



About the Program

Advanced high-strength sheet steels (AHSS) are of increasing importance, particularly to the automotive industry, where their application enables reduced fuel consumption while guaranteeing passive safety. The scope of the conference is to bring together the international community to highlight state-of-the-art research and development pertaining to AHSS. The conference will focus on the latest developments in dual-phase, twinning-induced plasticity, martensitic, quenched and partitioned, medium-manganese steels, other third-generation AHSS concepts and hot-stamped steels along with recent experiences with industrial implementation and end user application performance. A broad distribution of presentation topics is scheduled from international and domestic speakers from industry as well as academia. The conference is the latest installment in a series of product-specific conferences following the AHSS symposia in Winter Park, Colo., in 2004; Orlando, Fla., in 2008; Vail, Colo., in 2013; and Keystone, Colo., in 2017.

Who Should Attend

The conference should be attended by steel researchers interested in new high-strength sheet steel products, along with engineers responsible for the production and implementation of the products in steel mills, automotive facilities, and other industries, along with government and academic professionals and students.

Registration Fees

Advance registration by 8 May 2023: Member US\$1,195; Non-member US\$1,440. Registration fee after 8 May 2023: Member US\$1,295; Non-member US\$1,540. Registration fee includes receptions Monday and Tuesday, breakfasts and lunch Tuesday through Thursday, dinner Wednesday, and access to conference proceedings.

Hotel Accommodations

A block of rooms has been reserved at The Hythe Vail. Please call the hotel at +1.970.476.4444 by 30 May 2023 to secure the AIST discount rate of US\$209 per night for single/double occupancy.

Professional Development Hours

This course may qualify for up to 23 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.

Attention Non-Members

Non-member registration fees include membership in AIST through 31 December 2024. Membership is not automatic. A completed membership application must be returned to AIST.

Organized By

AIST's Metallurgy — Processing, Products & Applications Technology Committee and the Colorado School of Mines' Advanced Steel Processing and Products Research Center.

General Organizing Committee

Emmanuel De Moor, Colorado School of Mines
Narayan Pottore, ArcelorMittal Global R&D
Grant Thomas, Cleveland-Cliffs Inc.
Matt Merwin, United States Steel Corporation
John G. Speer, Colorado School of Mines

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



AIST Members
US\$1,195 Before 8 May
US\$1,295 After 8 May

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US\$1,440 Before 8 May
US\$1,540 After 8 May



International Symposium on New Developments in Advanced High-Strength Sheet Steels

19–22 June 2023

The Hythe Vail
Vail, Colo., USA

AIST.org

Monday, 19 June 2023

4–6 p.m. Registration

6 p.m. Reception

Tuesday, 20 June 2023

7 a.m. Registration and Breakfast

8 a.m. Introductions and Opening Remarks

8:05 a.m. Liquid Metal Embrittlement of Solid Metals Induced Embrittlement of AHSS in the Manufacturing Process, *Ming Shi, General Motors*

8:30 a.m. On Local Formability/Ductility of New Advanced High-Strength Steels: Temperature, Bake Hardening and Strain Rate Effects, *Jun Hu, Cleveland-Cliffs Inc.*

8:55 a.m. LME Cracking Mitigation in Zn-Coated Advanced High-Strength Steel During Resistance Spot Welding, *Jianxun Hu, Honda Development & Manufacturing of America LLC*

9:20 a.m. Multi-Part Integration Concepts Using Press-Hardened Steel Laser-Welded Blanks, *Nachiket Gokhale, ArcelorMittal Tailored Blanks NV*

9:45 a.m. Break

10:10 a.m. New Coating Development for Press Hardening Steels, *Constantin Chiriac, Ford Motor Co.*

10:35 a.m. Strategies for Testing and Preventing LME for Third-Generation AHSS, *Katharina Steineder, voestalpine Stahl GmbH*

11 a.m. An Overview of Recent Advances in Zinc-Based Coatings for AHSS, *Ana Paula Domingos Cardoso, International Zinc Association*

11:30 a.m. Lunch

12:30 p.m. Development of a Lean Single-Phase Nanoprecipitate-Strengthened SP590 Sheet Steel With Outstanding Formability: A DP590 Alternative?, *Amar De, Big River Steel*

12:55 p.m. Back to the Roots: Production Concepts for Advanced Automotive HSLA Steels, *Hardy Mohrbacher, NiobelCon bvba*

1:20 p.m. Characterization of Local Deformation and Fracture Behavior in Ferrite + Martensite Dual-Phase Steels With Different Grain Sizes, *Myeong-Heom Park, Kyoto University*

1:45 p.m. Methods to Improve Cross-Tension Spot Weld Strength of Quenched & Partitioned Steel Spot Welds, *Mohan Subramanian, Cleveland-Cliffs Inc.*

2:10 p.m. Comprehensive Analysis on Quenching and Partitioning on a 30MnV6 Microalloyed Steel, *Marco Belfi, Politecnico di Milano*

2:35 p.m. Deformation-Induced Martensitic Transformation at Tensile and Compressive Deformations of High-Carbon Bainitic Steel, *Rintaro Uejii, National Institute for Materials Science*

3 p.m. Break

3:25 p.m. The Influence of Testing Parameters on Hole Expansion in 980 MPa Steel, *Su Liu, ArcelorMittal Global R&D – East Chicago*

3:45 p.m. Evaluation of Aging and Zn-Coating Effects on Sheared Edge Formability in Sheet Steels, *Aiden Carley-Clopton, Colorado School of Mines*

4:10 p.m. A Study of Hole Expansion Ratio on 780 MPa Grade Advanced High-Strength Steels, *Sukjin Lee, Hyundai Steel*

4:35 p.m. Effects on Microstructure on Hole Expansion Ratio of AHSS, *Fusheng Sun, Cleveland-Cliffs Inc.*

5:30 p.m. Reception

Wednesday, 21 June 2023

7 a.m. Breakfast

8 a.m. Introduction and Opening Remarks

8:05 a.m. Effect of Steel Subsurface Structure on the Liquid Metal Embrittlement Behavior of Third-Generation Advanced High-Strength Steels, *Anirban Chakraborty, ArcelorMittal Global R&D – East Chicago*

8:30 a.m. The Effect of a Si Reduction and Substitution on the LME Sensitivity of Third-Generation AHSS, *Matthias Wallner, voestalpine Stahl GmbH*

8:55 a.m. Influence of Paint Baking on Microstructure and Mechanical Behavior of Resistance Spot Welds, *David Marshall, Colorado School of Mines*

9:20 a.m. Development of a High-Mn-Containing PHS for LME Resistance, *Joseph McDermid, McMaster University*

9:45 a.m. Hydrogen Embrittlement of Ultra-High Strength Steels for Automotive Application: Risk Assessment and Mitigation, *Dominique Comette, ArcelorMittal Global R&D Gent*

10:10 a.m. Break

10:35 a.m. Evolution of Phase Transformations and Mechanical Properties During Hot Stamping Operations, *Garret Angus, Cleveland-Cliffs Inc.*

11 a.m. Optimization of Heat Treatment of PH51500 Steel With Galvannealed (GA) Coating During Hot Stamping, *Henrique Lacerda Eleuterio, USIMINAS*

11:25 a.m. Design of Hot-Stamped High-Strength Steels Through Process Optimization to Enhance Their Hydrogen Embrittlement Resistance, *Markus Uhlirsch, SWERIM AB*

11:50 a.m. Effect of Rapid Heating on Microstructure and Mechanical Properties of Advanced High-Strength Steels, *Eliseo Hernandez, Cleveland-Cliffs Research and Innovation Center*

12:15 p.m. Lunch

1:45 p.m. Critical Assessment of Equations Describing the Relations Between Lattice Parameters and Carbon Content for Both Unstrained Austenite and Compressed Austenite, *Stefan van Bohemen, Tata Steel Europe Ltd.*

2:10 p.m. A Study of the Carbon Distribution in Bainitic Ferrite, *Colin Scott, CanmetMATERIALS*

2:35 p.m. An In-Situ Study of Neighborhood Effects on Mechanical Stability of Retained Austenite and Mechanical Behaviors of Deformation-Induced Martensite in a Multi-Phase TRIP Steel, *Jiyun Kang, Massachusetts Institute of Technology*

3 p.m. Laser Ultrasonics-Based Microstructure Design of Advanced Steels, *Matthias Militzer, University of British Columbia*

3:25 p.m. Break

3:55 p.m. Key Technologies Meeting UHSS and Third-Generation AHSS CAL/CGL Processing Challenges, *David Barbier, Fives KEODS*

4:15 p.m. Effect of Chemical Composition on the Microstructure and Properties of As-Cast AHSS Slabs, *Bryan Webler, Carnegie Mellon University*

4:40 p.m. ANDRITZ Metals, HXT® Knife Technology for Shearing Advanced High-Strength Steel, *Brian Shaw, ANDRITZ Metals USA Inc.*

6–9 p.m. Reception/Dinner

Thursday, 22 June 2023

7 a.m. Breakfast

8 a.m. Introductions and Opening Remarks

8:05 a.m. Influence of Alloy Composition and Thermomechanical Schedule on Microstructure and Tensile Properties of Dual-Phase Steels, *Hany Khalifa, EZZ Group*

8:30 a.m. Effect of Mn-Enriched Cementite on Austenite Formation During Intercritical Annealing, *Josh Mueller, Los Alamos National Laboratory*

8:55 a.m. The Effect of Serration Behavior on Strain Hardening and Deformation in 22Mn-0.6 Steel, *Sukyoungh Hwang, Kyoto University*

9:20 a.m. Dynamic Recrystallization Behavior of Ni-Containing, Austenite-Based Fe-Mn-Al-C Steels, *Rogério Antao Cardoso, Missouri University of Science and Technology*

9:45 a.m. Weldability Investigation on Lightweight Steels, *Giacomo Villa, Politecnico Di Milano*

10:10 a.m. Break

10:35 a.m. Medium-Manganese FeMnAlSiC Advanced High-Strength Steels, *Alan Druschitz, Virginia Tech*

11 a.m. Texture and Anisotropy Study on a Lightweight Steel, *Giacomo Villa, Politecnico Di Milano*

11:25 a.m. Lunch

12:25 p.m. Microscopic Strain Path and Plastic Strain Heterogeneity in Multi-Phase Steels, *Hyunseok Oh, University of Wisconsin – Madison*

12:50 p.m. Application of Quenching and Partitioning Treatment and Its Effect on Initiation Fracture Toughness in AISI 4140 Steel, *Marco Belfi, Politecnico di Milano*

1:15 p.m. Conference Wrap-Up and Adjour



**SCAN FOR PRESENTATION ABSTRACTS
AND AN UP-TO-DATE SCHEDULE**

Presentations and times subject to change.

