



# 3RD AUTOMOTIVE STEEL INTERNATIONAL CONFERENCE

**9–12 March 2025**

Hilton Orlando Lake Buena Vista – Disney Springs® Area  
Orlando, Fla., USA



[AIST.org](http://AIST.org)

# 3RD AUTOMOTIVE STEEL INTERNATIONAL CONFERENCE



## About the Program

The steel and automotive industries have made significant advancements towards economic and environmental sustainability over the last few decades—more recently, this important work has been accelerated by domestic policy, international agreements, and society’s recognition of the value of such stewardship. These advancements range from the decarbonization of steelmaking and downstream processes, to the automotive industry’s adaptation of innovative body-in-white manufacturing technologies, and the increased use of advanced high strength steels for electric and hybrid vehicles. All these advancements are aimed at reducing the overall carbon footprint, while maintaining vehicle fuel economy and continuous enhancements of passenger safety. This Automotive Steel International Conference is therefore organized to bring together the international community to focus on all these latest developments: new advanced steels, new steel processing, and steel application technologies to enable use of the new steels. Papers and presentations are from domestic and international experts from the steel and automotive industries and academia. The 3rd AIST Automotive Steel International Conference was held on 9–12 March 2025, in Orlando, FL, USA. The first conference was held in Chengdu, China in 2016 and the second in South Korea in 2022.

## Who Should Attend

The conference should be attended by steel producers, automotive manufacturers, parts suppliers, researchers, academic professionals, and students who are focused on automotive steel products and processes.

## Registration Fees

Advance registration by 27 January 2025: Member US\$1,295, Non-member US\$1,440. Registration fee after 27 January 2025: Member US\$1,395, Non-member US\$1,540. Registration includes Sunday and Tuesday reception, breakfast, lunch and afternoon breaks Monday through Wednesday, and e-book proceedings.

## Hotel Accommodations

A block of rooms has been reserved at the Hilton Orlando Lake Buena Vista – Disney Springs® Area. Please call the hotel at +1.407.827.4000 by 10 February 2025 to secure the AIST discount rate of US\$225 per night plus a US\$25 resort fee for single/double occupancy using code ASI.

## Attention Non-Members

Non-member registration fees include membership in AIST through 31 December 2025. Membership is not automatic. A completed membership application must be returned to AIST.

## Organizing Committee

**Kelly A. Cetin**, Senior Research Engineer, U. S. Steel Research and Technology Center, Pittsburgh, Pa., USA

**Lawrence Cho**, Research Assistant Professor, Advanced Steel Processing and Products Research Center, Colorado School of Mines, Golden, Colo., USA

**Shreyas Devanathan**, Product Metallurgist, Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division, Sinton, Texas, USA

**Ana Paula Domingos Cardoso**, Manager, Galvanized Autobody Partnership and Galvinfo Center, International Zinc Association, Brussels, Belgium

**Stavros G. Fountoulakis**, Principal Scientist, Product Development, Product Manufacturability, ArcelorMittal Global R&D – East Chicago, East Chicago, Ind., USA

**V.S. Yashwanth Injeti**, Plant Metallurgist, Big River Steel – A U. S. Steel Co., Osceola, Ark., USA

**Weiping Sun**, Manager - Automotive Product Development, Nucor Corp., Charlotte, N.C., USA

**Grant A Thomas**, Corporate Manager, Product Research, Cleveland-Cliffs Research & Innovation Center, Middletown, Ohio, USA



# 3RD AUTOMOTIVE STEEL INTERNATIONAL CONFERENCE



## Schedule

### Sunday, 9 March 2025

4-6 p.m. Registration

5-6 p.m. Reception

### Monday, 10 March 2025

7 a.m. Breakfast and Registration

8 a.m. Introductions and Opening Remarks

**Session Chairs:** Grant Thomas, Cleveland-Cliffs Research and Innovation Center; Lawrence Cho, Colorado School of Mines

8:15 a.m. **Keynote: Forging the Future: Hot Stamping Innovation Trends for an Electrified Automotive World**

*Paul Belanger, Gestamp*

8:50 a.m. **Microstructure and Properties of B-Containing Press Hardening Steel Manufactured Using EAF-CSP Strategy**

*Weiping Sun, Nucor Corp.*

9:10 a.m. **Hydrogen Uptake Reduction Technology in Hot-Stamped Boron Martensitic Steels Through Functional Surface Coatings**

*Hee-Gwon Shin, Hye-Jin Kim, Seung-Pill Jung, Dong-Yul Lee, Joo-Sik Hyun, Hyundai Steel Co.*

9:30 a.m. **Ultrahigh-Strength Tubular Components as Structural Reinforcement in New Generation of Vehicles**

*Eliseo Hernandez-Duran, Cleveland-Cliffs Inc.*

9:50 a.m. **Importance of Understanding Martensite Transformation for Product Development**

*Ravi Ranjan, Tata Steel Jamshedpur*

10:10 a.m. Break

10:40 a.m. **Development of Cold-Rolled Martensitic Steels for Improving the Hydrogen Embrittlement Resistance and Surface Flatness**

*Bong June Park, Min Ho Jang, Seung-Pill Jung, Hye-Jin Kim, Seong Kyung Han, Tae Woo Kwon, Hyundai Steel Co.*

11 a.m. **Effect of Isothermal Holding Around the Martensite Finish Temperature on Properties of Martensitic Steels**

*Spencer M. Topper, Emmanuel De Moor, John G. Speer, Colorado School of Mines; C. Suppan, voestalpine Stahl GmbH*

11:20 a.m. **On Fracture Resistance of Ultrahigh-Strength Quench-Hardening Steels**

*Jun Hu, Cleveland-Cliffs Inc.*

11:40 a.m. **Transformation and Evolution of Automotive Steels at Nucor Steel–Arkansas**

*Igor Vieira, Nucor Corp.*

Noon Lunch

1 p.m. **Carriages to Crash Energy Management: The History of Sheet Steels in the Automotive Industry**

*James R. Fekete, JRF Technical Consulting LLC*

1:20 p.m. **A New Design of Inner Rocker Panel for Improved Integration With Rocker Reinforcement**

*Yu-Wei Wang, Cleveland-Cliffs Inc.*

1:40 p.m. **Evaluation of Fatigue Properties of Advanced High-Strength Steels for Durability Analysis**

*Youngseo Lee, Hakhoon Kim, Kyoungju Sohn, Jinhwa Jeon, Hyundai Steel*

2:00 p.m. **Effect of Prestrain and Strain Path on the Retained Austenite Transformation and Fracture Behavior in Quenched and Partitioned Steels**

*Brian Lin, ArcelorMittal*

2:20 p.m. Break

2:50 p.m. **Effect of Si Content on Thermal Stability of Austenite in Low-Alloyed TRIP Steel (Bainite Transformation Behavior in Austemper of Medium-Si Steel)**

*Fangyi Wang, JFE Steel Corp.*

3:10 p.m. **Investigating the Microstructures and Mechanical Properties of As-Cast and Continuously Cast Advanced High-Strength Steels**

*Nhu Hannah Ngo, Carnegie Mellon University*

3:30 p.m. **Austenite Stabilization in Advanced High-Strength Steel Using Quench and Partitioning Technique**

*Chiradeep Ghosh, Monojit Dutta, Tata Steel Ltd.*

3:50 p.m. **Influence of Initial Microstructure on the Evolution of Microstructure and Mechanical Properties of Galvanized Third-Generation Automotive Steel**

*Feng Yang, Yun Han, Huaxiang Teng, Huasai Liu, Musheng Qiu, Yin Zou, Shuo Han, Cheng Zhang, Research Institute of Technology of Shougang Group Co.*

4:10 p.m. Adjourn

# 3RD AUTOMOTIVE STEEL INTERNATIONAL CONFERENCE



## Tuesday, 11 March 2025

Session Chairs: *Weiping Sun, Igor Vieira, Nucor Corp.*

8:15 a.m. **Keynote: Innovation in Steelmaking to Automotive Design**

*James B. Chronister, Cleveland-Cliffs Inc.*

8:50 a.m. **Modeling of Complex Transformation Products in Advanced Steels**

*Matthias Militzer, University of British Columbia*

9:10 a.m. **Hot Rolling and Microstructural Optimization Modeling for Enhanced Mechanical Properties of High-Strength Multiphase Steels**

*Unai Mayo, Nerea Isasti, Pello Uranga, CEIT and University of Navarra-Tecnun; Brandon Hance, CBMM North America Inc.; Yanwen Wang, Sanjeev Sharma, Weiping Sun, Nucor Corp.*

9:30 a.m. **Modeling of Hot Rolling Technologies in the Context of Developing New Steel Grades**

*Eugene Nikitenko, United States Steel Corporation*

9:50 a.m. **Break**

10:20 a.m. **Application of Rapid Induction Heating to Third-Generation Advanced High-Strength Steels**

*Alec Williamson, Samuel Findley, David Ulrich, Colorado School of Mines; Matthew Merwin, Matthew McCosby, United States Steel Corporation; Malavikha Rajivmoorthy, Eliseo Hernandez-Duran, Cleveland-Cliffs Inc.; Robert Goldstein, Fluxtrol; Emmanuel De Moor, Lawrence Cho, Colorado School of Mines*

10:40 a.m. **Flash Annealing of Steel: Challenges and Technologies**

*David Barbier, Fives KEODS; Jean Paul Nauzin, Fives Steel Division*

11 a.m. **Bending Deformation Behavior of a TS 1180 MPa Grade Complex Phase Steel**

*Rosa Kim, Joo-Yeon Moon, Seong Kyung Han, Tae Woo Kwon, Hyundai Steel*

11:20 a.m. **Formability Evaluation of 980 MPa and 1180 MPa Grades With Different Microstructures for Automotive Applications**

*Vasant Pednekar, United States Steel Corporation*

11:40 a.m. **Cold-Forming Techniques for Curved Component of Ultrahigh-Strength Steel**

*Satoshi Sumikawa, JFE Steel Corp.*

Noon **Lunch**

1 p.m. **Influence of Stamping Temperature on Retained Austenite Evolution and In-Service Behavior for GI Fortiform 980**

*Hong Zhu, ArcelorMittal Global Research & Development*

1:20 p.m. **Resistance Spot Welding Technology for Ultrahigh-Strength Steel Sheet to Improve Both Liquid Metal Embrittlement Cracking Resistance and Joint Strength**

*Shinsuke Komine, Tomomi Kanazawa, Reiko Endo, Chikaumi Sawanishi, Katsutoshi Takashima, JFE Steel Corp.*

1:40 p.m. **The Effects of Substrate Aluminum Content on Liquid Metal Embrittlement Susceptibility of Resistance Spot Welds in Galvanized Third-Generation Advanced High-Strength Steels**

*Jake Colburn, John G. Speer, Jonah Klemm-Toole, Colorado School of Mines*

2 p.m. **Development of Spot-Welding Technology Applying Adaptive Control With Dynamic Selection From Multiheat Target**

*Naoaki Munemura, JFE Steel Corp.*

2:20 p.m. **Break**

2:50 p.m. **Formability Characteristics of Advanced High-Strength Low-Alloy Steels**

*Hardy Mohrbacher, NiobelCon BV; Caio Pisano, Bernardo Barile, CBMM Europe*

3:10 p.m. **Metallurgical Strategies in the Production of Bake-Hardenable Steels**

*Malavikha Rajivmoorthy, Cleveland-Cliffs Inc.*

3:30 p.m. **Enhancing Ultrahigh-Strength Low-Alloy Steels for Modern Automotive Applications: The Influence of Titanium on Recrystallization and Precipitation Behaviors**

*Sang Hun Shin, Jong Myeong Kim, Hyundai Steel; Alexander Gramlich, RWTH Aachen University; Kwang Su Na, Tae Woo Kwon, Hyundai Steel*

3:50 p.m. **Optimization of Global and Local Formability Properties Through Nb Microalloying**

*Hardy Mohrbacher, NiobelCon BV; Brandon Hance, CBMM North America Inc.*

4:10 p.m. **High-Strength Hot-Rolled Steel Sheet With Improved Stretch Flangeability for Automotive Applications**

*Madhawan Chandrawanshi, Sushil Kumar Giri, G. Senthil Kumar, Nigamananda Routray, Tuhin Chatterjee, Biswajit Ghosh, Tata Steel Ltd. Jamshedpur*

4:30 p.m. **Reception**

# 3RD AUTOMOTIVE STEEL INTERNATIONAL CONFERENCE



## Wednesday, 12 March 2025

**Session Chairs:** Ana Paula Domingos Cardoso, International Zinc Association; Stavros G. Fountoulakis, ArcelorMittal Global R&D – East Chicago; Shreyas Devanathan, Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division

8:15 a.m. **Keynote: Developments and Outlook of Automotive Sheet Steels in China**

*Li Wang, Baosteel Iron & Steel Co. Ltd.*

8:50 a.m. **Evolution of Microstructure During Partitioning Associated With Galvanizing/Galvannealing of Advanced High-Strength Steels**

*Sachin Kumar, Colorado School of Mines; Kyoung Min Kim, Ho Yong Um, Hyundai Steel; Emmanuel De Moor, John G. Speer, Colorado School of Mines*

9:10 a.m. **Synchrotron Characterization and Mesoscale Crystal Plasticity Simulation of the Retained Austenite Transformation of Quenched and Partitioned Steels in a Bend Specimen**

*Brian Lin, ArcelorMittal*

9:30 a.m. **Influence of Intercritical Austenitizing Temperature on 1000 MPa Tensile Strength Class Third-Generation Advanced High-Strength Steels Applied in the Automotive Industry**

*Henrique Lacerda Eleuterio, Usiminas*

9:50 a.m. **Influence of Hot Deformation Behavior on Development of Third-Generation Advanced High-Strength Steels**

*Mariana Valdez-Vázquez, Universidad Autónoma de Nuevo León; Omar García-Rincón, Ternium Mexico; Luis Leduc-Lezama, Martha Patricia Guerrero-Mata, Universidad Autónoma de Nuevo León*

10:10 a.m. **Break**

10:40 a.m. **Keynote: Current Trends and Technical Challenges for Galvanized Automotive Steel Sheet**

*Frank Goodwin, International Zinc Association*

11:15 a.m. **The Influence of Coating Weight on the Properties of Zn-Mg-Al Coatings Produced by Continuous Galvanizing**

*David Penney, Swansea University*

11:35 a.m. **Atmospheric Corrosion Behavior of Automotive Cold-Rolled and Galvanized Steel Sheets Exposed in East and Southeast Asia Region**

*Rinta Sato, JFE Steel Corp.*

11:55 a.m. **Designing New Metallic Coating Alloys for Synergistic Enhancement of Inhibitor Systems: A Study of the Corrosion Mechanisms of Zinc and Zinc-Calcium Alloys in the Presence of Chloride and Phosphate Ions**

*James Sullivan, Swansea University*

12:15 p.m. **Lunch**

1:15 p.m. **The Influence of Al and Mg Content on the Microstructure and Corrosion Behavior of Hot-Dipped Galvanized Zn-Mg-Al Coatings**

*Amar Dhoj Malla, Swansea University*

1:35 p.m. **Advanced Stereoscopic Imaging for Precision Measurement in Post-Slit Automotive Steel**

*David Kober, Global Gauge Corp.*

1:55 p.m. **Effect of Boron on Surface Oxidation Behavior and Phosphatability of High-Strength Cold-Rolled Steel Sheets**

*Shinichi Furuya, Tadachika Chiba, Kazuhisa Okai, Daisuke Mizuno, JFE Steel Corp.*

2:15 p.m. **Development of a New On-Line Sensor for Steel Surface Contamination**

*David Egner, Sarclad*

2:35 p.m. **Break**

3:05 p.m. **The Defect Detection Technique of Surface Inspection Systems With Texture Analyses Using Gabor Filters**

*Mitsutoshi Kemmochi, JFE Steel Corp.*

3:45 p.m. **Bake Hardening of Advanced High-Strength Automotive Steels**

*Hany Khalifa, EZZ Steel*

4:05 p.m. **Development of Ultrahigh-Strength Complex Phase Steels With Enhanced Ductility**

*Huasai Liu, Feng Yang, Musheng Qiu, Huaxiang Teng, Yun Han, Research Institute of Technology of Shougang Group Co. and Beijing Key Laboratory of Green Recyclable Process for Iron & Steel Production Technology*

4:25 p.m. **Effect of Batch Annealing Parameters on Mechanical Properties and Microstructure of a Cold-Rolled Dual-Phase Steel**

*Zhen Li, Quanli Wang, Jian Gong, Beijing Shougang Co. Ltd.; Chunqian Xie, Libin Liu, Shougang Research Institute of Technology; Pengyu Wen, Hao Chen, Tsinghua University*

4:45 p.m. **Closing Remarks**

4:50 p.m. **Conference Adjourn**



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AND AN UP-TO-DATE SCHEDULE