



The Association for Iron & Steel  
Technology (AIIST) is proud to announce the  
**4th International Ingot Casting, Rolling  
and Forging Conference**

# ICRF 2022

**21-23 June | Pittsburgh, Pa., USA**

| Sheraton Pittsburgh Hotel at Station Square |



4<sup>th</sup> International Conference

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

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## Conference Scope

The purpose of ICRF 2022 is to provide a forum for presentations on metallurgical and technological developments for ingot casting and processing, with areas of interest ranging from vacuum and remelt processing, through casting and refractories, forging and rolling, to heat treating and quality evaluation. Additional topics include modeling, which has seen widespread application to all areas of development and production, as well as the rise of digitalization/Industry 4.0, which has started to transform the industry.

## Who Should Attend

This conference is aimed at metallurgists, engineers, and operators from producers and suppliers involved in ferrous and non-ferrous operations, research and development, as well as professors, students, and researchers at universities and institutes.

## Conference Topics

Metallurgy of Ingot Casting

Ingots and Molds

Refractory Technology

Ingot Casting Systems

Additives for Ingot Casting (e.g., Fluxes, Alloys, Inoculants)

Materials Development

Remelting (e.g., VAR, ESR) and Vacuum Processing Technologies

Hot and Cold Rolling

Forging of Ingots

Reheating and Thermal Processing of Ingots and Products

(e.g., Microstructure Development, H Removal, Residual Stress)

Furnace Controls, Service and Maintenance

Failure Analysis and Prevention

Ingot and Product Quality Assurance

(e.g., Non-Destructive Testing (NDT), Chemical Analysis, QA Measurements, Statistical Process Control)

Modeling, Verification and Validation

Management of Production Scheduling and Logistics

Digital Transformation and Industry 4.0 (e.g., Automation, Artificial Intelligence, Machine Learning)

Sustainability, Energy Efficiency and Emissions Control Safety

# Sponsorship Opportunities

## Event Sponsor | US\$5,000 (3 Available)

Company logo on the website and in *Iron & Steel Technology* magazine, event signage and in the on-site AIST PPT presentation. One 6' table to display marketing material in the registration area and two complimentary registrations to the conference.

21–23  
Jun

## Reception Sponsor | US\$2,500 (2 Available)

Company name listing on signage as a sponsor during Monday's reception. Inclusion as conference sponsor in on-site AIST PPT presentation.

20  
Jun

## Breakfast Sponsor | US\$1,000 (1 Available)

Premium signage and acknowledgment as a sponsor during Tuesday's breakfast. Inclusion as a conference sponsor in on-site AIST PPT presentation.

21  
Jun

## Lunch Sponsor | US\$1,500 (1 Available)

Premium signage and acknowledgment as a sponsor during Tuesday's lunch. Inclusion as a conference sponsor in on-site AIST PPT presentation.

## Dinner Sponsor | US\$2,500 (2 Available)

Company name listing on signage as a sponsor during Tuesday's dinner. Inclusion as conference sponsor in on-site AIST PPT presentation.

## Breakfast Sponsor | US\$1,000 (1 Available)

Premium signage and acknowledgment as a sponsor during Tuesday's breakfast. Inclusion as a conference sponsor in on-site AIST PPT presentation.

22  
Jun

## Lunch Sponsor | US\$1,500 (1 Available)

Premium signage and acknowledgment as a sponsor during Tuesday's lunch. Inclusion as a conference sponsor in on-site AIST PPT presentation.

## Memorabilia Sponsor – Conference Bags | US\$3,000 (exclusive)

Company logo along with conference logo on memorabilia distributed to all conference attendees. AIST will provide the bag.

## Memorabilia Sponsor – Mini Cast Iron Souvenir | US\$2,500 (exclusive)

Company logo along with conference logo on memorabilia distributed to all conference attendees. AIST will provide the souvenir.

## Memorabilia Sponsor – Notebook/Pens | US\$2,500 (exclusive)

Company logo along with conference logo on memorabilia distributed to all conference attendees. AIST will provide the notebooks/pens.

Other

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ICRF  
Ingot Casting Rolling Forging 2022

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AIST.org/ICRF

Mon  
20  
Jun

4–6 p.m. | Registration

5–6 p.m. | Welcome Reception

Tue  
21  
Jun

8:05–8:50 a.m. | **Keynote Speaker: Challenges for a 21st Century Specialty Metals Company** | Graham McIntosh, Universal Stainless and Alloy Products

8:50–9:20 a.m. | **Manufacture of Large Superalloy Ingots and Extruded Pipes** | John deBarbadillo, Special Metals

9:40–10:10 a.m. | **Enhanced Steels by Ingot Casting** | John Campbell, University of Birmingham, U.K.

10:10–10:40 a.m. | **ATS – Advanced Teeming System – Design Considerations, Equipment and Operational Experience From Recent Installations** | Christian Redl, INTECO melting and casting technologies GmbH

10:40–11:10 a.m. | **Advanced Steelmaking and Forging Strategy for Large Steel Ingots** | Tobias Dubberstein, Schmiedewerke Gröditz GmbH

11:10–11:40 a.m. | **Improving Operator Safety, Increasing Productivity and Enhancing Ingot Quality by Installation of Two 100-Ton Ingot Casting Cars at Ovako** | Christian Redl, INTECO melting and casting technologies GmbH

11:40 a.m.–12:10 p.m. | **A Segregation, Porosity and CET Zone Prediction in Steel Ingots: Method, Calibration, Validation and Examples** | Ovidiu Bogdan, Industrial Soft

12:10–1 p.m. | Lunch

1–1:30 p.m. | **Optimization of Blank Weights for Automated Large-Diameter Forging Lines** | Philipp Pirolt, Linsinger

1:30–2 p.m. | **From Ingot to Round, Comparison Between V-Shape and Flat Die Sets** | Nicolas Poulain, Transvalor Americas Corp.

2:20–2:50 p.m. | **Thermomechanical Study of H13 Hot-Forged Bars** | Lea Ebacher, Finkl Steel–Sorel

2:50–3:20 p.m. | **Development of Closure Evaluation Test Method and Prediction Technology of Closing Internal Voids Using Casting Ingot** | Tomoiki Tsuji, Daido Steel Co. Ltd.

3:30–4 p.m. | **Findings From a Decarbonization Study of the Forging Furnaces at Universal Stainless North Jackson** | Jared Kaufman, CIC Pittsburgh

4–4:30 p.m. | **Modern Rolling Mill Rolls: From Ingot Making to Service Life Cycle** | Konstantin Redkin, WHEMCO Inc.

4:30–5 p.m. | **Profiled Rolls Design, What Can Go Wrong?** | Nicolas Poulain, Transvalor Americas Corp.

6 p.m. | Reception and Dinner

Wed  
22  
Jun

7–8 a.m. | Registration and Continental Breakfast

8–8:30 a.m. | **Quo Vadis, Long Steel Product? The Transformation of the Special Steel Industry** | Till Schneiders, Deutsche Edelstahlwerke Specialty Steel GmbH & Co. KG

8:30–9 a.m. | **Steckel Mill for Rolling of Specialty Alloy Flat Products at Carpenter Technology** | Patrick Stockhausen, Carpenter Technology Corp.

9:10–9:40 a.m. | **A Real-Time Measurement System for In-Situ Ingot Quality Evaluation During Vacuum Arc Remelting** | Paul King, Ampere Scientific

9:40–10:10 a.m. | **Electrode Quality for the Remelting Processes** | Alec Mitchell, University of British Columbia

10:20–10:50 a.m. | **Effect of AC Frequency on Melting Conditions During Electroslag Remelting** | Brendan Connolly, Ellwood Quality Steels

10:50–11:20 a.m. | **The Effect of Strong Deoxidants in Vacuum Removal of Oxide Inclusions** | Andrew Huck, Carnegie Mellon University

11:20–11:50 a.m. | **Examination of Effect of Uncertainty in Accommodation Coefficients on Modeling of He-Based Heat Transfer in VAR** | Richard H. Smith, Carpenter Technology Corp.

Noon–1 p.m. | Lunch

1–1:30 p.m. | **Effect of Processing on the Microstructure-Property Relationship Between a 4340 Wrought Steel and a 4340 Selective Laser-Melted Steel** | Pedro de Souza Ciacco, University of Pittsburgh

1:30–2 p.m. | **Assessment of the Microstructural Changes That Attend the Austenite Decomposition of an Advanced High-Strength Steel Subjected to Different Cooling Rates During Unidirectional Solidification** | Luis Felliipe Simoes, University of Pittsburgh

2:20–2:50 p.m. | **Advances, Results and Operational Experiences in Steelmaking Technology for Ingot Casting Companies** | Christian Redl, INTECO melting and casting technologies GmbH

2:50–3:20 p.m. | **Sensitivity Analysis of a Continuous Caster** | Nicolas Poulain, Transvalor Americas Corp.

3:30–4 p.m. | **Effect of Tempering Time and Temperature on Hardness and Impact Toughness of Ultrahigh-Strength Steel** | Viraj Ashok Athavale, Missouri University of Science and Technology

4–4:30 p.m. | **Process Design for Induction Hardening of a Steel Work Roll Using Simulation** | Justin Sims, DANTE Solutions

4:30–5 p.m. | **Radiative Analysis During Steel Ingot Transportation** | Nicolas Poulain, Transvalor Americas Corp.

7–8 a.m. | Registration and Continental Breakfast

8–8:30 a.m. | **Transient Three-Dimensional Modeling of Thermo-Hydraulic Phenomena During Water Quenching of Large Steel Blocks** | Mounir Baiteche, École de technologie supérieure

8:30–9 a.m. | **Thermo-Structural Numerical Modeling of Pre-Forging Heating of Steel Input Stocks: Productivity Improvement vs. Internal Cracking Susceptibility** | Andrea Meleddu, Astarte Strategies Srl

9:10–9:40 a.m. | **The Benefits of a Meltshop Management System Incorporating Least-Cost Optimizations and Inventory Control Working With ERP and SCADA Systems Within an Organization** | George Longstaff, Multon Process Technology Ltd.

9:40–10:10 a.m. | **Remote Melt Support of Consarc Customers During the Pandemic – Chances and Challenges** | Eike Schmilinsky, CONSARC – An Inductotherm Group Company

10:20–11:30 a.m. | **Panel Discussion | Concluding Remarks**

11:30 a.m.–Noon | Boxed Lunch

Noon | **Plant Tours** | Ellwood\* | Universal Stainless<sup>†</sup> | Vesuvius Research USA\*

\*all nationalities | <sup>†</sup>green card holders and U.S. citizens

Thu  
23  
Jun

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## Sponsored by

AIST's Specialty Alloy & Foundry Technology Committee

## Organizing Committee

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**Rich Smith** | Carpenter Technology Corp.

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