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

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R. Cooper, Nucor Steel
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C. Dupuis, JNE Consulting Ltd.

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Your Employees Use Fall Protection, But Are They Really Safe From Harm?
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S. Kumar, Hatch; M. Freischl, Hatch; D. Mysko, Hatch; L. Westfall, Hatch; S. Bachenheimer, Hatch
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*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. Kopfe, 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. Reuter, Paul Wurth Umwelttechnik GmbH; W. Hartig, AG der Dillinger Huttenwerke

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*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.
Utilization of Evaporating Waste Gas Cooling Systems to Counteract Rising Energy Costs
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* 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
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* 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
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* Tenova FlexyTech® TRGX Burner Modeling and Testing
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* Flue Gas Flow Optimization for Energy Efficiency and Clean Operations in Integrated Steel Plants
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* Comparison of Byproduct vs. Heat-Recovery Cokemaking Technologies
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* Hot Idling Practices and Battery Asset Preservation at U. S. Steel’s Cokemaking Facilities
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* New Developments in Cokemaking Technology and Their Application in Current Coking Plant Projects
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  T. Brayton, U. S. Steel Gary Works

* Automatic Heating Control System at Coke Oven Battery No. 1, Durgapur Steel Plant
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Coke Oven Recovery Using “Big Block” Technology at ArcelorMittal Dofasco Inc.
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* Prediction of Process Parameters Using Neural Networks in an Iron Ore Sinter Plant
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* Proven Practice and Future Prospects of Blast Furnace Fuel Injection
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* Raw Materials for the Blast Furnace
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The Future of Hot Blast Stoves
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P. Lin, China Steel Corp.; W. You, China Steel Corp.; J. Tsai, China Steel Corp.

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

Recycling Waste Polymers in Iron Oxide–Bearing Composite Pellets for Ironmaking

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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.

New Method of Lining a Blast Furnace Bosh and Stack
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O. Shlik, Accusteel Ltd.

**Optimization Results at Ferriere Nord Using EFSOP® Technology**
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**Oxygen/Carbon Injection System at Charter Steel Cleveland: Project Description and Operational Results**
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**Revamping of Two 140-Ton DC Twin-Shell Furnaces at POSCO, Korea**
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**Thermodynamic Modeling to Improve Foamy Slag Practice in the EAF**
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C. Sedivy, Vatron GmbH

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**Energy Recovery Technology for EAFs**
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**Heat Recovery for the EAF of Georgsmarienhütte, Germany**
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**New Approaches to Meltpshop Offgas Heat Recovery**
J. Jones, WorleyParsons GCT

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**Oxygen Steelmaking**

**Avoiding Sloppy BOS Process Behavior**
M. Bramming, SSAB Swedish Steel; B. Bjorkman, Lulea University of Technology
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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
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Operation Technique and Plant Design of the VD/VOD Unit at ThyssenKrupp Acciaiere Speciali Terni (TK AST) for the Production of Superferritic Stainless Steel
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✦ 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.
S. Abraham, Evraz Inc. NA

Multiphase Modeling of the Ladle Stirring Operation
J. Barreto, Instituto Tecnologico 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 CaF2-Containing Slags and Its Applications to Steelmaking Processes
I. Jung, McGill University

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*Improved Basic Carbon Refractory Material for Sliding Gate Plate Application
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*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

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L. Heaslip, Interflow Techserv Inc.; J. Dorricott, Interflow Techserv Inc.

✦ Mold Flow Modeling of ArcelorMittal Riverdale and POSCO Thin Slab Casters
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✦ Near-Net-Shape Casting of Steel — The Belt Casting Technology
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✦ Slab Caster Revamping — The Approach to Excel in the Market
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✦ The Development of Value-Added Grades via the Thin-Slab Casting Process
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✦ Water Treatment Chemistry Impact on CSP Mill Product Quality and Production Rate
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W. Antos, Siemens VAI Metals Technologies GmbH

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G. Hozbri, ESSAR Steel Algoma Inc.

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*Advanced Revamping Solutions for Long Product Casting
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*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
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*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, Politecnico di Milano; L. Del Re, Johannes Kepler University

*Metalurgical 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

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*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
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*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
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*Improvement of the Periodical Mold Level Fluctuation and Sliver Defects in a Slab Caster
K. Huang, China Steel Corp.

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*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

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Q. Liu, University of Science and Technology Beijing

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- Mill Level 2 Model in Improvement of Product Quality and Productivity
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- Numerical Investigation of Fluid Flow and Heat Transfer of Multiple-Impinging Slot Jets in Continuous Hot-Dip Galvanizing
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- The Influence of Temperature and Aluminum Content on Galvannealed Coating
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- Getting the Right Information to Solve Coating Problems
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  A. Jordan, EMG Automation GmbH; S. Devorich, EMG USA Inc.; M. Gilbert, EMG USA Inc.
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Galvanizing

- Analysis of Edge Buildup on Aluminized Steel Strip Using Computational Fluid Dynamics (CFD) and Metallography
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- Numerical Investigation of Fluid Flow and Heat Transfer of Multiple-Impinging Slot Jets in Continuous Hot-Dip Galvanizing
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- 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 & Electrogalvanizing

- 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
  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. Ehler, 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

Shaping 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 Mordgashammar

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, Innsae

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 Entrainment 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. Burtz, ArcelorMittal; V. Queugnon, 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.
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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. Głoowski, 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. Tsaikopoulos, 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. Głoowski, Stratcor Inc.

High-Speed Deformation of 15%Mn Steel With Fine Lamellar Structure Consisting of Ferrite and Austenite Phases
R. Uejj, 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 Danielli Innovative Process for Low-Cost Production of Seismic Concrete Reinforcement Steel
F. Toschi, Danielli Morgardshammar

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. Prierer, 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

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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 Dolaso Inc.

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

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  G. Bodden, Siemens
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  D. Chowdhary, Tata Steel Ltd.; A. Kar, Tata Steel Ltd.; R. Jeloka, GE Energy
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R. Frascarelli, Fluor Enterprises, Inc.

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M. Allhands, Orival Inc.

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C. Mandal, Steel Authority of India Ltd.

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C. Strom, C-Sert Manufacturing

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M. Breitsameter, LaserBond Ltd.

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C. Kooistra, General Physics Corp.

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J. Fluder, SunCoke Energy

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C. Birkbeck, Nucor Steel

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K. Hoffman, North Star BlueScope

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J. Dunn, ArcelorMittal Dofasco Inc.

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J. Franz, Concept2 Solution

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J. Wickhart, Schueck Steel Co.