

## UPCOMING EVENTS

### Maintenance Solutions: Fundamentals and New Frontiers

15-17 September 2020  
Embassy Suites San Antonio Riverwalk  
San Antonio, Texas, USA

### Secondary Steelmaking Refractories – A Practical Training Seminar

6-8 October 2020  
Holiday Inn Nashville Vanderbilt  
Nashville, Tenn., USA

### Continuous Casting – A Practical Training Seminar

13-15 October 2020  
Cleveland, Ohio, USA

### Environmental Solutions: Meeting EPA Air Emission Requirements

20-22 October 2020  
Detroit, Mich., 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

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# 27TH CRANE SYMPOSIUM

29 SEPTEMBER—1 OCTOBER  
Omni William Penn Hotel • Pittsburgh, PA., USA

## ABOUT THE PROGRAM

The symposium will deliver practical information and experiences from crane maintenance personnel, crane manufacturers, equipment manufacturers and engineering consultants who strive to make electric overhead traveling (EOT) cranes and their runways the safest, most reliable, durable machinery and equipment in the industry. This two-day program will include presentations focused on safe work practices and ergonomics; electrical, mechanical and structural maintenance techniques; crane inspection technologies; and best practices in EOT crane modernizations. As part of the Crane Symposium program, the Charlie Totten Crane Innovator Award winner will be announced, recognizing the individual who has brought forth the latest in technology, or increased efficiencies in operational and maintenance practices for the continuous improvement of heavy industrial cranes.

## WHO SHOULD ATTEND

Plant maintenance staff; applications, electrical, mechanical, safety, service and design engineers; operations and maintenance personnel and management; and those people who supply parts, equipment and services to the industry. Anyone who has responsibility for cranes and crane service and is interested in improvements and incidents in this area should attend.

## PROFESSIONAL DEVELOPMENT HOURS

This course may qualify for up to 14 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 Cranes Technology Committee.

## REGISTRATION INCLUDES

Registration includes Sunday reception, breakfasts and lunches Monday and Tuesday, dinner Monday on Gateway Clipper dinner cruise, and a course workbook or flash drive including presentations.

## HOTEL ACCOMMODATIONS

A block of rooms has been reserved at the Omni William Penn Hotel. Please call the hotel at +1.800.843.6664 by 21 May 2020 to secure the AIST discount rate of US\$175 per night for single/double occupancy.

### AIST MEMBERS

US\$845

by 18 August 2020

US\$995

after 18 August 2020

### NON-MEMBERS

US\$1,140

by 18 August 2020

US\$1,240

after 18 August 2020



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# SCHEDULE OF EVENTS



## Tuesday, 29 September

4–6 p.m.  
**Registration**

5–6 p.m.  
**Reception**

## Wednesday, 30 September

7 a.m.  
**Registration and Breakfast**

8 a.m.  
**Introduction and Opening Remarks**

8:15 a.m.  
**2020 Charlie Totten Crane Innovator Award: Crane Magnet Reliability: Methods of Monitoring Crane Magnet System Operation and Condition**

Brian Kath, Nucor Steel—Berkeley

Magnet systems are critical tools for many applications in the steel industry. Magnet failures place employees at risk, and can cause damage and impact productivity. This presentation offers some tools that can be used to verify that design parameters are not being exceeded and determine the operational health of the complete magnet system.

8:45 a.m.  
**Crane Safety — We've Done the Thinking So You Don't Have To**  
Kevin Hoffmeyer, Whiting Corp.

This paper will review the importance of crane runway maintenance as it applies to safety, cost of ownership and reliability. It will share examples of impacts and data analysis used to identify root cause and offer means of mitigating through robust preventive maintenance programs.

9:15 a.m.  
**Why Crane Runways Don't Have Capacities**

Alex Tadla, Simmers Crane Design & Services Co.

A discussion of the many variables at play in crane loading on runways. The number of cranes, wheels, wheel base, crane spacing, etc., all have a major impact on the ability of the runway to support cranes of varying capacities in multiple scenarios.

9:45 a.m.  
**Break**

10 a.m.  
**Important Updates to AIST Technical Report No. 13**  
Tim Bickel, CSD Structural Engineers

*AIST Technical Report No. 13 – Guide for the Design and Construction of Mill Buildings* was published in 1969 to provide owners, engineers and contractors with information about the considerations unique to mill buildings. The 6th edition is being prepared for release and includes many important updates, including: crane load cases and combinations to match current building code requirements; updated crane runway girder design criteria; expanded crane runway fabrication and erection tolerance requirements; and an expanded section with guidance on structural inspections and reinforcement. This session will further explain these updates and the benefits to building owners.

10:30 a.m.  
**Redundancy, Emergency Brake in Hot Metal Cranes/Steel Mills**

Max Pauli, SIBRE Brakes GmbH

This paper will provide an introduction to emergency brakes, including their design and function; why to use emergency brakes; and different types — hydraulic, magnetic, pneumatic. It will also cover redundancy in cranes. Why redundancy? To provide a comparison to other cranes where it is already used; European standards for cranes; steel mills are more sensible than port area; and accident prevention.

11 a.m.  
**Flat-Tread Vs. Tapered-Tread Wheels Revisited**

Rich Warriner, Virginia Crane-Foley Material Handling Co. Inc.

A condensed comparison of two previous presentations by proponents of both designs. This presentation is designed to provide attendees with information to determine which design is best for their application.

11:30 a.m.  
**The Making, Shaping and Treating of Crane Wheels**

Mark McGinley, Hall Industries Inc.

This presentation describes the material selection, production processes, heat treating practices, and inspection procedures commonly used in the production of crane wheels and wire rope sheaves.

Noon  
**Lunch**

1 p.m.  
**Mill Roll Handling —Challenges, Equipment and Safety Considerations**  
James Annab, Bradley Lifting

This presentation will explore the challenges associated with mill roll handling, including efficiency and considerations for facilities with a large variety of roll configurations. It will also cover some of the equipment options available to handle the variety of different roll and chock configurations, as well as best practices for determining a solution that fits the end user's process. Finally, it will cover some of the guidelines of safe mill roll handling, and the role that "hands off" handling plays in ensuring safety for personnel.

1:30 p.m.  
**Identifying a Disaster Crane Project Before It Happens**

Larry Dunville and Tad Dunville, Overhead Crane Consulting LLC  
Crane projects can be classified by Pareto's 80/20 Rule. About 80% are simple cranes, while 20% are projects you wish you had never seen. This presentation will identify three factors that separate the 80 from the 20 and will examine how to avoid the 20% and what to do in a 20% cluster situation.

2 p.m.  
**Break**

2:15 p.m.  
**Increasing the Life of a Trolley Gear Drive by Changing the Gear Geometry and Bearing Style Without Changing the Gear Drive Housing**  
Bill Schierenbeck, Xtek Inc.

A gear drive that experienced frequent bearing changes in first 4 years of service underwent a design change and has experienced zero bearing-related issues in the past 5 years.

2:45 p.m.  
**Improving Encoder Reliability in Overhead Cranes**

Brian Winter, Nidec Industrial Solutions

Encoder operation is critical to maintaining uptime in overhead cranes. This seminar will inform the attendees on both troubleshooting and preventive maintenance that can reduce or eliminate encoder-related downtime.

3:15 p.m.  
**Break**

3:30 p.m.  
**Innovations in Crane Technology**

Mike Martin, Trutegra

This presentation will cover emerging technologies to aid operators with manual and semi-auto cranes as well as new technologies for fully automatic operation. Manual/semi-auto new technology includes anti-sway for non-variable frequency drive cranes, obstacle avoidance/no-fly zones, and the use of augmented reality for remote operation. New automated crane technology includes automatic bucket crane digging, real-time obstacle avoidance of moving material, automated eye-to-the-sky coil handling, and programmable logic controller-based 3D mapping of bulk inventory

4 p.m.  
**Adding Intelligent Technology to Your Overhead Crane**

Jim Kluck, Columbus McKinnon Corp./Magnetek

The overhead crane is the heart of production operations. By incorporating intelligent automated solutions, you can increase the safety, productivity and uptime of your facility. A quick return on investment through intelligent motion- and technology-enabled lifting devices can be provided by predictive (scheduled) maintenance, faster times to recover from a fault, increased equipment and operator safety, and detailed application information on the factory floor. This presentation will introduce concepts and technology to show how to bring intelligence to the operation of overhead cranes.

4:30 p.m.  
**End of Day Wrap-Up**

5 p.m.  
**Adjourn for the Day**

5:30 p.m.  
**Dinner**

## Thursday, 1 October

7 a.m.  
**Breakfast**

8 a.m.  
**Introduction and Opening Remarks**

8:15 a.m.  
**Monitoring for Overhead Crane Collisions With In-Plant Storage Racking and Movable Obstacles**  
Phillip Prokop, Laser-View Technologies.

8:45 a.m.  
**High-Speed Data Transmission Rail for Automated Cranes**

Pete Kirst and Brian Roberts, Conductix-Wampfler

9:15 a.m.  
**Use of Non-Contact Sensors to Provide and Improve Safety and Reliability in the Operation of Overhead Cranes**

Steven Lubeck, Laser-View Technologies

Traditionally, overhead cranes have utilized mechanical means of providing safety features to protect equipment and personnel. Some examples are end stop limits, crane-to-crane spacing, no-fly zone perimeters, obstacle detection, temporary maintenance stops, and hoist side pull and anti-sag. Several sensor technologies exist that are applicable to provide non-contact solutions to applications previously handled with mechanical methods. Non-contact solutions oftentimes are more reliable and can provide a level of operational flexibility that is not possible solely with traditional methods. This presentation will provide descriptions of the various non-contact sensing methods commonly used, along with a comparison of advantages and disadvantages of each technology. New techniques will also be discussed. Emphasis will be placed on the level of reliability and safety provided by each method, along with the relative levels of complication related with the integration. Examples will be provided with the intent of sparking interest in creative approaches to using sensors on cranes to establish safer and more reliable operation.

9:45 a.m.  
**Break**

10 a.m.  
**Optimizing Material Handling**

Rob Loomis, InVekTek LLC

The throughput of a plant is throttled by the skills of the least experienced crane operator. The recent resurgence of the steel industry and the sudden increase in new hires has magnified the need to help new crane operators get up the learning curve. One industry leader reported it incurs US\$1.5 million per month in product damage due to operator error and it's getting worse. While viable automation is still not yet attainable, there are new technologies that can dramatically save money by accelerating the learning curve of new crane operators, reducing the number of and severity of collisions and improving overall productivity.

10:30 a.m.  
**Snagging Incidents and Prevention for EOT Cranes — A Case Study**  
Khalid Sorensen, PaR Systems

Automotive stamping plants require high throughput and precise positioning of large and heavy dies. Electric overhead traveling cranes and skilled operators provide this utility. Side loading and snagging are frequent occurrences that lead to severe injury or death, and significant equipment and infrastructure damage. A case study is presented wherein data from cranes at a leading automotive manufacturer was recorded and analyzed over a 4-month period. Information about frequency and severity of snagging and side loading incidents is discussed along with information about Cranevision, a snag and side load detection and prevention technology.

11:00 a.m.  
**Automatic Coil Crane With Railroad Coil Removal at Nucor Gallatin**  
Edgardo La Bruna, Janus Automation, and Dave Reynolds, Nucor Steel Gallatin

Implementation of an automatic storage and retrieval system with the functionality to automatically remove coils from railroad cars at Nucor Steel Gallatin. This paper will present state-of-the-art automation and safety functions, including housekeeping operation, no-fly zones, intelligent positioning, detection of objects and area access.

11:30 a.m.  
**34T ROS Scrap Crane Installation and Operation**

Michael Sauer, Charter Steel — Saukville

This presentation discusses the installation and start-up challenges and rewards related to Charter Steel's first crane to be run from a remote operating station. It will provide a summary of what was learned during the first year of operation.

Noon  
**Lunch**

1:00 p.m.  
**Implementation of Crane Automation Features**

Edgardo La Bruna, Janus Automation, and Robbie Sturgill, Steel Dynamics Inc. — Flat Roll Group Columbus Division

This presentation discusses real implementation cases of crane automation features at Steel Dynamics Inc. — Flat Roll Group Columbus Division. New technology allows the reliable implementation of crane automation features even in harsh environments. Some of the crane automation features are simple anti-collision, no-fly zone and slow-down zones, positioning assistance, closed loop anti-sway, semi auto positioning, automatic operation, automatic storage and retrieval systems, and logistics optimizer and diagnostics tools. The incorporation of crane automation features increases productivity and also safety. This presentation discusses key aspects and recommendations for successful projects.

1:30 p.m.  
**How to Give a Technical Presentation**  
Tom Berringer, Gantrex Inc.

2:00 p.m.  
**Conference Wrap Up and Adjourn**