

SPECIAL THANKS

GENERAL ORGANIZING COMMITTEE:

Kip O. Findley and John G. Speer, Colorado School of Mines Patrick Anderson and Craig Darragh, Timken Steel Corp.

SCIENTIFIC ADVISORY COMMITTEE:

*Mike Shaw — Chrysler
Thomas Sourmail — Asco Industries
Pedro Rivera — University of Cambridge
Tadashi Furuhashi — Tohoku University
Jose Rodriguez-Ibabe — CEIT
John Paules — Ellwood Forge
Bob Glodowski — Evraz East Metals
Marcos Stuart — CBMM
Kirk Baker — Chevron Corp.
Matt Green — Tata Steel
Afonso Reguly — Universidade Federal Do Rio Grande Do Sul Valery Rudnev, Inductoheat Inc.
Robert Gaster — John Deere
Robert Cryderman — Colorado School of Mines Roberto Elvira, Gerdau*

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*AIST's Metallurgy — Processing, Products & Applications Technology
Committee The Colorado School of Mines - Advanced Steel Processing
Products Research Center The Timken Company*

ON-SITE PROGRAM



INTERNATIONAL CONFERENCE ON ADVANCES IN METALLURGY OF LONG AND FORGED PRODUCTS

12-15 JULY 2015

VAIL MARRIOTT MOUNTAIN RESORT | VAIL, COLO., USA



SCHEDULE OF EVENTS

SUNDAY, 12 JULY 2015

4 P.M.
Registration

6 P.M.
Reception

MONDAY, 13 JULY 2015

7 A.M.
Registration and Continental Breakfast

8 A.M.
Introduction and Opening Remarks

8:10 A.M.
Keynote: Practical Experience to Control Grain Size of Special Alloyed Steels by Microalloying
Frank Hippenstiel, BGH Edelstahl Siegen GmbH

8:45 A.M.
Niobium-Bearing Steel Technological Developments for Long Products and Forgings
Steven Jansto, CBMM North America Inc.

9:10 A.M.
Strengthening of Medium-Carbon Forging Steels by Interphase Precipitation
Tadashi Furuhashi, Goro Miyamoto and Naoya Kamikawa, Institute for Materials Research, Tohoku University

9:35 A.M.
Niobium-Microalloyed Steel for Bolts Class 8.8 Cold Worked Without Quench Hardening
Karelina Bueno, Gerdau Special Steels North America, and Afonso Reguly, Univeridade Federal do Rio Grande do Sul (UFRGS)

10 A.M.
Break

10:20 A.M.
Thermomechanical Simulation and Microstructural Analysis of Microalloyed Medium-Carbon Bar Steels
Blake Whitley, ASPPRC – Colorado School of Mines; Chris Easter, Gerdau Special Steel North America; and Robert Cryderman and John Speer, ASPPRC – Colorado School of Mines

10:45 A.M.
Improved Gear Performance by Niobium Microalloying of Molybdenum-Based Carburizing Steels
Hardy Mohrbacher, NiobelCon bvba

11:10 A.M.
Recent Global Activities in Rebar Production and Specification Development
Robert Glodowski, EVRAZ Stratcor Inc.

11:35 A.M.
Characterization of an ASTM A694 High-Strength Low-Alloy (HSLA) F70 Forging
Andrew Nissan, Kirk Baker, and Patrick Kramer, Chevron

NOON
Lunch

1 P.M.
New Hot Oxidation-Resistant Steel for Forged Parts of High-Pressure and -Temperature Diesel Engines
Roberto Elvira and Jacinto Albarrán, Gerdau I+D Europa S.A.; and Ernst-Peter Schmitz, Ottmar Schwarz and Peter Koble, Gesenkschmiede Schneider GmbH

1:25 P.M.
The Effects of Thermal Path and Composition on the Hot Ductility of As-Cast Steel Ingots
Brendan Connolly, Ellwood Quality Steels and University of Pittsburgh; Anthony DeArdo, University of Pittsburgh; and John Paules, Ellwood Material Technologies

1:50 P.M.
Mechanical Properties of High-Strength ASTM A694 Forgings
Patrick Kramer, Andrew Nissan, and Kirk Baker, Chevron

2:15 P.M.
Break

2:40 P.M.
Excellent Mechanical Properties Balance of Fine 0.1C-5Mn Martensite and Ferrite+Austenite Steel
Shiro Torizuka, and Toshihiro Hanamura, National Institute for Materials Science

3:00 P.M.
Effect of Carbon Content on the Impact Properties in 0.1C-5Mn Martensitic Steel
Toshihiro Hanamura and Shiro Torizuka, National Institute for Materials Science

3:25 P.M.
High-Temperature Tempering: Defining Structure and Properties of Martensitic Derivative Microstructures
George Krauss, Colorado School of Mines

3:50 P.M.
Use of Kocks Microstructure Simulator to Predict Grain Formation During Thermo-Mechanical Processing of Long Products
Patrick Connell, Kocks Pittsburgh Company

5 P.M.
Reception

TUESDAY, 14 JULY 2015

7 A.M.
Continental Breakfast

8 A.M.
Keynote: Strategies for the Application of Bar Steel Products for the Future Automotive Industry
Hyunsoo Park, Hyundai Steel

8:35 A.M.
High-Performance Steel for Downsized Internal Combustion Engines Connecting Rods
Thomas Sourmail, Mathilde Millot-Méheux and André Galtier, Asco Industries CREAS

9 A.M.
Microstructural Analysis in Laser-Hardened Crankshafts
Xabier Azpeitia, Pello Uranga and Jose M. Rodriguez-Ibabe, CEIT

9:25 A.M.
Improved Broaching Steel Technology
Michael Burnett, TimkenSteel Corp.

9:50 A.M.
Effect of Boron on Microstructure and Mechanical Properties of High-Strength Steel
Dong Jun Mun and Hyong Jik Lee, POSCO

10:15 A.M.
Break

10:35 A.M.
Technology Innovations and Challenges When Induction Heating and Heat Treating Long Steel Products
Valery Rudnev, Inductoheat Inc.

11 A.M.
Precise Control of the Induction Heating Process
Joseph Stambaugh and David Lazor, Ajax TOCCO Magnethermic

11:25 A.M.
Multi-Dimensional Electromagnetic-Thermal Process Modeling for Induction Heating of Seamless Pipe
David Lazor, Ajax TOCCO Magnethermic

11:50 A.M.
The Use of Induction Heating in Hot Rolling Operations
Bert Armstrong and Andrew Procopio, Inductotherm Corp.

12:15 P.M.
Lunch

1:15 P.M.
Role of Ni and Microalloying in Carburizing Steels
Thomas Sourmail, Mathilde Millot-Méheux and Bandiougou Diawara, Asco Industries CREAS

1:40 P.M.
Improvement of Fatigue Properties After Induction Hardening in 0.53%C Machine Structural Steel With Graphite Particles
Takashi Iwamoto, Yasuhiro Omori, Kunikazu Tomita and Kazukuni Hase, JFE Steel Corp.

2:05 P.M.
The Effect of Mechanical Hot Deformation on Oxide Stringer Morphology and the Related Implications for Rolling Contact Fatigue Performance
Amanda Grow, Christopher Marks and Scott Hyde, Timken Co.

2:30 P.M.
Break

2:50 P.M.
Effects of Starting Microstructure and Vanadium Content on the Nitriding Response of Medium-Carbon Bar Steels
Jonah Klemm-Toole, Kip Findley, Robert Cryderman, Colorado School of Mines; and Michael Burnett, TimkenSteel Corp.

3:15 P.M.
Use of CFD Modeling for Macrostructure Optimization in Quenched and Tempered Steel Rebars
Tariq Mehmood, Mansour Al-Harbi and Saad Al-Motham, SABIC Technology & Innovation

3:40 P.M.
Computational Fluid Dynamic Modeling of the Rebar Quenching System Toward the Optimization of the Temperature Profile
Mansour Al-Harbi, Tariq Mehmood, Saad Al-Motham and Ramesh Kumar, SABIC Technology & Innovation

6:30 P.M.
Reception and Dinner at Vail Chop House

WEDNESDAY, 15 JULY 2015

7 A.M.
Continental Breakfast

8 A.M.
Keynote: How Steel Tube Industry Faces Demanding Requirements From Oil and Gas
Juan Carlos Gonzalez Sanchez, Tenaris Technologies Sarl

8:35 A.M.
Finite Element Analysis of Tubemaking Processes at TimkenSteel Corp.
Krich Sawamiphakdi, Steven E. Agger and Daniel K. Gynther, TimkenSteel Corp.

9 A.M.
Interaction Between MnS Particles and Austenite Microstructure During Hot Working of Free-Cutting Steels
Cristina Revilla, Beatriz López and Jose M. Rodriguez-Ibabe, CEIT

9:25 A.M.
Thermomechanical Rolling of Steel Wire Rod
Andrew Schless and Phillip Brain, Nucor Steel-South Carolina

9:50 A.M.
Break

10:15 A.M.
High-Strain-Rate Hot Deformation of Steels: Measurement and Simulation
Seth Rummel, Simon Lekakh, David Van Aken, Ronald O'Malley, Xin Wang and K. Chandrashekhara, Missouri University of Science and Technology

10:40 A.M.
Strain Aging in Low-Carbon Steel
Zohreh Keshavarz and Peter D. Hodgson, Institute for Frontier Materials, Deakin University

11:05 A.M.
Optimization of Spheroidization Annealing for Low-Carbon Steel Bars in Cold Forging
Amif Powar, Shital Jadhav and Rajkumar Singh, Bharat Forge Ltd.

SCHEDULE OF EVENTS

11:30 A.M.
Modeling and Simulation of Hot Rolling Using Non-Linear Material Models
Xin Wang, K. Chandrashekhara, Seth Rummel, Simon Lekakh, David Van Aken and Ronald O'Malley, Missouri University of Science and Technology

11:55 A.M.
Lunch

1 P.M.
Recent Technological Advances at the Faircrest Steel Plant
Patrick Anderson, TimkenSteel Corp.

1:25 P.M.
Simulation of the Complete Chain From Slab Continuous Casting to Rolling With a Powerful 3D Software Tool
Oliver Jaouen and Mickael Barbelet, Transvalor S.A.

1:50 P.M.
Surface Microstructure Control Cooling at Continuous Casting
Martin Lückl, Vienna University of Technology, Institute of Material Science and Technology; Sergiu Ilie and Jakob Six, Voestalpine Stahl GmbH; and Ernst Kozeschnik, Vienna University of Technology

2:15 P.M.
Determining Regularity of Surface Defect Detection by Means of Thermographic Imaging
Ryan Gauvin, Nucor Steel Memphis Inc.

2:40 P.M.
Conference Summary

3:30 P.M.
Conference Adjourn

JOIN AIST AT A FUTURE MEETING:

SAFETY AND HEALTH FUNDAMENTALS

1-3 September 2015
Indianapolis, Ind., USA
The Westin Indianapolis

THE MAKING, SHAPING AND TREATING OF STEEL: 101

15-17 September 2015
Hamilton, Ont., Canada
Courtyard by Marriott Hamilton

MAINTENANCE SOLUTIONS – A PRACTICAL TRAINING SEMINAR

20-23 September 2015
Indianapolis, Ind., USA
The Westin Indianapolis

PIPE AND TUBE – A PRACTICAL TRAINING SEMINAR

28 September-1 October 2015
Independence, Ohio, USA
The Holiday Inn Cleveland-South

SECONDARY STEELMAKING REFRACTORIES – A PRACTICAL TRAINING SEMINAR

5-8 October 2015
Memphis, Tenn., USA
The DoubleTree by Hilton Memphis Downtown

Visit AIST.org for more information.



ABOUT AIST

The Association for Iron & Steel Technology (AIST) is a non-profit organization comprised of more than 14,000 individuals worldwide and includes iron and steel producers, suppliers, academics and students. AIST's Technology Committees work continuously to develop programs that foster networking, problem solving and the advancement of steel technology across a wide spectrum of disciplines.

