting Ltd.

## Safety & Health/Material Handling

Your Employees Use Fall Protection, But Are They Really Safe  
From Harm?  
A. Galpin, Spanco Inc.

## Environmental

♦A Novel Greenhouse Gas Carbon Abatement Process (G-CAP)  
for the Iron and Steel Industry  
S. Kumar, Hatch; M. Freislich, Hatch; D. Mysko, Hatch; L. Westfall,  
Hatch; S. Bachenheimer, Hatch

♦Advanced Technologies for Residue Treatment – Successful  
Start-Up of the PRIMUS® Plant of Dragon Steel in Taiwan  
I. Both, Paul Wurth S.A.; C. Lin, Dragon Steel Corp.; S. Chang,  
China Steel Corp.; M. Houbart, Paul Wurth S.A.; J. Roth, Paul Wurth  
S.A.; R. Stoltz, Paul Wurth International S.A.

♦New Process and Application for Biogas in Metallurgy  
P. Assis, Universidade Federal de Ouro Preto; M. Martins,  
Universidade Federal de Ouro Preto; A. Moreira, Universidade  
Federal de Ouro Preto; R. Antero Silva Junior, Universidade Federal  
de Ouro Preto; T. Freitas Pipano, Universidade Federal de Ouro  
Preto

♦Ultralow-NOx Side and Flat Flame Fired Reheat Furnaces  
J. Feese, Hauck Manufacturing Co.; B. Kelly, Hauck Manufacturing  
Co.

Laboratory Study on Utilizing Iron Slag to Stabilize Cr(VI)-  
Contaminated Soils  
O. Hassan, Umea University

New Zinc Recovery Process From EAF Dust by Lime Addition  
R. Chairaksa, Tohoku University

## Environmental/Ironmaking

♦Achieving Carbon-Free Emissions via the Energiron DR Process  
P. Duarte, Tenova HYL; A. Tavano, Danieli & C

♦Environmental Benefits of Natural Gas Direct Reduction  
J. Kopfle, Midrex Technologies Inc.; G. Metius, Midrex Technologies  
Inc.

♦Operation Results of the New Waste Gas Treatment Facility at  
ROGESA's No. 2 Sinter Plant in Dillingen, Germany  
F. Reufer, Paul Wurth Umwelttechnik GmbH; W. Hartig, AG der  
Dillinger Huttenwerke

♦Selection and Engineering of Wastewater Treatment Systems  
for a Large Integrated Steel Mill

D. Gilles, ENVIRON International Corp.; M. Olthof, ENVIRON  
International Corp.; J. Iwinski, ArcelorMittal

♦The Future of Blast Furnace Ironmaking for Low-Cost Hot Metal  
and Reduced CO<sub>2</sub> Footprint

F. Kaptein, Danieli Corus Technical Services BV; R. van Laar, Danieli  
Corus BV; M. Geerdes, Geerdes & Partners; R. Vaynshteyn, Danieli  
Corus BV

Reduction of Blast Furnace Ironmaking Carbon Footprint  
Through Process Integration

K. Ng, CanmetENERGY

## Environmental/Electric Steelmaking

♦Green Solutions for EAF Steelmaking – The Future Approach

M. Abel, Siemens VAI Metals Technologies GmbH; M. Hein,  
Siemens VAI Metals Technologies GmbH; D. Bettinger, Siemens  
VAI Metals Technologies GmbH; K. Jamek, Siemens VAI Metals  
Technologies GmbH

♦Recycling Polymers in Auto Shredder Residue as a Resource  
for EAF Steelmaking: High-Temperature Interactions Between  
Slag and Polymers

V. Sahajwalla, University of New South Wales; S. Kongkarat,  
University of New South Wales; M. Zaharia, University of New  
South Wales; P. Koshy, University of New South Wales; R. Khanna,  
University of New South Wales; N. Saha-Chaudhury, University of  
New South Wales; D. Knights, OneSteel; P. O'Kane, OneSteel; K.  
Thangaraj, OneSteel

Clean and Efficient Optimization of EAF Dedusting Systems  
T. Rummier, Badische Stahl-Engineering

Implementation of Productivity and Dedusting System After  
POSCO EAF Revamping Project

J. Shin, POSCO

## Environmental/Oxygen Steelmaking

♦Bag Leak Detection Systems: Integrated Iron and Steel Mill  
Field Experience and Application

B. Wolters, ArcelorMittal

♦Opportunities for Increasing Productivity and Lowering  
Operating Costs While Reducing Greenhouse Gas Emissions in  
Steelmaking

D. Zuliani, Tenova Goodfellow Inc.; V. Scipolo, Tenova Goodfellow  
Inc.; J. Maiolo, Tenova Goodfellow Inc.; C. Born, Tenova Italimpianti  
Deutschland GmbH

Energy Savings Recommendations for Dust Collection Systems  
in Iron and Steelmaking Facilities

M. Johnson, GE Energy

New Technologies for BOF Primary Gas Cleaning

J. Schlueter, SMS Siemag AG

### Note

Papers confirmed as of Dec. 22, 2009, are denoted by the  
symbol ♦. For the latest updates, visit [www.AISTech.org](http://www.AISTech.org).



**Utilization of Evaporating Waste Gas Cooling Systems to Counteract Rising Energy Costs**

*J. Schrag, Oschatz GmbH*

## Environmental/Energy & Utilities

♦ **Improved Temperature Uniformity in Batch Reheat Furnaces With Praxair's Dilute Oxygen Combustion (DOC) System**

*L. Cates, Praxair; L. Rosen, Praxair*

♦ **Lowering Exhaust Gas Losses and Emissions With Newly Developed Recuperative and Regenerative Burners**

*J. Wuenning, WS Inc.*

♦ **Mill Revamping of Chubu Steel Plate Mill**

*M. Tokunaga, Chubu Steel Plate Ltd.; S. Mlyazawa, Chubu Steel Plate Ltd.; M. Habata, Chubu Steel Plate Ltd.*

♦ **Steel Mills: Energy Costs and the Green Planet**

*S. Pisano, Bloom Engineering Co. Inc.; A. Fennell, Bloom Engineering Co. Inc.*

♦ **Tenova FlexyTech® TRGX Burner Modeling and Testing**

*M. Fantuzzi, Tenova; M. Ageno, Tenova; A. Landi, C.S.M.; U. Zanusso, C.S.M.*

**Flue Gas Flow Optimization for Energy Efficiency and Clean Operations in Integrated Steel Plants**

*A. Basu, JNE Consulting Ltd.*

**Effect of Blending Ranggal Coal on High-Temperature Behavior of Cokes**

*S. Gupta, University of New South Wales*

**Enhanced Blast Furnace Operation Through SunCoke's Coke Quality Communications Program**

*S. Lonardi, Indiana Harbor Coke Co.*

**Factors Influencing the Best Method of Repair for the Battery Top Brickwork on DTE Energy Services' No. 5 Battery at EES Coke Plant, Detroit, Mich.**

*R. Carlin, DTE Energy Services*

**Installation of Mass Flow Coal Bins at EES Coke Battery**

*M. Shafer, DTE Energy Services*

**Latest Trends in Coke Oven Gas Desulfurization and Ammonia Destruction**

*H. Thielert, Uhde GmbH*

**State of the Art in Silica Manufacturing in the Field of Coke Oven Batteries**

*H. Wolf, P-D Refractories GmbH*

**SunCoke and U. S. Steel's New Coke and Energy Project**

*M. Barkdoll, SunCoke Energy*

**The Design and Installation of a Video Camera Line-Up system for Oven Machines at DTE Energy Services, EES Coke Battery No. 5, Detroit, Mich.**

*R. Shriver, DTE Energy Services*

## Cokemaking

♦ **Application of New Coke Oven Battery Technologies on the World Market**

*M. Reinke, Uhde GmbH*

♦ **Comparison of Byproduct vs. Heat-Recovery Cokemaking Technologies**

*P. Towsey, Hatch; I. Cameron, Hatch; Y. Gordon, Hatch*

♦ **Hot Idling Practices and Battery Asset Preservation at U. S. Steel's Cokemaking Facilities**

*L. Keating, U. S. Steel*

♦ **Influence of Wall Surface Unevenness on Coke Pushing Force**

*T. Nakagawa, Nippon Steel Corp.; T. Arima, Nippon Steel Corp.; K. Fukuda, Nippon Steel Corp.; S. Nomura, Nippon Steel Corp.; M. Sugiura, Nippon Steel Corp.; M. Sakaida, Nippon Steel Corp.; K. Kato, Nippon Steel Corp.*

♦ **New Developments in Cokemaking Technology and Their Application in Current Coking Plant Projects**

*S. Pivot, Paul Wurth Italia SpA; M. Kaiser, DM GmbH & Co KG; E. Lonardi, Paul Wurth S.A.; W. Faust, Paul Wurth S.A.*

♦ **Reduction of Coke Oven Gas Usage/Battery Heating Efficiency Improvements at U. S. Steel Gary Works Coke & Chemicals**

*T. Brayton, U. S. Steel Gary Works*

**Automatic Heating Control System at Coke Oven Battery No. 1, Durgapur Steel Plant**

*D. Charkraborty, Steel Authority of India Ltd.*

**Brick Rubble Removal From the Base of an On-Line Battery Stack**

*B. Doleman, ArcelorMittal Dofasco Inc.*

**Coke Oven Recovery Using "Big Block" Technology at ArcelorMittal Dofasco Inc.**

*K. Blake, ArcelorMittal Dofasco Inc.*

## Ironmaking

♦ **CFD Modeling of Pulverized Charcoal and Hot Oxygen Co-injection in a Blast Furnace Tuyere**

*B. Wu, Purdue University Calumet; T. Roesel, Purdue University Calumet; K. Patil, Purdue University Calumet; C. Zhou, Purdue University Calumet*

♦ **Innovative Path to Ironmaking**

*R. Jha, Jindal Steel & Power Ltd.*

♦ **Numerical Simulating the Effects of High Radiative Coating on the Heat Transfer Process in the Regenerator of a BF Hot Stove**

*H. Zhou, Shandong Hiumin Science & Technology Co., Ltd.; H. Zhang, Shandong Hiumin Science & Technology Co., Ltd.; J. Wang, Shandong Hiumin Science & Technology Co., Ltd.; H. Bai, University of Science and Technology Beijing; D. Li, Jigang International Project Technology Co., Ltd.*

♦ **Parametric Studies on PCI Performances**

*F. Tian, Purdue University Calumet; F. Huang, ArcelorMittal; D. Fu, Purdue University Calumet; C. Zhou, Purdue University Calumet*

♦ **Prediction of Process Parameters Using Neural Networks in an Iron Ore Sinter Plant**

*V. Kulkarni, Steel Authority of India Ltd.; V. Shekar, Steel Authority of India Ltd.*

♦ **Proven Practice and Future Prospects of Blast Furnace Fuel Injection**

*J. Plooi, Danieli Corus BV; D. Bergsma, Corus Strip Products IJmuiden; R. van Laar, Danieli Corus BV*

♦ **Raw Materials for the Blast Furnace**

*N. Sengupta, M.N. Dastur & Co. (P) Ltd.; S. Chakraborty, M.N. Dastur & Co. (P) Ltd.; C. Barman Ray, M.N. Dastur & Co. (P) Ltd.*

♦ **Recycling Waste Polymers in Iron Oxide-Bearing Composite Pellets for Ironmaking**

V. Sahajwalla, University of New South Wales; D. Jang, University of New South Wales; M. Zaharia, University of New South Wales; N. Saha-Chaudhury, University of New South Wales

♦ **The Future of Hot Blast Stoves**

F. Kaptein, Danieli Corus Technical Services BV; R. van Laar, Danieli Corus BV; R. Vaynshteyn, Danieli Corus BV

♦ **The New TATA Steel “H” Blast Furnace: Design Concept, Project Development and Operating Results**

C. Castagnola, Paul Wurth Italia SpA; F. Fabio, Paul Wurth Italia SpA; C. Roberto, Paul Wurth Italia SpA; S. Ram Prit, Tata Steel Ltd.; R. Sadhan Kumar, Tata Steel Ltd.

♦ **Thermal Efficiency Optimization of the Hot Stove System**

P. Lin, China Steel Corp.; W. Yau, China Steel Corp.; J. Tsai, China Steel Corp.

**30 Million Tons in AHMSA Hearth Blast Furnace No. 5**

F. Liceaga, AHMSA S.A.B.DE C.V.

**A New Architecture of Control and Operation System – PRM in the New Campaign of a Blast Furnace**

J. Chang, China Steel Corp.

**Analysis of the Economy and Emissions of Blast Furnace Operation With Top Gas Recycling**

H. Helle, Abo Akademi University

**CFD Simulation of Co-Injection of Plastic Particles and Oil Into a Blast Furnace Raceway**

M. Harasek, Vienna University of Technology

**Charge Intelligent Sinter Into Your Blast Furnace: Achieve Real Cost-Efficiency With Siemens VAI Sinter Technologies**

S. Hotzinger, Siemens VAI

**Corex<sup>®</sup> Ironmaking in a Changing Steel Market**

D. Siuka, Siemens VAI

**Developments in Blast Furnace Blow-In**

M. Geerdes, Geerdes & Partners

**Direct Injection of Biofuel in Blast Furnace Ironmaking**

K. Ng, CanmetENERGY

**Don't Let Your Money Go Up the Chimney**

M. Fletcher, Siemens VAI Technologies; P. Martin, Siemens Energy & Automation

**Gimbal Top Goes On-Line**

P. Whitfield, Siemens VAI Technologies

**High-Productivity Operation of JSPL No. 2 Blast Furnace**

S. Shaik, Jindal Steel & Power Ltd.

**Introducing India's Largest Blast Furnace**

M. Eden, Siemens VAI Technologies; P. Martin, Siemens Energy & Automation

**Ironmaking Technology Selection for Specific Site Conditions**

Y. Gordon, Hatch

**Numerical Analysis on the Heat Transfer Inside Waste Tire Injection Lance**

M. Gu, Anhui University of Technology

**Numerical Study on Co-Injection of Pulverized Coal and Pulverized Waste Tuyere Inside Blast Furnace Tuyere**

M. Gu, Anhui University of Technology

**Self-Reduction and the Future of Ironmaking**

J. Noldin, Tecno-Logos S/A

**Significant Advantages of Rotary Charging of Blast Furnaces, as Compared With Traditional Methods of Charging**

B. Boranbaev, Totem Co. Ltd.

**Simplified Flowsheets for Processing Low-Grade Iron Ores**

S. Kawatra, Michigan Technological University

## Ironmaking/Computer Applications

♦ **Modeling of Burden Distribution in the Bell-Less Top Blast Furnace**

D. Fu, Purdue University Calumet; F. Huang, ArcelorMittal; C. Zhou, Purdue University Calumet

♦ **Characterization of the State of LKAB Experimental BF Hearth**

L. Sundqvist Okvist, Swerea MEFOS AB; N. Eklund, LKAB; J. Wikstrom, MEFOS AB

♦ **Investigation of Related Factors of Blast Furnace Slag Fluidity and Its Application**

J. Shiao, China Steel Corp.; S. Liu, China Steel Corp.; C. Ho, China Steel Corp.

♦ **Numerical Investigation and Optimization of a Venturi Scrubber**

B. Wu, Purdue University Calumet; N. Chen, Purdue University Calumet; D. Lu, ArcelorMittal; C. Zhou, Purdue University Calumet

**Dynamic Logistics Simulation Combined With Process Modeling to Support Capacity Expansion Studies**

A. Noiseux, Hatch

**Physical and Mathematical Modeling of Transient Thermal and Liquid Flow Inside a Blast Furnace Hearth During the Tapping Period**

E. Santos, ArcelorMittal Tubarao

## Ironmaking/Refractory Systems

♦ **No. 2 Blast Furnace Stove Refractory Findings and Innovative Solutions**

D. Carreau, ArcelorMittal Dofasco Inc.; F. van Larr, Allied Mineral Products Inc.; G. Atlija, ArcelorMittal Dofasco Inc.

**Eddy-Free Tuyeres for a Blast Furnace**

A. MacRae, MacRae Technologies Inc.

**High-Conductivity Copper in the Blast Furnace**

T. Shellhammer, Shellhammer Consulting

**New Method of Lining a Blast Furnace Bosh and Stack**

T. Smith, Berry Metal Co.

**Reducing Refractory Cost Using New Al<sub>2</sub>O<sub>3</sub>-SiC-C Bricks for Hot Iron Transport**

W. Porter, Puyang Refractory Co.

**Severstal L-Blast Furnace Hearth Refractories Findings and Repair at Sparrows Point**

F. van Laar, Allied Mineral Products Inc.

## Electric Steelmaking

♦ **A Study on Supersonic Coherent Jet Characteristics Using Computational Fluid Dynamics**

M. Alam, Swinburne University of Technology; J. Naser, Swinburne University of Technology; G. Brooks, Swinburne University of Technology



♦ **EAF Optimization: Efficient Use of Chemical Energy in the Electric Arc Furnace**

A. Wyatt, SGL Group – The Carbon Co.; H. Fuchs, SGL Group – The Carbon Co.; D. Kundrat, SGL Group – The Carbon Co.; H. Schaefer, SGL Group – The Carbon Co.

♦ **Effect of Preheating on the Melting and Decarburization Behavior of DRI in Steelmaking Slag**

E. Sharifi, University of Toronto; M. Barati, University of Toronto; M. Johnston, University of Toronto

♦ **Numerical Modeling of Scrap Heating by Burners**

K. Mandal, ArcelorMittal; G. Irons, McMaster University

♦ **Reductions of Iron Oxide in EAF Steelmaking Slag by Metallurgical Coke and Waste Polymer Blends**

J. Dankwah, University of New South Wales; V. Sahajwalla, University of New South Wales; P. Koshy, University of New South Wales; N. Saha-Chaudhury, University of New South Wales; D. Knights, OneSteel; P. O’Kane, OneSteel

♦ **Robotic Solutions for the EAF – First Performance Review**

M. Abel, Siemens VAI Metals Technologies GmbH; M. Hein, Siemens VAI Metals Technologies GmbH; K. Pastucha, Siemens VAI Metals Technologies GmbH; A. Priesner, Siemens VAI Metals Technologies GmbH

♦ **Single-Charge EAF Modification: Installation and Experience**

Y. Krotov, Steel Dynamics Inc.; B. Butcher, Steel Dynamics Inc.; B. Laroy, Steel Dynamics Inc.; S. Meyer, Superior Machine Co of SC, Inc.; K. Vanover, Steel Dynamics Inc.

♦ **Start-Up and Results of the EAF Consteel® Plant of Celsa Nordic - Mo i Rana (Norway)**

C. Giavani, Tenova; M. Guzzon, Tenova; F. Picciolo, Tenova

♦ **State-of-the-Art Offgas Analysis at the EAF**

L. Voj, SMS Siemag AG; U. Falkenreck, SMS Siemag AG; M. Reifferscheid, SMS Siemag AG; D. Rosenthal, SMS Siemag AG; J. Schluter, SMS Siemag AG

**Achieving the Maximum Benefit From Electrode Spray Cooling**

T. Hoyle, SGL Group – The Carbon Co.

**Auto-Slipping Current Conductive Arm for EAF**

F. Memoli, Tenova

**Big Success in Turnkey Project Honor of Toscelik and CVS Makina**

D. Ertas, CVS Makina

**Formation of an Impromptu EAF Proces Team at CMC Steel Texas**

S. Matson, CMC Steel Texas

**iEAF® Technology: Recent Developments and Results at TenarisDalmine, Italy**

V. Scipolo, Tenova Goodfellow Inc.; P. Galbiati, TenarisDalmine; P. Giugliano, TenarisDalmine; S. Gillgrass, Tenova Goodfellow; P. Clerici, Tenova SpA; M. Pustorino, Tenova SpA

**Jets in Steelmaking Units: The Source of Information About Physical and Chemical Transformation Into the Steel Melt**

O. Shlik, Accusteel Ltd.

**Modernization Concepts for Electric Steelmaking Shops**

M. Hogenschurz, SMS Concast AG

**Operational Benefits and Design Considerations for a Stationary Electric Furnace for Continuous Steelmaking**

T. Koehler, Hatch

**Optimization Results at Ferriere Nord Using EFSOP® Technology**

M. Boin, Ferriere Nord S.p.A.

**Oxygen/Carbon Injection System at Charter Steel Cleveland: Project Description and Operational Results**

J. Sanchez, Charter Steel Cleveland

**Revamping of Two 140-Ton DC Twin-Shell Furnaces at POSCO, Korea**

J. Shin, POSCO

**Thermodynamic Modeling to Improve Foamy Slag Practice in the EAF**

L. Trueba, University of Texas at El Paso

**Energy-Efficient, Ecologically Friendly, Safe and Profitable, Non-Electric, Oxy-NG/Carbon-Based, Amalgamated Method of Steelmaking From Scrap and Its Substitutes in an Upgraded Apparatus of Existing Electric Arc Furnace**

E. Wunsche, EMPSCO Ltd.

## Electric Steelmaking/ Electrical Applications

♦ **Asymmetrical Power Control of AC-EAFs by Structure-Borne Sound Evaluation**

B. Dittmer, Helmut-Schmidt University; D. Rieger, Siemens AG; T. Matschullat, Siemens AG; A. Dobbeler, Siemens AG; K. Kruger, Helmut-Schmidt University

♦ **Line Differential Protection Systems Using Low-Power Current Sensors Applied to EAF Circuits**

M. Bishop, Cooper Industries; L. Kojovic, Cooper Industries; T. Day, Cooper Industries; D. Sharma, Nucor-Yamato Steel

**Fault-Tolerant SVC ArcComp System for DC Arc Furnaces**

S. Tambe, ABB Inc.

**Secondary System Mechanical Resonance in New Tall-Shell SDI Butler Arc Furnaces: Detection and Solutions**

R. Gerhan, Graftech International Inc.

**STATCOM for Powerful Flicker Reduction From Electric Arc Furnace Operation**

C. Gaspard, Akers France/Akers Belgium; C. Vergne, Akers Belgium; D. Batazzi, Akers Belgium; T. Nylen, Akers AB; P. Bolt, Corus Tata Steel Europe; K. Reuver, Corus Tata Steel Europe; S. Mul, Corus Tata Steel Europe

**The ArcCOS Furnace Automation Concept – Much More Than a Simple Electrode Control System**

C. Sedivy, Vatron GmbH

## Electric Steelmaking/Energy & Utilities

**Energy Recovery Technology for EAFs**

C. Froehling, SMS Siemag AG

**Heat Recovery for the EAF of Georgsmarienhütte, Germany**

H. Schliephake, Georgsmarienhütte GmbH

**New Approaches to Meltshop Offgas Heat Recovery**

J. Jones, WorleyParsons GCT

## Oxygen Steelmaking

♦ **Avoiding Sloppy BOS Process Behavior**

M. Bramming, SSAB Swedish Steel; B. Bjorkman, Lulea University of Technology



♦Development of a Comprehensive Model for Oxygen Steelmaking

N. Dogan, Swinburne University of Technology; G. Brooks, Swinburne University of Technology; M. Rhamdhani, Swinburne University of Technology

♦Experimental Remarks on Supersonic Jet Behavior in High-Temperature, Reactive Ambient in Connection to Near-Atmospheric and Vacuum-Level Metal-Making

W. Mahoney, Praxair Inc.  
Effects of Some Operational Parameters on Degasification Rate, Mixing Time, Splashing and Skull Development in a Combined-Blow Converter During Steelmaking Refining: A Physical Model Approach  
L. Almeida, V & M do BRASIL

Production Improvement of No. 2 BOSP at ESAI  
K. Ughadpaga, ESSAR Steel Algoma Inc.

The Development and Advantages of a Quick Tapping Practice for the Q-BOP Furnaces at U. S. Steel Gary Works  
R. Rote, Midwest Instrument Co.

Panel Discussion – BOF Benchmarking  
M. Smith, AK Steel Corp.; R. Feindrich, VDEh; R. Bruckhaus, AG der Dillinger Huttenwerke

## Oxygen Steelmaking/ Computer Applications

♦Dynamic Modeling of the BOF for Endpoint Prediction Using EFSOP® Technology  
V. Scipolo, Tenova Goodfellow Inc.; O. Davis, Tenova Goodfellow Inc.

♦Production and Quality Improvement Through KOBM Steelmaking Process Automation  
S. Sun, ArcelorMittal Dofasco Inc.; D. Liao, ArcelorMittal Dofasco Inc.; S. Waterfall, ArcelorMittal Dofasco Inc.; P. Neal, ArcelorMittal Dofasco Inc.; K. Boylan, ArcelorMittal Dofasco Inc.

♦Time-Based Scheduling System  
S. Kecec, Iskenderun Iron and Steel Co.; M. Altigul, Iskenderun Iron and Steel Co.; H. Yildirim, Iskenderun Iron and Steel Co.

Cast in Time and Quality: Energy Savings Through Integrated Heat Temperature Forecast and Scheduling Model  
H. Ponten, PSI BT



**The Material Advantage program provides college students with a single, low-cost membership to materials science and engineering professional organizations: ACerS, AIST, ASM International and TMS.**

The Material Advantage program now has more than 4,300 members who receive the following benefits:

- Special conference rates, travel grants and publication discounts.
- The printed journal from each organization on a monthly rotating basis, including *American Ceramic Society Bulletin* (ACerS), *Iron & Steel Technology* (AIST), *Advanced Materials and Processes* (ASM) and *JOM* (TMS).
- Access to nearly \$600,000 in scholarships and grants through the societies and their various chapters and foundations.
- Complimentary membership, upon graduation, to all four societies for one year.

AIST's participation in Material Advantage provides a significant opportunity to reach a large student audience through communication between the students and AIST Member Chapters and Technology Committees.

Material Advantage currently has 81 active chapters at academic institutions throughout the United States, Canada and abroad. Each chapter has a faculty advisor to guide the students as they plan events, develop programs and enter contests. Most importantly, these advisors mentor the students in career opportunities and will serve as the key link to communication between AIST and the students.

Learn more about this exciting program by visiting [www.materialadvantage.org](http://www.materialadvantage.org).

## Specialty Alloy & Foundry

- ♦ **Design; Start-Up of a 33-Ton Vacuum Induction Furnace and Consumable Vacuum Remelt Shop**  
*M. Rodney, Latrobe Specialty Steel Co.; N. Fenton, Latrobe Specialty Steel Co.; L. Nusselt, Latrobe Specialty Steel Co.*
- ♦ **Strategies for Use of Superheated Steam During Stainless Steel Refining in Converters**  
*C. Rick, Uvan Hagfors Teknologi AB*
- Cost Optimization in Production of Stainless and Special Steels in AOD Converter by Use of Oxidic Alloys**  
*K. Pastucha, Siemens VAI*
- High-Impact Computer Integrated Meltshop Management Systems – Effective Implementation With Sustained Success**  
*J. Middleton, Multon Process Technology Ltd.*
- Operation Technique and Plant Design of the VD/VOD Unit at ThyssenKrupp Acciaiere Speciali Terni (TK AST) for the Production of Superferritic Stainless Steel**  
*D. Tembergen, SMS Mevac*
- Oscillation Measurement and Multiphase Flow Simulation of the AOD Process**  
*H. Odenthal, SMS Siemag AG*

## Ladle & Secondary Refining

- ♦ **Influence of Plume Eye Area on the Surface Reaction Rate of Oxygen-Water System Under the Bottom Bubbling Condition**  
*N. Maruoka, Tohoku University; F. Lazuardi, Tohoku University; H. Shibata, Tohoku University; S. Kitamura, Tohoku University*
- Different Techniques for Reduction of Aluminum Consumption in Ladle Furnaces at Ispat Industries Ltd.**  
*P. Patra, Ispat Industries Ltd.*
- Hydrogen and Nitrogen Control and Breakout Warning Model for Casting Non-Degassed Steel**  
*S. Abraham, Evraz Inc. NA*
- Multiphase Modeling of the Ladle Stirring Operation**  
*J. Barreto, Instituto Tecnológico de Morelia*
- On-Line Monitoring of Ladle Stirring**  
*X. Xu, Swinburne University of Technology*
- Steel Degassing Operations Using Mechanical Vacuum Pump Systems**  
*S. Miani, SMS Concast Italia*
- Steel Liquidus Temperature Estimation From Thermodynamic Calculations**  
*T. Piccone, U. S. Steel*
- Thermodynamic Modeling of the CaF<sub>2</sub>-Containing Slags and Its Applications to Steelmaking Processes**  
*I. Jung, McGill University*

## Ladle & Secondary Refining/ Refractory Systems

- ♦ **Development of Highly Durable Slidegate Plate Material by a New Bonding System**  
*Y. Uchida, Krosaki Harima Corp.; M. Takenami, Krosaki Harima Corp.; K. Akamine, Krosaki Harima Corp.; J. Yoshitomi, Krosaki Harima Corp.; T. Kayama, Krosaki Harima Corp.*

- ♦ **Improved Basic Carbon Refractory Material for Sliding Gate Plate Application**  
*M. Snyder, Vesuvius; A. Rezaie, Vesuvius; P. Desai, Vesuvius*
- ♦ **Increasing Refractory Wear Profile Control on the Steel Ladles at the V&M DO Brasil**  
*H. Asth, V & M do BRASIL; L. Silva, V & M do BRASIL; G. Cruz, V & M do BRASIL; G. Bastos, V & M do BRASIL; L. Almeida, V & M do BRASIL*
- ♦ **Slidegate Mythology**  
*P. King, PDK LLC*
- Improving Ladle Stir Reliability and Service Life Using New Design Purge Plug**  
*W. Porter, PRCO Group*

## Continuous Casting

- ♦ **MIXMASTER – The Fast Tundish Grade Transition System**  
*L. Heaslip, Interflow Techserv Inc.; J. Dorricott, Interflow Techserv Inc.*
- ♦ **Mold Flow Modeling of ArcelorMittal Riverdale and POSCO Thin Slab Casters**  
*M. Yavuz, ArcelorMittal Global R&D; M. Cho, POSCO; S. Lee, POSCO; K. Neale, ArcelorMittal*
- ♦ **Near-Net-Shape Casting of Steel – The Belt Casting Technology**  
*J. Schluter, SMS Siemag AG; J. Wans, SMS Siemag AG; J. Bausch, SMS Siemag AG; H. Hecken, SMS Siemag AG*
- ♦ **Slab Caster Revamping – The Approach to Excel in the Market**  
*O. Schulz, Siemens VAI; K. Engel, Siemens VAI; G. Hrazdera, Siemens VAI*
- ♦ **The Development of Value-Added Grades via the Thin-Slab Casting Process**  
*G. Paulon, Danieli; C. Piemonte, Danieli; B. Kozak, Danieli Corp.*
- ♦ **Water Treatment Chemistry Impact on CSP Mill Product Quality and Production Rate**  
*J. Strasser, Nalco; J. Hatcher, Nalco*
- Analysis of Titanium-Bearing Inclusions in Ti-Stabilized Ultralow-Carbon Steels**  
*S. Story, U. S. Steel*
- Customized High-Hardness Coating Solutions for Continuous Caster Mold Coppers**  
*J. Brower, Siemens Industry Inc.*
- Optimized Roll Surface Technology and New Roll Concepts for Continuous Casting**  
*W. Antos, Siemens VAI Metals Technologies GmbH*
- Productivity Enhancement of a Thin Slab Continuous Caster by Increasing Metallurgical Length and Slab Thickness**  
*I. Momin, Ispat Industries Ltd.*
- Secondary Hybrid Generation Reduction by Using Different Grade Transition Strategies at ESSAR Steel Algoma**  
*G. Hebert, ESSAR Steel Algoma Inc.*

## Continuous Casting/Metallurgy – Steelmaking and Casting

- ♦ **A Novel Steady-State Technique for Measuring the Heat Extracted by Secondary Cooling Sprays**  
*C. Hernandez B., CINVESTAV; X. Zhou, University of Illinois at Urbana-Champaign; J. Guajardo J., CINVESTAV; A. Castellejos E.,*



CINVESTAV; F. Acosta G., CINVESTAV; B. Thomas, University of Illinois at Urbana-Champaign

♦ **Advanced Revamping Solutions for Long Product Casting**  
U. Zanelli, Siemens VAI

♦ **Development of the Self-Brake Nozzle for Steel Slab Continuous Casting Process**

L. Zhang, Missouri University of Science and Technology

♦ **Effect of Ladle Shroud Alignment on Steel Quality in a 4-Strand, Delta-Shaped Tundish**

K. Chattopadhyay, McGill University; R. Guthrie, McGill University; M. Isac, McGill University

♦ **Effect of Melting and Casting Parameters on the Hot Ductility Behavior of Nb-Bearing Beams, Billets and Slabs**

S. Jansto, CBMM-Reference Metals Co.

♦ **Increasing Casting Speed Without Model Level Hunting Risk Using Switching Control**

P. Ortner, Johannes Kepler University; T. Passenbrunner, Johannes Kepler University; P. Colaneri, Polirtecnico di Milano; L. Del Re, Johannes Kepler University

♦ **Metallurgical Effects of FC Mold on Slab Continuous Casting**

H. Yang, ABB AB/Metallurgy; J. Song, Shanghai Meishan Iron & Steel Co. Ltd.; N. Jacobson, ABB AB/Metallurgy; J. Eriksson, ABB AB/Metallurgy; O. Sjoden, ABB AB/Metallurgy; H. Hackl, ABB AB/Metallurgy

♦ **Mold Technology for the Future**

N. Grundy, SMS Concast AG; M. Hogenschurz, SMS Concast AG

♦ **Optimization of Surface Quality**

S. Carless, Corus; A. Kamperman, Corus; A. Westendorp, Corus

♦ **The Nature of Internal Defects in Continuously Cast Steel and Their Impact on the Final Product Quality**

R. Pierer, University of Leoben; C. Bernhard, University of Leoben

♦ **Water Modeling of the Stirring and Braking Processes in a Slab Caster Mold**

H. Yang, ABB AB/Metallurgy; F. Tehranchi; J. Eriksson, ABB AB/Metallurgy

**Correlation Between F-Value and Sliver Index for Ultralow-Carbon Steel Grades at ArcelorMittal Dofasco's No. 1 Continuous Caster**

J. Sengupta, ArcelorMittal Dofasco Inc.

**Experimental Study on Heat Transfer Behavior Through the Mold Flux Film Between the Solidifying Shell and Mold**

S. Mineta, Nippon Steel Corp.

**Improvement of the Periodical Mold Level Fluctuation and Sliver Defects in a Slab Caster**

K. Huang, China Steel Corp.

**Improving Centerline Segregation Control on X70 Products**

X. Chen, Evraz Inc. NA

**Optimal Nozzle Design for ArcelorMittal Dofasco's No. 1 Continuous Caster for Minimizing Sliver Defects**

J. Sengupta, ArcelorMittal Dofasco Inc.

**Optimization of a Submerged Entry Nozzle Design to Reduce Non-Metallic Inclusions in Line Pipe Steel**

B. Forman, ArcelorMittal

**Quality Innovation in Bloom**

T. Honda, Godo Steel Ltd.

**Study on the Influence of Secondary Cooling Water Coverage Area of Bloom Surface on Cooling Effect in Continuous Casting of Gearing Steel**

Q. Liu, University of Science and Technology Beijing

**The Effect of Hydrogen on Mold Heat Removal in Continuous Casting**

T. Piccone, U. S. Steel

**The Sophisticated Air Mist Nozzle for Secondary Cooling of the Continuous Caster**

S. Kubori, Everloy/Kyoritsu Gokin Co., Ltd.

**Use of an Instrumented Mold to Assess Local and Integral Heat Transfer in a Round Continuous Casting Machine**

E. Schmidt, Vallourec Research Center

## Hot Sheet Rolling

♦ **Development of a Bending Force Feedforward Control System in Hot Continuous Rolling**

T. Liu, University of Science and Technology Beijing; Q. Yang, University of Science and Technology Beijing; A. He, University of Science and Technology Beijing; X. Du, University of Science and Technology Beijing; Y. Zhang, University of Science and Technology Beijing; X. Wang, University of Science and Technology Beijing; L. Wang, University of Science and Technology Beijing

♦ **Hot Strip Mill Reverse Pass Edging – A New Concept for Process Improvement**

A. Broukhiyan, TM GE Automation Systems LLC

♦ **Modernization of Hot Strip Mills – Concepts, Implementations and Results**

S. Kramer, SMS Siemag AG; S. Berger, SMS Siemag AG; W. Fuchs, SMS Siemag AG

♦ **Strategies for Flexible Hot Strip Mill Modernizations**

R. Burger, Siemens

**Start-Up of Arvedi ESP – Real Endless Strip Production**

A. Jungbauer, Siemens VAI Metals Technologies GmbH & Co.

## Hot Sheet Rolling/Rolls

♦ **HSS Work Rolls for Hot Mill Finishing Stands: Keys to Success**  
M. Sinnaeve, Marichal Ketin

♦ **SIROLLCIS HM Work Roll Lubrication for Electrical Energy Reduction and Strip Surface Improvement**

A. Seilinger, Siemens VAI Metals Technologies; R. Schuster, Siemens VAI Metals Technologies; F. Schmoller, Siemens VAI Metals Technologies; G. Grasse, Siemens VAI Metals Technologies

**Reducing Your Carbon Footprint With Green Hot Mill Lubricants**  
J. Murphy, Quaker Chemical Corp.

**Work Roll Temperature and Thermal Crown Measurement to Improve Roll Cooling Efficiency**

M. Assar, ArcelorMittal

## Hot Sheet Rolling/ Computer Applications

♦ **Bar Width Change in Finishing Stands of the Hot Strip Mill**  
E. Nikitenko, U. S. Steel

◆ **How Product Quality Performance Reports Drive Additional Process Improvement**  
*W. Filipczyk, TM GE Automation Systems LLC; J. McMillen, TMGE Automation Systems LLC*

◆ **Mill Level 2 Model in Improvement of Product Quality and Productivity**  
*B. Li, Metal Pass LLC*

◆ **Productivity Optimization at Duferco Farrell's 60-Inch Hot Strip Mill**  
*R. Bilkie, Duferco Farrell Corp.; E. Horan, Duferco Farrell Corp.*

◆ **Integrated Production Management Solution for an Integrated CSP Plant**  
*C. Williams, Severstal Columbus LLC*

◆ **The Advantages of Simultaneous Assignment and Scheduling of a Hot Strip Mill**  
*P. Moinier, AIS Advanced Information Systems*

## Cold Sheet Rolling

◆ **Advanced Technologies for Skinpassing of Stainless Steel and Carbon Steel**  
*S. Willems, SUNDWIG GmbH*

◆ **Chemical Removal of Internal Scale From the HCl Pickle Liquor Pipeline**  
*M. Nicholls, ArcelorMittal Dofasco Inc.; J. Wong, ArcelorMittal Dofasco Inc.*

◆ **Fit for the Future by Modernization – The Latest Solutions for Tandem Cold Mills**  
*R. Holz, SMS Siemag AG; F. Topfer, SMS Siemag AG; K. , SMS Siemag AG*

◆ **PLTCM Network Topologies**  
*O. Gocan, TM GE Automation Systems LLC; X. Gao, Shougang Jingtang United Iron and Steel Co. Ltd.*

◆ **Prediction of Local Buckle Threshold and Buckling Modes in Cold Rolling**  
*J. Fan, Quad Engineering Inc.; Y. Martins, Quad Engineering Inc.; H. Zhang, Quad Engineering Inc.*

◆ **SIROLLCIS CM – Upgrading of Cold Rolling Tandem Mills to Continuous Operation**  
*G. Finstermann, Siemens VAI; R. Kellermayr, Siemens VAI; W. Bernsteiner, Siemens VAI; S. Georges, Siemens*

◆ **Strip Cleanliness, Extracting New Data From the Rolling Oil TGA Burnoff Curve**  
*M. Nicholls, ArcelorMittal Dofasco Inc.*

◆ **Taking Batch Annealing Optimization to the Next Level**  
*M. McDonald, Rad-Con*

◆ **Integrated New Downstream Facilities at Acciaieria Arvedi (Italy)**  
*M. Turchetto, Danieli Wean United*

◆ **Self-Cleaning/Variable Vacuum Rolls for Drying and Cleaning Metal Strip**  
*R. Schaming, Schaming Innovations*

## Cold Sheet Rolling/Rolls

◆ **Implementation of In-Service Key Parameters of HSS Work Roll Grade Dedicated to Advanced Cold Rolling**  
*C. Gaspard, Akers Group*

◆ **Cast High-Chromium Rolls for Cold Mills**  
*D. Turner, United Foundries Inc.*

◆ **The Economic Value of Chrome Plating in Cold Reduction and Temper Mill Rolling**  
*J. Senne, MetalPro Resources LLC*

## Galvanizing

◆ **Analysis of Edge Buildup on Aluminized Steel Strip Using Computational Fluid Dynamics (CFD) and Metallography**  
*A. Elnenaey, ArcelorMittal; C. Shastry, ArcelorMittal*

◆ **Numerical Investigation of Fluid Flow and Heat Transfer of Multiple-Impinging Slot Jets in Continuous Hot-Dip Galvanizing**  
*P. Tamadonfar, McMaster University; J. McDermid, McMaster University; A. Hrymak, University of Western Ontario; F. Goodwin, International Zinc Association*

◆ **The Influence of Temperature and Aluminum Content on Galvannealed Coating**  
*X. Yu, Baoshan Iron & Steel Co. Ltd.; H. Zhang, Baoshan Iron & Steel Co. Ltd.*

◆ **Unicoil Continuous Galvanizing Line – A Journey of Small Improvements Leading to Big Achievements**  
*S. Roychoudhury, Universal Metal Coating Co. Ltd.; M. Mour El Din, Universal Metal Coating Co. Ltd.; K. Suresh Babu, Universal Metal Coating Co. Ltd.*

◆ **Getting the Right Information to Solve Coating Problems**  
*J. Hetzer, Automation and Control Technology*

◆ **Mechanical Properties and Development of Hot-Dip Coated Solid-Solution-Strengthened Low-Carbon Steels for Automobiles**  
*G. Cheng, Baosteel-NSC/Arcelor Automotive Steel Sheets Co., Ltd.*

## Galvanizing/Tinplate & Electro galvanizing

◆ **Graphical Tool for Bottleneck Identification and Productivity Improvements in Steel Strip Processing Lines**  
*K. Wright, Hatch; D. Irvine, Hatch; M. Roberts, Hatch*

◆ **Improving the Galvanizing Process – Electromagnetic Strip Stabilization and Complementary Solutions: eMASS, eWIPE, eBACS**  
*A. Jordan, EMG Automation GmbH; S. Devorich, EMG USA Inc.; M. Gilbert, EMG USA Inc.*

◆ **New Electrolytic Tinning Line and Tin-Free Steel Line for Baosteel, China**  
*K. Kamio, Nippon Steel Engineering Co. Ltd.; Y. Ninomiya, Nippon Steel Engineering Co. Ltd.*

◆ **Simulation of Strip Lateral Dynamics on Continuous Processing Lines**  
*Y. Ishigaki, JFE Steel Corp.; K. Kabeya, JFE Steel Corp.*

◆ **A Method for Roll Alignment by Means of Inertial Technology Using PARALIGN®**  
*T. Coombes, Pruftechnik Machinery Service*

## Plate Rolling

◆ **A Targeted Approach to Optimizing the Plate Mill**  
*N. Champion, Siemens VAI; M. Landy, Siemens Industry*

◆ **Descale System Design**  
*S. DeMar, Hauhinco*

♦ **Maximized Asset Reliability and Performance Connected to PDA Inspection**

*J. Kurosky, Blue Star Lubrication Technology; K. Knaphnus, Blue Star Lubrication Technology; J. Marquez, Evraz Oregon Steel; M. Inns, Blue Star Lubrication Technology*

♦ **Modern Process Models to Improve Product Quality on Plate Mills**

*R. Doell, Siemens*

♦ **Modernization of the Heavy Plate Rolling Mill at Dongkuk**

*D. Ehlert, SMS Siemag AG; K. Pronold, SMS Siemag AG*

♦ **New Developments in Drivetrains for Roughing and Plate Mills**

*E. Jung, SMS Siemag AG; C. Sundermann, SMS Siemag AG; W. Malan, SMS Siemag AG*

♦ **The Plate Mill as a Metallurgical Tool**

*J. Lee, Siemens VAI; M. Landy, Siemens Industry*

**Shape Improvement in Cut-to-Length Lines With an In-Line 4-Hi Skinpass Mill**

*J. Servanton, Siemens VAI Metals Technologies GmbH*

**Tenova FlexyTech® Regenerative Flameless Burners**

*L. Ballarino, Tenova SpA*

**Two Hundred Years of Rolling on the Brandywine**

*R. Smith, ArcelorMittal*

## Rod & Bar Rolling

♦ **Quenching and Tempering: An Unfamiliar Process in North America**

*M. Allen, Advanced Steelworks*

♦ **Quenched and Self-Tempered Rebar – Process Overview, Layout, Operational Parameters and Cost Savings**

*S. Lundberg, Hatch*

**Improvement of Wire Rods Processing Technology**

*A. Takamori, Godo Steel Ltd.*

**New Mill Stands for New Duties**

*M. Fabro, SMS Meer Service Inc.*

## Rod & Bar Rolling/Project & Construction Management

♦ **Project Management Models for Long Product Rolling Mills**

*L. Giacomini, Siemens Metals; A. Lainati, Siemens Metals; M. Arena, Siemens Metals*

♦ **Staying Ahead of the Curve – Beating the Commissioning Schedule for Continuous Slab Casters**

*G. Paulon, Danieli; B. Kozak, Danieli Corp.; P. Franco, Danieli; D. Passantino, Danieli*

♦ **Cash for Clunkers in the Reheat Furnace World**

*R. DaRochca, Five Stein Inc.*

**The 800,000 Tons/Year SBQ Rolling Mill, Part of the Complete Minimill at Nucor Steel Memphis Inc.**

*L. Maestrutti, Danieli Morgardshammar*

## Rolls

♦ **Mechanical Study for Reducing Shell/Core Bond Separation of Duplex Cast Work Rolls for a Hot Strip Mill**

*Y. Liu, Quad Engineering Inc.; J. Fan, Quad Engineering Inc.; M. Levick, Quad Engineering Inc.*

**Interpretation of UT and EC Results in Roll Testing**

*M. Brandner, ESW*

**Panel Discussion – What If? The Future of Hexavalent Chromium, Part II**

*K. Legg, Rowan Technology; B. Jennings, Rockport Roll Shop; C. Nichol, Modern Hard Chrome; G. Hart, RCI; A. Biggi, Innse*

**Panel Discussion – Rolls Inspection**

*R. van Killenburg, Lismar; A. Payling, Sarclad North America L.P.; B. Heinz, Gallatin Steel; M. Brandner, ESW; Y. Matschullat, Quad Engineering Inc.; M. Olson, California Steel Industries*

## Metallurgy – Steelmaking & Casting

♦ **Entrapment of Inclusions in a Billet Continuous Casting Strand**

*Y. Wang, Missouri University of Science and Technology; L. Zhang, Missouri University of Science and Technology*

♦ **Investigation of Mold Flux Entrapment in CC Molds Due to Shear-Layer Instability**

*L. Hibbeler, University of Illinois at Urbana-Champaign; B. Thomas, University of Illinois at Urbana-Champaign*

♦ **Solidification and Microstructure During Slab Continuous Casting of Steel**

*M. Long, Missouri University of Science and Technology; L. Zhang, Missouri University of Science and Technology; D. Chen, Missouri University of Science and Technology*

♦ **The Effects of Casting Parameters on Mold Flow Structure and Product Quality at ArcelorMittal Burns Harbor Slab Casters**

*M. Yavuz, ArcelorMittal Global R&D; M. Burty, ArcelorMittal; V. Gueugnon, ArcelorMittal; J. Thacker, ArcelorMittal; D. Sena, ArcelorMittal*

**Development of a Validated 3-D Thermal Model for ArcelorMittal Dofasco's No. 2 Continuous Caster Mold to Evaluate Design Improvements for High-Speed Casting**

*J. Sengupta, ArcelorMittal Dofasco Inc.*

## Metallurgy – Processing, Products & Applications

♦ **A Non-Destructive Inspection System for Measuring Mechanical-Technological Properties of Steel Grades**

*N. Gstoettenbauer, Vatron GmbH; K. Feiste, Fortec Forschungstechnik GmbH; J. Reisinger, Vatron GmbH; G. Ossberger, Vatron GmbH*

♦ **Effects of Continuous Cast Section Size on Torsional Fatigue of 1050 Steel**

*R. Cryderman, Gerdau Macsteel*

♦ **Effects of Silicon Content on Mechanical Properties in a Lightweight Age-Hardenable Fe-30Mn-9Al-XSi-0.9C-0.5Mo Steel**

*L. Bartlett, Missouri University of Science and Technology; D. Van Aken, Missouri University of Science and Technology; K. Peaslee, Missouri University of Science and Technology*

♦ **Intercritically Austempered Steel**

*A. Haglund, University of Alabama at Birmingham; R. Aristizabal, University of Alabama at Birmingham; A. Druschitz, University of Alabama at Birmingham; M. Ostrander, Rex Heat Treat Alabama Inc.*

◆ **Microstructure and Mechanical Properties Comparison of Direct Quenched Versus Conventional Quenched and Tempered Plate**

*N. Muckelroy, Colorado School of Mines; K. Findley, Colorado School of Mines*

◆ **Production of Fine-Grained As-Rolled Structural Plate Steels**

*D. Stalheim, DGS Metallurgical Solutions Inc.; R. Glodowski, Stratcor, Inc.*

◆ **Rating Inclusions in an As-Cast Carbon Steel**

*M. Faraji, University of Sheffield; R. Thackray, University of Sheffield; I. Todd, University of Sheffield; P. Tsakiroopoulos, University of Sheffield*

**Cool Deformation Properties of an X70 Industrial Steel**

*S. Hashem, McGill University*

**Development of High-Strength Boron-Titanium Bearing Cast Rounds for Critical “Seamless Line Pipe Application”**

*S. Ghosh, Jindal Steel & Power Ltd.*

**Development of Nano-Size Precipitation Strengthening Hot Rolled Automobile Steels**

*C. Huang, China Steel Corp.*

**Developments on a Web-based Metal Technology and Metal Information Network**

*B. Li, Metal Pass LLC*

**Effect of Cerium on the Inoculation of Acicular Ferrite in Hot Rolled FeMnAlC Steel**

*M. McGrath, Missouri University of Science and Technology*

**EXPERT 5i – Quality Software Modules in the EPROMI Architecture for Increased Steel Production Efficiency**

*R. Brunelli, Isra Vision Parsytec*

**Fine Grain Practice Revisited**

*R. Glodowski, Stratcor Inc.*

**High-Speed Deformation of 15%Mn Steel With Fine Lamellar Structure Consisting of Ferrite and Austenite Phases**

*R. Ueji, Kagawa University*

**Improvement in Strip Temperature Control of High-Strength Steel in a Radiant Tube Furnace**

*S. Pandkar, ArcelorMittal Steel*

**Investigation Into a HSM Finishing Stand Defect Which Generated FeO-Type Lamination**

*M. Blankenau, Severstal Dearborn Inc.*

**Microalloy Precipitation in Hot Charged Slabs**

*M. Dyer, Colorado School of Mines*

**Optimum Modes in Rolling of Bar From a High-Strength Steel of More Than 300 mm Diameter**

*B. Sereda, ZSEA*

**Reduction of Welding Distortions by Transient Thermal Tensioning (TTT)**

*A. Pazooki, Tu Delft*

**The Influence of V on the Hot Ductility of NbTi-Containing Steels**

*K. Banks, University of Pretoria*

**The Investigation of Internal Structure of Spherical Graphites in Ductile Cast Iron by Transmission Electron Microscopy**

*A. Kiani-Rashid, Ferdowsi Univ. of Mashhad*

**The UGR\* Process: The Danieli Innovative Process for Low-Cost Production of Seismic Concrete Reinforcement Steel**

*F. Toschi, Danieli Morgardshamar*

◆ **Value Creation Through R&D at ArcelorMittal**

*R. Sussman, ArcelorMittal*

◆ **Center for Innovation Through Visualization and Simulation (CIVS)**

*C. Zhou, Purdue University Calumet*

◆ **Continuous Casting Consortium Research Efforts at the University of Illinois**

*B. Thomas, University of Illinois at Urbana-Champaign*

◆ **Design, Construction, Equipment and Staff for a New Research and Development Facility at SSAB North America**

*R. Bodnar, SSAB; S. Hansen, SSAB*

◆ **Inauguration of IRIS, Institute of Research of Iron and Steel, for Sha Steel in China**

*T. Emi, Sha Steel*

◆ **Introduction to R&D Groups in Steel Research**

*G. Irons, McMaster University; J. Thomson, McMaster University*

◆ **Research and Development in Making, Manufacturing and Use of New Steels and Steel Processes at Missouri S&T**

*K. Peaslee, Missouri University of Science and Technology; V. Richards, Missouri University of Science and Technology; D. van Aken, Missouri University of Science and Technology; L. Zhang, Missouri University of Science and Technology*

◆ **The Advanced Steel Processing and Products Research Center at the Colorado School of Mines: Overview**

*D. Matlock, Colorado School of Mines; J. Speer, Colorado School of Mines; K. Findley, Colorado School of Mines; C. van Tyne, Colorado School of Mines*

◆ **The Working Group, “Continuous Casting: Metallurgical and Materials (M2CC)” at Leoben University**

*C. Bernhard, University of Leoben; R. Pierer, University of Leoben; S. Michelic, University of Leoben*

**Industry-University Collaborative Research Activities at CISR**

*S. Seetharaman, Carnegie Mellon University*

**Recent Steel Research at the Department of Ferrous Metallurgy of RWTH Aachen University**

*W. Bleck, RWTH Aachen University*

**Steel Research at UBC’s Centre for Metallurgical Process Engineering**

*C. Zhou, Purdue University Calumet*

**Interdisciplinary Research on Steelmaking Process Based on the Concept of Industrial Ecology**

*K. Matsubae-Yokoyama, Tohoku University*

## Energy & Utilities

◆ **Description of a Simulation Method for Evaluating the Thermal Properties of Insulation Materials Used on an Evaporative Skid Cooling System in Reheat Furnaces**

*P. Hughes, Natural Resources Canada; T. Skolnik, ArcelorMittal Dofasco Inc.*

◆ **Oxygen-Enhanced Ladle Preheating Systems: Improved Tap-to-Tap Cycle Time and Operating Cost Reductions**

*J. Kelly, Praxair; F. Dentella, ESA Pyronics International; A. Recanti, SIAD SpA; J. Visus, Praxair Espana S.L.; E. Miclo, Praxair S.A.S.*

◆ **Service Water Reliability – Repair and Maintenance or Capital Investment**

*C. Anderson, Hard Hat Services*



## A Multifaceted Approach to Reducing Electricity Costs in the Steel Industry

B. Zak, Powerit Solutions

### Electrical Applications

#### ◆Advanced and Reliable Drive Systems for the Rolling Mill Industry

G. Bodden, Siemens

#### ◆An Industrial Power System Management for High-Quality, Uninterrupted Power Supply at Tata Steel

D. Chowdhary, Tata Steel Ltd.; A. Kar, Tata Steel Ltd.; R. Jeloka, GE Energy

#### ◆Hybrid DC-DC-AC Main Drive for the ILVA, Taranto Finishing Mill

M. DeCarli, TMEIC GE; B. Jones, TMEIC GE; A. Giordano, ILVA

#### ◆Innovative Methods for Integrating Utility and Production Automation Systems

M. Rourke, Schweitzer Engineering Laboratories Inc.

#### ◆In-Process Measurement of Organic Coating Thickness Using a Full-Spectrum Infrared Sensor

C. Burnett, Thermo Fisher Scientific; A. Quick, Thermo Fisher Scientific; B. Harand, Thermo Fisher Scientific

#### ◆On-Line Continuous Optical Flatness Gauge for Metal Producing Applications

A. Selent, Friedrich Vollmer GmbH

#### ◆Resistive Grounding Case Study: A Review of One Industrial Facility's Successful Effort to Resistively Ground a 34.5 kV Power Distribution System

C. Birkbeck, Nucor Steel

#### ◆Synchronous and Induction Motors for Main Drive Applications

R. Tessorf, TM GE Automation Systems LLC

#### Improved Technology in Section Control for Wire Rod Mills

S. Mongiat, Danieli Automation S.p.A.

#### Using Electronic Data Recorders to Lower Mill Electrical Downtime

D. Kosnik, Avtron Industrial Automation Inc.

### Computer Applications

#### ◆A Lean Supply Chain Manufacturing Model

G. Marzec, Northrop Grumman; J. Hauge, Northrop Grumman

#### ◆Automatic Roll Loaders for Intelligent Roll Shops

G. Bavestrelli, Pomini Tenova

#### ◆Easy Access to Everything – How the Web Can Bring It All Together

R. Gauvreau, TMEIC GE

#### Modern Software Philosophy Applied to Radioactive Precision Gauging

S. Carlson, Tenova

#### Process Integration as a Tool for Decision-Makers in the Steel Industry

C. Ryman, Swerea MEFOS AB

#### Revamping MES and L3 Systems in the Iron and Steel Industry

C. Fisher, Siemens Industry Solutions Metals Technology

# Iron & Steel Technology

## Why Should You Subscribe?

You can:

- Read comprehensive articles on technological breakthroughs and trends in equipment and processes.
- Keep up with essential iron and steel industry news and key personnel updates.
- Learn about new products and equipment news.
- Find detailed information on AIST Specialty Training Conferences.
- Receive information on new AIST publications and specials.
- Get updates on the steel industry Employment Bulletin Board.

These are just a few of the many features in every issue of *Iron & Steel Technology* magazine.



Visit [www.AIST.org](http://www.AIST.org) to  
subscribe today!

## Project & Construction Management

### ♦ Strategic Demolition Impact Analysis – A Plan for Aging Infrastructure

*N. Fox, Hard Hat Services*

### Utilizing High-Definition 3-D Laser Scanning Technology to Obtain As-Built Information to Streamline Retrofit Improvements

*K. Armstrong, ATSI*

## Maintenance & Reliability

### ♦ Advances in Bearing Reclamation

*J. Overlander, Caster Maintenance Co.; E. Wineland, Caster Maintenance Co.; R. Burdan, Caster Maintenance Co.*

### ♦ Justifying Reliability Projects Utilizing an A3

*R. Heisler, Life Cycle Engineering*

### ♦ Optimizing Indirect Production Cost

*M. McGee, Fluor*

### ♦ Run Your Maintenance Department as a Business

*R. Frascarelli, Fluor Enterprises, Inc.*

### Caster Nozzle Protection

*M. Allhands, Orival Inc.*

### Diagnosis of a Broken Rotor Bar in a Cage Induction Motor

*C. Mandal, Steel Authority of India Ltd.*

### Large-Diameter Thread Repair Using Interference-Fit, Self-Tapping Inserts

*C. Strom, C-Sert Manufacturing*

### Laser Cladding as a Tool to Improve Roll Life

*M. Breitsameter, LaserBond Ltd.*

### Leadership in Reliability

*C. Kooistra, General Physics Corp.*

### Mechanical Integrity Process Applications in Coke Facilities

*J. Fluder, SunCoke Energy*

### Reliability Achievement Award Gold Award: Arc Furnace Tap Changer Failures: A Multifaceted Approach to Improving the Reliability and Performance of EAF Transformer On-Load Tap Changers

*C. Birkbeck, Nucor Steel*

### Reliability Achievement Award Silver Award: Oil-Lubricated Tube Spindles at North Star BlueScope Hot Strip Mill Improves Reliability

*K. Hoffman, North Star BlueScope*

### RAA History

*J. Dunn, ArcelorMittal Dofasco Inc.*

### Simplifying Predictive Maintenance Using Modeling Techniques for Condition Monitoring

*J. Hamilton, MDS Inc.*

## Lubrication & Hydraulics

### ♦ Factors to Consider in the Selection of a Mill Grease

*T. Vasiliw, Castrol Industrial North America Inc.; H. Faci, Castrol Industrial North America Inc.*

### ♦ Filtration-Induced Triboelectric Charging – Its Consequences and a Solution

*M. Mahapatra, Pall Corp.*

### ♦ Novel PAG-Based Hydraulic Fluids

*G. Khemchandani, Dow Chemical Co.; M. Greaves, Dow Chemical Co.*

### Care and Maintenance of Hydraulic Fluids

*J. Schlobohm*

### Oil Cleanliness Specification for MORGOIL Bearings Comes Full Circle

*T. Wojkowski, Siemens*

## Material Handling

### ♦ Guarding Belt Conveyors

*P. Vandergeest, Belt Conveyor Guarding*

### Automated Material Tracking and Location

*J. Franz, Concept2 Solution*

### Modernizing the Straddle Carrier for Improved Safety and Overall Lower Operating Costs

*G. Bond, Timken Co.*

### Optimized Material Flow in Plate Plants by Integration of Scheduling and Warehouse Management

*M. Diestel, PSI BT*

### Equipment Emissions for the Future

*R. Schultz, Caterpillar North American Commercial Division*

## Cranes

### AC Variable Frequency Drive With Static Stepless Simulation Software Outperforms Traditional Static Stepless Crane Control

*A. Kureck, Magnetek Inc.*

### How to Conduct an Overhead Crane Rail Survey in a High-Production Environment

*J. Wickhart, Schueck Steel Co.*