UPCOMING EVENTS

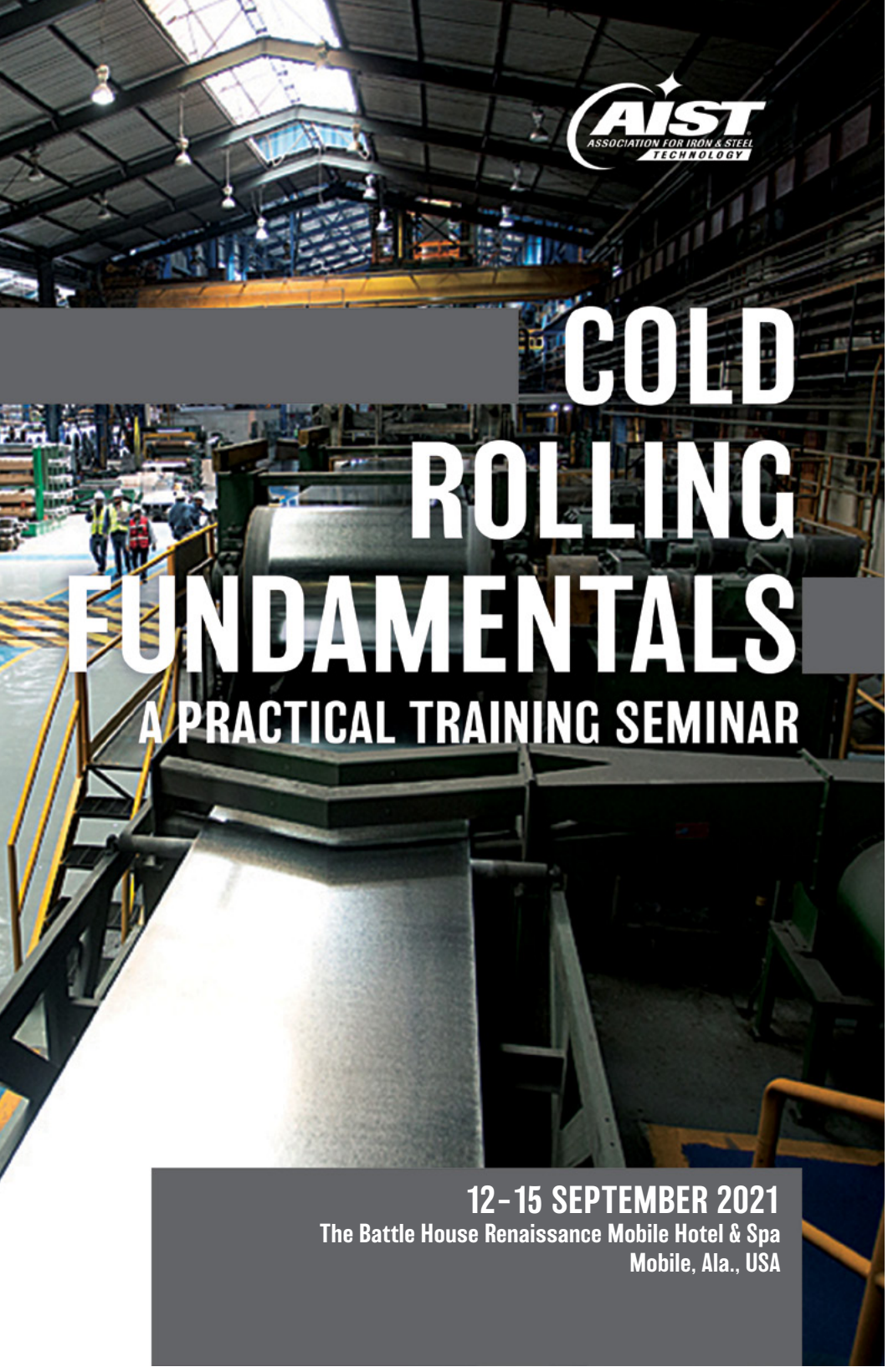
Electrical Engineering Basics
12–15 September 2021
The Battle House Renaissance Mobile Hotel & Spa
Mobile, Ala., USA

Maintenance Solutions: Fundamentals and New Frontiers
21–23 September 2021
Embassy Suites San Antonio Riverwalk
San Antonio, Texas, USA

Specialty Alloy and Foundry — A Practical Training Seminar
21–23 September 2021
Sheraton Columbus Hotel at Capitol Square
Columbus, Ohio, USA

Maintenance Solutions: Fundamentals and New Frontiers
21–23 September 2021
Embassy Suites San Antonio Riverwalk
San Antonio, Texas, USA

Association for Iron & Steel Technology
186 Thorn Hill Road
Warrendale, PA 15086-7528 USA
+1.724.814.3000 • Fax +1.724.814.3005 • AIST.org



ABOUT THE PROGRAM

This seminar provides a comprehensive overview of cold rolling. The course covers fundamentals, equipment, rolling theory, control, threading, rolls, lubrication, measurement, safety and new technology. Attendees will leave this course with a better understanding of the basic metallurgy involved, the different types of products and product attributes, the types of mills used and equipment involved with the mills, the theory of rolling, latest technologies involved in cold rolling, safety aspects, rolling solutions, production measures, and much more. Panel discussions will provide an opportunity to discuss issues and engage in problem solving.

WHO SHOULD ATTEND

Anyone who would like to expand his/her knowledge and understanding of cold mills and cold rolling should attend. This includes electrical, mechanical, lubrication and metallurgical engineers; maintenance personnel; operators; and those responsible for quality assurance. Equipment manufacturers and service suppliers will also benefit from this course.

PROFESSIONAL DEVELOPMENT HOURS

This course may qualify for up to 23.75 Professional Development Hour (PDH) credits. Each attendee will receive a certificate listing the quantity of PDH credits earned for the course. This course is not approved for PDH credit in New York, Florida, North Carolina and Oklahoma.

ORGANIZED BY

AIST's Cold Sheet Rolling Technology Committee.

REGISTRATION INCLUDES

Breakfast and lunch Monday–Thursday, reception Sunday and Tuesday, plant tour with bus transportation, and a course workbook or flash drive including presentations.

HOTEL ACCOMMODATIONS

A block of rooms has been reserved at the Battle House Renaissance Mobile Hotel & Spa. Please call the hotel at +1.866.316.5957 by 20 August 2021 to secure the AIST discount rate of US$139 per night for single/double occupancy.

AIST MEMBERS	
US$1,195	US$1,295
by 2 August 2021	after 2 August 2021

NON-MEMBERS	
US$1,440	US$1,540
by 2 August 2021	after 2 August 2021

ATTENTION NON-MEMBERS

Non-member registration fees include membership in AIST through 31 December 2022. Membership is not automatic. A completed membership application must be returned to AIST.

BRING YOUR OWN YOUNG PROFESSIONAL
Visit AIST.org/byoyp for more information.

SCHEDULE OF EVENTS

Sunday, 12 September 2021

4–6 p.m.
Registration

6–7 p.m.
Welcome Reception

Monday, 13 September 2021

7 a.m.
Registration and Breakfast

8 a.m.
Introductions and Opening Remarks
Brian Smith, ANDRITZ Metals USA Inc.

8:10 a.m.
Overview
John Speer, Colorado School of Mines
General overview of products, metallurgy and processing from steelmaking to finishing, including product properties, end users and applications.

9 a.m.
Break

9:20 a.m.
Cold Rolling Fundamentals
John Speer, Colorado School of Mines
Deformation and metallurgical properties, iron-carbon phase diagram, grain size, stress-strain relationship, work hardening, effects of annealing, effect of percent reduction on R and N values, and effect of composition on properties.

10:10 a.m.
Break

10:30 a.m.
Rolling Mill Designs
Mark Zipf, SMS group Inc.
This presentation provides an introduction into contemporary rolling mill designs, with a special emphasis on how evolving material and process requirements directed their specific developments. Working outward from the roll bite, key parameters and "rules of thumb" are identified, in both the longitudinal and transverse directions, to illustrate how the force-loaded conditions/reactions dictate certain mill selection and sizing philosophies. This leads to a review the various vertically oriented roll stack and structurally supported roll cluster arrangements, along with their associated roll gap and shape actuation strategies.

11:15 a.m.
Line Arrangements
Mark Zipf, SMS group Inc.

Noon
Lunch

1 p.m.
Entry Mill Equipment
Frank Beddings, Primetals Technologies USA LLC
The presentation will provide an introduction to cold rolling entry end equipment and its function.

1:50 p.m.
Break

2:05 p.m.
Mill Exit Equipment
Brian Smith, ANDRITZ Metals USA Inc.
This presentation focuses on creating a finish coil in perfect quality for the subsequent processes. Included in the discussion are exit mill table design, measurement and control instruments, creating a proper tension, high-speed coiling under attention of strip quality, coil handling and strip quality devices, and economic fume exhaust system.

2:50 p.m.
Motor and Drive Upgrades
Thomas Richards, TMEIC Corp. Americas

3:35 p.m.
Break

3:50 p.m.
Hot Band Characteristics That Influence Cold Rolling
John Manko, Outokumpu Stainless USA LLC
This presentation will discuss factors that influence operating and quality performance in cold mills.

4:40 p.m.
Roundtable Discussion

5 p.m.
Adjourn

Tuesday, 14 September 2021

7 a.m.
Breakfast

8 a.m.
Rolls Manufacturing and Materials Requirements
Konstantin Redkin, WHEMCO Inc., and Frank Goyanes, Lehigh Heavy Forge Corp.
Forged steel rolls are the primary instruments for cold rolling of sheet and strip. The presentation will discuss the differences in manufacturing, heat treatment and inspection processes that are pertinent to end users' choice of rolls for various cold rolling applications.

8:50 a.m.
Break

9:10 a.m.
Roll Shop Practices: What Do Roll Shops Do for Your Mill?
Ryan Grundza, SMS group Inc.

10 a.m.
Cold Mill Defects and Quality
Katie Behrendt, Nucor Steel–Arkansas
Overview of common incoming and outgoing defects for cold rolling. This will include descriptions of defects, possible root causes, and suggestions for corrective and preventive action.

10:50 a.m.
Break

11:10 a.m.
Cold Mill Safety
Wayne Denton and Aaron Mcgee, Outokumpu Stainless USA LLC

Noon
Lunch

1 p.m.
Cold Rolling Theory – Part 1
Mark Zipf, SMS group Inc.
This presentation is an examination of what occurs in the roll bite and how the cold reduction/rolling process works. Analytic details of the force-loaded interaction and deformation behavior of the work rolls and material are discussed, along the longitudinal plane, including methods of modeling and characterizing the rolling process conditions and dynamics. The discussion provides insight into the practical use of and how to apply this theoretical understanding, including: process design and off-line simulation, what-if scenarios, performance and production prediction, multi-stage reduction/annealing planning, pass scheduling and setup modeling, mill/equipment sizing and selection, operational assistance, and guidance in problem resolution.

2 p.m.
Break

2:20 p.m.
Cold Rolling Lubrication Fundamentals
William Hartley and Brad Wellensiek, Quaker Houghton
The presentation will cover the usage of cold rolling oils during the lubrication process.

3:20 p.m.
Break

3:40 p.m.
Cold Rolling Theory – Part 2
Mark Zipf, SMS group Inc.

5 – 6 p.m.
Reception

Wednesday, 15 September 2021

7 a.m.
Breakfast

8 a.m.
Automatic Gauge Control (AGC)
Mark Zipf, SMS group Inc.
This presentation is an investigation of the thickness control problem, including available sensors, actuators, control dynamics, perturbation sensitivities and algorithms. Details of the basic automatic gauge control (AGC) modes (in an ideal, fully instrumented, single-stand configuration) are discussed, as well as their performance characteristics and when/where to use them, including their adaptations for variations in the rolling conditions. A study of critical couplings/interactions between AGC activities, strip tensions, roll bite friction/rolling speed and shape control activities is followed by an expansion to tandem mill configurations and constrained actuation/sensing arrangements. An examination of AGC performance characterization and specification will wrap up the session.

9 a.m.
Break

9:20 a.m.
Automatic Flatness Control (AFC) Shape/Flatness – Part 1
Mark Zipf, SMS group Inc.
This presentation gives an introduction into the overall shape/flatness control problem, including specific definitions of profile, shape and flatness. An overview of the distortion phenomena and its sources/formation is given, including an analysis of the force-loaded transverse roll stack deflection characteristics, thermal reactions and available corrective shape actuators. This is followed with a study of the shape actuator influence functions. Included is an examination of how to measure shape/flatness and the strategies used in contemporary systems. The discussion will also focus on the primary components, architecture, and theory of operation of automatic shape/flatness measurement and control systems. At the close will be an examination of shape/flatness control performance characterization and specification.

10:30 a.m.
Break

10:50 a.m.
AFC Shape/Flatness – Part 2
Mark Zipf, SMS group Inc.

Noon
Lunch

1 p.m.
Cold Rolling Lubrication Fundamentals and Rolling Solution System and Maintenance
Brad Wellensiek, Quaker Houghton
This presentation will focus on cold rolling lubricant fundamentals. It will include information on key components of rolling oils and how lubrication is important in the cold rolling process. It will provide an examination of the roll coolant system and its various components.

1:30 p.m.
Efficient Strip Cleaning With Compressed Air
Kelly Sparks, Silvent North America Inc.
Reduce energy consumption and improve processes using engineered nozzles. Learn how to effectively clean flat products from the center completely off of the edges, eliminating carryover for a stain-free product.

2 p.m.
Break

2:15 p.m.
Rolling Mill Chatter
Bob Miller, IVC Technologies
This presentation covers fundamentals of rolling mill chatter and Analysis in its various forms including real-world case examples and practical takeaways.

3:15 p.m.
Break

3:30 p.m.
The Importance of Mill Alignment
Bill Stan, Stan Engineering & Analysis LLC

4 p.m.
Cold Rolling Considerations for AHSS and Si Steels
Leland Robinson, Primetals Technologies USA LLC
Presentation of common challenges to the rolling of advanced high-strength steels and Si steels. The primary challenges are technically described, and solutions to the challenges are presented.

4:45 p.m.
Roundtable Discussion

5 p.m.
Conference Adjourn