119th Metalcasting Congress
April 21-23, 2015
Columbus, Ohio

Suppliers
Metalcasters
Casting Buyers
Casting Designers

metalcastingcongress.org

CONNECT WITH YOUR SUPPLY CHAIN

Register to Attend Today

#castingcongress
Connect With Your Supply Chain

Congress comes once a year. It's the open window to connect, network and advance your place in the metalcasting world.

And it's a unique opportunity to gather the entire casting supply chain, from material and equipment suppliers to metalcasters to casting buyers.

Join your fellow casting professionals and designers and buyers of castings in the heart of the industry at the 119th Metalcasting Congress in Columbus, Ohio, for discussion and discovery of the evolving world of metalcasting.

Suppliers: Connect with technology and service providers who are on hand to showcase and exhibit new technologies.

Metalcasters: Connect with your peers through presentations of case studies and research findings to help improve your efficiency, quality and profitability.

Casting Buyers and Designers: Save your company time and money by learning new metalcasting design and sourcing tips at the Cast in North America Exhibition. Casting buyers will be able to strengthen their supply chain with face to face meetings with North America’s leading casting sources.
# 119th Metalcasting Congress

## Schedule at a Glance

### Tuesday, April 21, 2015

<table>
<thead>
<tr>
<th>Technical Sessions</th>
<th>Copper</th>
<th>8:00 a.m.-9:30 a.m.</th>
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<td>Copper</td>
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**Special Events**
- Division Recognition Luncheon* 11:30 a.m.
- Alumni Dinner* 6:00 p.m.

### Wednesday, April 22, 2015

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<th>Exhibits</th>
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**Casting Design & Purchasing**
- 8:00 a.m.-9:30 a.m.
- 1:30 p.m.-3:00 p.m.
- 3:15 p.m.-4:45 p.m.

**Special Events**
- AFS President’s Session 11:00 a.m.
- Lunch with Exhibitors 12:00 Noon
- Annual Banquet* 7:00 p.m.

*Certain Special Events require the purchase of a separate ticket to attend.

### Thursday, April 23, 2015

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**Casting Design & Purchasing**
- 8:00 a.m.-9:30 a.m.
- 9:45 a.m.-10:45 a.m.

**Special Events**
- President’s Brunch and Annual Business Meeting* 11:00 a.m.
- Hoyt Memorial Lecture 1:15 p.m.

### Host Hotel

Hyatt Regency Columbus, 350 N. High Street, Columbus, OH 43215
Exhibits to be held in the Greater Columbus Convention Center-Hall C
Tel: 614/463-1234 • Fax: 614/280-3034
$159.00/Night • Hotel cut-off is March 30, 2015
To reserve a room online or to see a complete list of housing options, visit www.metalcastingcongress.org.

## Metalcasting Congress in the Palm of Your Hand

While at the show, look for the Metalcasting Congress app. It gives exhibitors and attendees a way to plan out their day, take notes, and make schedule adjustments on the fly. Share your experiences via social media and keep up to date with new developments at metalcastingcongress.org.
Special Events

TUESDAY, APRIL 21

1:00 p.m.  
**Future Leaders of Metalcasting Meeting**
This event is open to members of the Future Leaders of Metalcasting Group. Attendees will participate in Executive Development Program activities from 1 to 5 p.m. An optional dinner will be held at 6:30 p.m. Contact Holly Brown (hbrown@afsinc.org) to reserve your spot. Cut-off date: April 14.

WEDNESDAY, APRIL 22

7:30 a.m.  
**Women in Metalcasting Breakfast**
Join us the morning of April 22, 2015 from 7:30-9:00 for breakfast and a special networking event for women in the metalcasting industry. Space is limited. Please contact Katie Matticks (katie@afsinc.org) by March 31st to reserve your spot.

11:00 a.m.  
**AFS President’s Session**
AFS President Chris Norch and leaders of the industry have called this special session to discuss issues of critical importance to the U.S. metalcasting industry. Come hear their thoughts on the state of the industry. This session is open to all registrants.

12:00 Noon  
**Lunch with Exhibitors**
All Metalcasting Congress attendees are invited to have complimentary lunch with the exhibitors. Attendees will have the opportunity to visit the booths and meet representatives from the various suppliers to the metalcasting industry. Casting purchasers can connect with casting suppliers in the Cast in North America section of the exhibit floor. Please check the box on the registration form to let us know you will be participating.

THURSDAY, APRIL 23

1:15 p.m.  
**Hoyt Memorial Lecture: Team Management and Outstanding Quality (15-088)**
*Sara Joyce, Badger Mining Corp., Berlin, WI*
In this lecture, Sara Joyce will describe how to use the team management philosophy to create outstanding quality in everything a business represents. The most valuable asset any company has is the people that give a significant part of their lives to the company they work for. Not only are they an asset but very often they are an untapped resource of knowledge and continuous improvement. To fully utilize this asset, a change in traditional management philosophy to a team style of management is often necessary. This lecture will discuss the pitfalls and the successes of using the team to improve and maintain outstanding quality in every part of the customer experience. Quality is not limited to the quality of products but includes a much more comprehensive view of your employee’s experience with the company and the customer. This session is open to all registrants.
Ticket Events

Separate ticket purchase required for these events.

TUESDAY, APRIL 21

11:30 a.m. Division Recognition Luncheon
This luncheon will feature the presentation of the Best Paper and Division awards, as well as the Applied Research and Howard F. Taylor Award.

6:00 p.m. Alumni Dinner
The evening will begin with a reception and dinner. Enjoy the camaraderie of other Alumni members and be introduced to this year's award winners and incoming board members. Must be an AFS Alumni to attend.

WEDNESDAY, APRIL 22

7:00 p.m. Annual Banquet
Highlights of the annual banquet include the presentation of the AFS Gold Medal followed by an evening of entertainment. Cash bar from 6:00-7:00 p.m.

THURSDAY, APRIL 23

11:00 a.m. President's Brunch & Annual Business Meeting
Join the annual meeting for the election of AFS and CMI officers and directors. In addition, Awards of Scientific Merit, Service Citations and the Michael J. Trzecinski CMI Award will be presented, along with the Casting of the Year, Millionaires Safety Award and the new Corporate Contribution Award.

Bonus

Register separately for this event at www.afsinc.org/additiveworkshop.

MONDAY, APRIL 20

1:00 p.m. AFS Additive Manufacturing Workshop—“Printing Your Future in 3D”
Plan to arrive the day before the Metalcasting Congress to attend a free workshop on additive manufacturing. Sponsored by AFS and the America Makes Consortium. This practical workshop, “Printing Your Future in 3D”, will be held from 1:30 p.m. - 4:30 p.m. on Monday, April 20.

Our industry is being transformed by the technology which enables printing of sand cores and molds, wax patterns and tooling directly from 3D CAD files. The technology is currently being used in many applications including prototypes, reproduction of antique automotive parts and other complex and lower volume production components. During this workshop, speakers will present the key aspects of the technology, latest research and advancements, how the technology can promote and enhance design freedom and product improvement. The workshop will be highlighted by presentations and a panel discussion by several foundries on how they are using the technology to expand markets, reduce lead time and improve cost. At the end of the workshop from 4:30 p.m. - 5:00 p.m., a discussion will be held to help form the first AFS ad-hoc committee on additive manufacturing.
Featured Exhibitors (as of January 16, 2015)

ABP Induction

Ajax Tocco

ASK Chemicals

DIDION International, Inc.

EMSCO

General Kinematics

INDUCTOTHERM

Laempe

Sinto

Tinker Omega Manufacturing LLC
Find the Latest Product Innovations at the 119th Metalcasting Congress Exhibition

**Exhibitors** (as of January 16, 2015)

- ABP Induction
- Advanced Foundry Specialists (AFS)
- Advanced Pattern Works
- **Ajax TOCCO Magnethermic**
- ALB Klein Technology Group
- Albarrie Environmental Services
- Allied Mineral Products Inc
- Allison Abrasives
- American Colloid Company
- American Metalcasting Consortium (AMC)
- AMETEK Foundry Products
- Anderson Global
- Andritz Metals Inc
- Angstrom Inc
- Applied Process Inc
- **ASK Chemicals**
- ATD Engineering & Machine
- B&L Information Systems
- Bad Dog Tools
- Badger Mining Corporation
- Blast Cleaning Technologies
- Brokk Inc
- C H Symington and Co Inc
- Can-Eng Furnaces Intl Ltd
- Capital Refractories Inc
- Carpenter Brothers Inc
- Carrier Vibrating Equipment Inc
- CavCom Inc
- Champion Chisel Works
- CMH Manufacturing
- D+E Lades
- **Didion International Inc**
- DISA Industries
- Drache USA Inc
- Ductile Iron Society
- EC&S
- Eirich Machines Inc
- EKK Inc
- Elkem Foundry Products
- EMI Inc
- Empire Systems Inc
- **EMSCO Inc**
- Engis Corporation
- ERIEZ
- ESI North America
- ETA Engineering Inc
- ExOne
- FATA Aluminum LLC
- Ferrous Processing & Trading
- Filtec Precision Ceramic Corporation
- Finite Solutions Inc
- Flow Science
- Foseco
- Foundry Solutions & Design
- **General Kinematics Corporation**
- GIFA 2015/Newcast 2015 (Messe Duesseldorf NA)
- GNR Srl
- Goff Inc
- Gradient Lens Corp
- Gradmatic Equipment Inc
- Green Diamond Sand Products
- Green Packaging Inc
- Green Sand Controls
- Guardian Software Systems
- HA International LLC
- Herschal Products
Hickman, Williams & Company
High Temperature Systems Inc
Hill and Griffith
Hoosier Pattern Inc
Houghton International
Humtownt Products
Hunter Foundry Machinery Corp
Induction Iron
**Inductotherm Corp**
Infratrol Manufacturing Inc
Interactive Safety Products Inc
International Sew Right
Interpower Induction
Joymark
Kittyhawk Products
KJS Industrial Services
Kodiak Group
Kuttner North America
**Laempe Reich**
LECO Corporation
Magid
MAGMA Foundry Technologies Inc
Marketing Options
Maus USA Inc
MeltLab Systems
Micro Air
Midvale Industries
Modern Equipment Company
Mossner Reich
Norton Abrasives
OmniSource
Pacific Consolidated Industries
Palmer Manufacturing & Supply Inc
Paulo
Perfect Patterns Inc
Peter E Macler Associates PLLC
PHI Ceramics Group
Pillar Induction
Prince International Corporation
Pyrotek Inc
Quintus Technologies LLC
REFCOTEC Inc
Refractory & Insulation Supply Inc
Rex Heat Treat
Richardson Manufacturing Company
Rimrock Corporation
**Roberts Sinto Corporation**
S&B Industrial Minerals
Saveway USA Corp
Schust Engineering Inc
SELEE Corporation
Simpson Technologies Corporation
Southeastern Foundry Products & Foundry Coatings
Specialty Foundry Products
Spectro Alloys Corporation
Spectro Analytical Instruments
Stotek Inc
StrikoWestofen America
Summit Foundry Systems Inc
Superior Graphite
The Modal Shop Inc
The Schaefer Group Inc
Thermo Scientific
ThermTech
Thermtronix Corporation
THORS
**Tinker Omega Mfg**
Top Cat Air Tools
Transmet Corporation
Triple M Metal LP
Unimin Corporation
Universal Welding & Engineering Inc
Versevo Inc
Viking Technologies Inc
Viridis3D LLC
Vulcan Engineering Co
Westmoreland Advanced Materials
Wheelabrator Group
Zerust Corrosion Solutions

**Bold** denotes Featured Exhibitor.
Cast in North America Exhibitors (as of January 16, 2015)
Open to all registrants.

Cast in North America on the exhibition floor connects casting buyers with North American metal casting suppliers. This segment of the exhibition is complemented by Casting Design and Purchasing Education Sessions.

**Casting Design & Purchasing Sessions**

Full Congress or ExhibitsPLUS registration required to attend.

**WEDNESDAY, APRIL 22**

8:00 a.m.  **Panel: Total Cost of Doing Business Overseas (15-063)**
Michael Swartzlander, Cast Strategies LLC, Hendersonville, NC; Rex Harrison, Oshkosh Corp., Oshkosh, WI; Harry Moser, Reshoring Initiative, Kildeer, IL; Matt Petersen, A. Stucki Co., Moon Township, PA

1:30 p.m.  **Panel: Design Analysis—Past Winners of Casting of the Year (15-136)**
Randy Brull, Aarrowcast Inc., Shawano, WI; Fritz Marston, Signicast Investment Castings, Hartford, WI; Tom Browning, Stahl Specialty Co., Kingsville, MO; Larry Poupard, Piad Precision Casting Corp., Greensburg, PA

3:15 p.m.  **The Ten-Step Program for Casting Defect Analysis (15-159)**
Kevin Fleischmann, The Institute, Schaumburg, IL

**THURSDAY, APRIL 23**

8:00 a.m.  **Panel: Intro to Casting Processes (15-153)**
Mark Collins, Stahl Specialty Co., Warrensburg, MO; Randy Brull, Aarrowcast Inc., Shawano, WI; Fritz Marston, Signicast Investment Castings, Hartford, WI; Scott Frens, Fort Recovery Industries Inc., Fort Recovery, OH

9:45 a.m.  **How Casting Design Affects Casting Prices (15-157)**
Tom Kayser, Osco Industries Inc., Portsmouth, OH

**Intro to the Cast Aluminum Family—What the Buyer Should Know (15-161)**
Nicole Tedrow, Fairfield Aluminum Castings Co., Fairfield, IA
To complement the exhibit floor, the 119th Metalcasting Congress offers the most expansive technical program in the industry, filled with the latest advancements in research and practice.

**TUESDAY, APRIL 21**

8:00 a.m.  **Copper Alloy**

**PANEL: Proper Sand Control for Copper Base Alloys (15-105)**
Vic LaFay, S&B Industrial Minerals, Cincinnati, OH; Mark Adamovits, ASK Chemicals, Dublin, OH; Mike Galvin, Buck Co. Inc., Quarryville, PA

**Lost Foam Casting**

**PANEL: Using Modeling for Lost Foam Process Improvement (15-163)**
Charles Bates, Harry Littleton, Alchemcast, Birmingham, AL; Brad Skirten, Wescast Industries Inc., Stratford, ON, Canada

**Melting Methods & Materials**

**PANEL: Case Studies on Coreless Furnace Cold Start Procedures to Help Efficiency & Prevent Lining Penetration (15-110)**
Eric Nelson, Dotson Foundry, Mankato, MN; Thomas Gesme, Grede Foundry, Biscoe, NC; John Oneson, Kohler Co., Kohler, WI

**Molding Methods & Materials**

**Silver Anniversary: Productivity and Ecology Considerations of High Production Cold Box Processes (15-096)**
James Archibald, ASK Chemicals L.P., Dublin, OH

**IR Loss on Ignition (15-092)**
Benjamin Binoniemi, Sam Ramrattan, Western Michigan University, Kalamazoo, MI

9:45 a.m.  **Cast Iron**

**Defects, the Never-Ending Battle (15-103)**
Josh Keller, Bremen Castings Inc, Bremen, IN; Riley Kerestes, Caterpillar Inc., Mapleton, IL; Lizeth Medina-Alatorre, Neenah Enterprises, Inc., Neenah, WI; Ray Staral, Dura-Bar, Woodstock, IL; Kevin Lucas, Goulds Pumps-ITT Industries, Seneca Falls, NY; Andy Adams, Foseco, Cleveland, OH

**Copper Alloy**

**PANEL: Refractories for Copper Base Alloys (15-106)**
Peter Satre, Allied Mineral Products Inc., Columbus, OH; Pete Quigley, Quigley Crucible R & S Co. Inc., Bridgeport, PA; Jeff Gaber, A.Y. McDonald Mfg. Co., Dubuque, IA; Jeff Sorenson, Neptune Technology Group Inc., Tallassee, AL

**Lost Foam Casting**

**PANEL: Lost Foam Patterns in the Traditional Foundry Process (15-164)**
Melissa Wallum, StyroChem Conade Ltd., Baie-D’urfe, QC, Canada, Will Jeffs, Castings Technology Int’l, Cleveland, OH; Mark DeBruin, Flowserve Corp., Dayton, OH

Full Congress registration required to attend.
Melting Methods
Scott Stiefvater, ABP Induction LLC, North Brunswick, NJ; Robert Bray, TB Wood’s Inc., Chambersburg, PA; Steve Heger, Waupaca Foundry Inc., Waupaca, WI; Johnny Hill, Martin Foundry, Dallas, TX

Molding Methods
& Materials
Low Thermal Diffusivity Investment Casting Molds Using Cenospheres (15-071)
Mingzhi Xu, Simon Lekakh, Von Richards, Missouri University of Science and Technology, Rolla, MO

Dynamic Testing of Green Sand (15-091)
Sam Ramrattan, Mo Khoshgoftar, Western Michigan University, Kalamazoo, MI; Hiroyasu Makino, Sintokogio Ltd., Aichi, Japan

Thermal Degradation Kinetics of Epoxy Stereolithography Pattern for Investment Casting Process (15-084)
Hongfang Zhao, Paul Nam, Von Richards, Simon Lekakh, Missouri University of Science and Technology, Rolla, MO

1:30 p.m. Cast Iron
Honorary Lecture: Recruiting the Next Generation of Metal Casters. How Do We Prepare for the Future Labor Shortage? (15-118)
Russell Rosmait, Pittsburg State University, Pittsburg, KS

Copper Alloy
PANEL: Safety and Personnel in the Foundry Industry (15-107)
Ted Schorn, Enkei America Inc., Columbus, IN; Harold Harned, Inductotherm Corp., Rancocas, NJ; Joey Leonard, Waupaca Foundry Inc., Waupaca, WI

Melting Methods
& Materials
PANEL: Tools for Evaluating and Understanding Performance of the Cupola (15-129)
Bruce Blatzer, Iron Casting Research Institute, Columbus, OH; David Kasun, Kuttner LLC, Port Washington, WI; Ron Beyerstedt, Mastermelt LLC, Winona, MN

Molding Methods
& Materials
Roundtable Discussion
Causes and Solutions to Defects Related to Green Sand (15-165)
Representatives from the 4M—Green Sand Committee

Roundtable Discussion

3:15 p.m. Aluminum
Defects and Sources in Cast Aluminum Alloys (15-166)
Steve Sikorski, Magma Foundry Technologies Inc., Schaumburg, IL; Brian Began, Foseco, Cleveland, OH; Steve Robison, AFS, Schaumburg, IL

Cast Iron
PANEL: Non-Destructive Testing on the Shop Floor That Really Works (15-151)
Brandon Reneau, Caterpillar Inc., Mapleton, IL; Charles Monroe, University of Alabama at Birmingham, Birmingham, AL; Pat Hayes, Caterpillar Inc., Decatur, IL; Jason Bush, Dion Birchler, Waupaca Foundry Inc., Tell City, IN

Magnesium/Copper Alloy
Congruent Casting of Copper—Manganese Bronze (15-046)
Kevin Chaput, Kevin Trumble, Purdue University, West Lafayette, IN

Comparing Tensile Properties of Thin AZ91E Magnesium Sheets and Standard Round Specimens in the As-Cast, T4, T6 and Underaged Conditions (15-097)
Franco Chiesa, Guy Morin, Centre de métallurgie du Québec, Trois-Rivières, QC, Canada; Bernard Duchesne, Collège de Trois-Rivières, Trois-Rivières, QC, Canada; Jocelyn Baril, TMA Inc., Trois-Rivieres, QC, Canada
**Engineering**

**PANEL: Identifying and Addressing Sources of Variability in the Metal Casting Process (15-149)**

Roy Stevenson, MAGMA Foundry Technologies, Inc., Schaumburg, IL; AJ Menefee, Eagle Precision Cast Parts Inc, Muskegon, MI; Ronald Baus, C.A. Lawton Co., De Pere, WI

**WEDNESDAY, APRIL 22**

**8:00 a.m.  Aluminum**

Novel Mold Filling Technology for Precision Sand Castings in Aluminum (15-058)

Glenn Byczynski, Nemak Canada, Windsor, ON, Canada; Jay Fritcke, Pyrotek Inc., Spokane, WA

Use of CALPHAD Modeling in Controlling Microstructure of Cast Aluminum Alloys (15-044)

Emre Cinkilic, Weihua Sun, Andrew Klarner, Alan Luo, The Ohio State University, Columbus, OH

Casting ASTM B108 Tensile Test Bars with Improved Repeatability (15-009)

David Levasseur, Guy Morin, Centre de métallurgie du Québec, Trois-Rivières, QC, Canada; Francis Breton, Joseph Langlais, Rio Tinto Alcan, Jonquiere, QC, Canada

**Cast Iron**

Chunky Graphite, Formation and Prevention in Heavy Section Castings (15-038)

Oddvar Knustad, Lena Magnusson Aberg, Andy Plowman, Elkem AS, Kristiansand, Norway

Examination of Nodular Graphite Formation and Austenite Solidification in Ductile Iron (15-072)

Jingjing Qing, Von Richards, David Van Aken, Missouri University of Science and Technology, Rolla, MO

Brittleness at Medium Temperatures of Spheroidal Graphite, Mixed Graphite, and Compacted Graphite High-Silicon Molybdenum Cast Irons (15-018)

Delin Li, CanmetMATERIALS, Hamilton, ON, Canada; Clayton Sloss, Wescast Industries Inc., Brantford, ON, Canada

**Engineering**

**PANEL: Reviewing your Quality Management System: Now and in the Future (15-156)**

Ted Schorn, Enkei America Inc., Columbus, IN; Nick Fox, Galesburg Castings, Inc., Galesburg, IL

**Molding Methods & Materials**

Comparing Sand Additives for Steel Castings (15-006)

Ralph Showman, Eric Scheller, ASK Chemicals, Dublin, OH

Reclaimed Green Sand for Core Room Application (15-008)

Vic LaFay, Jeremy Tibbs, S&B Industrial Minerals, Cincinnati, OH; Cornelis Greftorst, S&B Industrial Minerals, Mari, Germany; Jerry Thiel, University of Northern Iowa, Cedar Falls, IA

**9:45 a.m.  Aluminum**

Permanent Mold Castings of High-Strength and High Ductility Ba-Treated Hypo-Eutectic Al-Si Alloys (15-087)

Mohammad Shamsuzzoha, Laurentiu Nastac, The University of Alabama, Tuscaloosa, AL; David Weiss, Eck Industries Inc., Manitowoc, WI; John Berry, Mississippi State University, Starkville, MS
Effect of Inclusions on the Tensile Properties Inside a LPPM A356 Casting (15-002)
Franco Chiesa, David Levasseur, Guy Morin, Centre de métallurgie du Québec, Trois-Rivières, QC, Canada; Bernard Duchesne, Collège de Trois-Rivières, Trois-Rivières, QC, Canada

Molding Methods & Materials
Quantitative Method for Determining the Level of Cure and Wall Thickness in Shell Sand Systems (15-090)
Hemant Bohra, Sam Ramrattan, Western Michigan University, Kalamazoo, MI

Use of Sintered Bauxite in Molding Applications (15-075)
Scott Giese, University of Northern Iowa, Cedar Falls, IA

Steel
A New Approach to the Casting of Steels and Ni-Base Alloys (15-012)
John Campbell, Campbell Technology Ltd., Ledbury, UK

1:30 p.m. Aluminum
Influence of Metallurgical Parameters on the Impact Toughness of Near Eutectic Al-Si Alloys (15-067)
Ossama Elsebaie, Fawzy Samuel, Université du Québec à Chicoutimi, Chicoutimi, QC, Canada; Saleh Alkahtani, Salman bin Abdulaziz University, Alkhairji, Saudi Arabia; Herbert Doty, General Motors, Pontiac, MI

Ultrasonic Degassing of Aluminum Foundry Alloys (15-032)
Victor Rundquist, Kiran Manchiraju, Southwire Co., Carrollton, GA; David Weiss, Eck Industries Inc., Manitowoc, WI

Influence of Nano-Structured Silanols on the Microstructure and Mechanical Properties of A4047 and A359 Aluminum Casting Alloys (15-080)
Andre Lee, Yang Lu, Michigan State University, East Lansing, MI; Tsung-Yu Pan, Allen Roche, Vinci Technology Corporation, Ypsilanti, MI

Cast Iron
Comparing Late Inoculation Methods and Materials (15-005)
Ralph Showman, Mark Beers, ASK Chemicals LP, Dublin, OH

Increasing the Inoculant Potency of Commercial Inoculating Alloys in Induction Melted Gray Cast Iron (15-016)
Iulian Riposan, Ion Stefan, Mihail Firican, Stelian Stan, Politehnica University of Bucharest, Bucharest, Romania; Rodney Naro, David Williams, ASI International Ltd., Cleveland, OH

Effect of Chromium and Molybdenum Addition and Inoculation Treatments on High-Strength Gray Cast Iron Solidification and Shrinkage Defects (15-043)
Luciana Stuewe, Magma Engineering of Brasil, São Paulo, Brazil; Ricardo Fuoco, Metso Minerals, Sorocaba, Brazil; Wilson Luiz Guesser, UDESC - Santa Catarina University, Joinville, Brazil; Andre Paulo Tschiptschin, USP - São Paulo University, São Paulo, Brazil

Engineering
PANEL: Energy Treasure Hunt Best Practices (15-098)
Chris Leuteritz, Patriot Foundry & Castings, Franklin, NH; James Wiczer, Sensor Synergy Inc., Vernon Hills, IL; Michael Stowe, Advanced Energy, Raleigh, NC; Steve O’Neill, EnerNOC, Frisco, TX
THURSDAY, APRIL 23

8:00 a.m.  Aluminum
Alternatives to the Al-Si Eutectic System in Aluminum Casting Alloys (15-089)
Theodoros Koutsoukis, Makhlouf Makhloif, Worcester Polytechnic Institute, Worcester, MA

Effect of Additions of SiC and Al₂O₃ Particulates on the Microstructure and Tensile Properties of Al-Si-Cu-Mg Cast Alloys (15-028)
Jacobo Hernandez-Sandoval, Agnes Samuel, Fawzy Samuel, Université du Québec à Chicoutimi, Chicoutimi, QC, Canada, Salvador Valtierra Gallardo, Nemak S.A., Garcia, Mexico

Mechanical Properties and Processing Technology for an Elevated Temperature Metal Matrix Composite Alloy (15-057)
David Weiss, Eck Industries Inc., Manitowoc, WI; Gerald Gegel, Material & Process Consultancy, Morton, IL

Environmental Health & Safety
PANEL: EHS Hot Topics (15-104)
Jeet Radia, McWane Inc., Birmingham, AL; Mark Remlinger, Matthews International Corp., Pittsburg, PA; Thomas Slavin, Slavin OSH Group LLC, Chicago, IL; Jeff Hannapel, The Policy Group, Rockville, MD; Stephanie Salmon, Potomac Government Relations, Washington, DC
Molding Methods & Materials

Design Considerations for Three Dimensional Printed Cores and Molds (15-086)
Kip Woods, Sairam Ravi, University of Northern Iowa, Cedar Falls, IA

Heat Absorption Capacity and Binder Degradation Characteristics of 3D Printed Cores Investigated by Inverse Fourier Thermal Analysis (15-045)
József Tamás Svidró, Attila Diószegi, Jönköping University School of Engineering, Jonkoping, Sweden; David Stevenson, ExOne GmbH, Augsburg, Germany; Judit Tóth, University of Miskolc, Miskolc, Hungary

Steel

Rare Earth Grain Refiner Addition Methods (15-061)
Robert Tuttle, Saginaw Valley State University, University Center, MI

Interaction of Rare Earth Oxide with Alumina Refractories (15-062)
Aravinda Bommarreddy, Robert Tuttle, Saginaw Valley State University, University Center, MI

9:45 a.m. Aluminum

Optimizing the Heat Treatment of High Strength 7075-Type Wrought Alloys: A Metallographic Study (15-029)
Mohamed Ibrahim, Guillermo Garza-Elizondo, Agnes Samuel, Fawzy Samuel, Université du Québec à Chicoutimi, Chicoutimi, QC, Canada

On the Impact Toughness of Al-B₄C MMC: The Role of Minor Additives and Heat Treatment (15-030)
Mohamed Ibrahim, Agnes Samuel, Fawzy Samuel, Université du Québec à Chicoutimi, Chicoutimi, QC, Canada; Hany Ammar, Suez University, Suez, Egypt; Mahmoud Soliman, King Saud University, Riyadh, Saudi Arabia

Environmental Health & Safety

What’s Going on with OSHA’s Silica Proposal—What Foundries Can Expect (15-108)
Thomas Slavin, Slavin OSH Group LLC, Chicago, IL

How PM2.5 Permitting Can Derail Your Expansions Plans (15-109)
Thomas Rarick, ERM, Carmel, IN; Brad Muller, Charlotte Pipe & Foundry Co., Charlotte, NC

Molding Methods & Materials

An Investigation into Processing Parameters for 3D-Light Cured Sand used in Rapid Casting (15-093)
Sean Derrick, Sam Ramrattan, Michael Konkel, Western Michigan University, Kalamazoo, MI

Performance of Long, Thin Printed Cores in Aluminum Castings (15-074)
Thomas Mueller, Voxeljet of America, Canton, MI; Larry Andre, Solidiform, Fort Worth, TX

Steel

The Effect of Heat Treatment on the Machinability and Toughness of a High Manganese and Aluminum Steel (15-035)
Michael Grams, Laura Bartlett, Texas State University, San Marcos, TX

Nitriding of Lightweight High Manganese and Aluminum Steels (15-036)
Laura Bartlett, Sabra Serino, Texas State University, San Marcos, TX

1:15 p.m. Hoyt Memorial Lecture Team Management and Outstanding Quality (15-088)
Sara Joyce, Badger Mining Corp., Berlin, WI
**Registration Form**

No badges or tickets will be mailed. You will receive confirmation once your registration is processed. Bring this confirmation to pick up your materials onsite. No one under 16 allowed on show floor. No cameras permitted.

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**Spouse’s Name (if attending—complimentary)**

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**Attention Students and Honorary Members:**

**Students**—Registration for full time North American college students is complimentary. Please provide a copy of a valid student ID with your registration form and check here.

**Honorary**—Honorary members receive complimentary registration. Please check here.

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**Special Event Tickets**

Congress Registration not required for purchase of Special Event tickets.

| Division Recognition Luncheon—$55 (Tuesday, April 21 • 11:30 a.m.) |
|--------------------------|--------------------------|--------------------------|
| Alumni Dinner—$100 (Tuesday, April 21 • 6:00 p.m.) Must be AFS Alumni to Attend |
| Annual Banquet—$110 (Wednesday, April 22 • 7:00 p.m. Cash Bar Reception • 6:00 p.m.) |
| President’s Brunch and Annual Business Meeting—$55 (Thursday, April 23 • 11:00 a.m.) |

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**PAYMENT MUST ACCOMPANY REGISTRATION (US DOLLARS ONLY)**

- [ ] Check (Payable to American Foundry Society)
- [ ] American Express®
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Total Amount Enclosed in U.S. ($) Dollars

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Cardholder’s Signature (Required for Processing)

Cancellations must be received in writing by April 1, 2015. Refunds on registration fees will be less a $25 administration fee. Refunds on Special Event tickets will not be subject to the administration fee but must also be received in writing by April 1, 2015. Substitutes will be accepted at any time. Send cancellation requests to reginfo@metalcastingcongress.org or via fax to 847/824-7848.

Any questions, please call 800/537-4237

- Your e-mail address will be used to communicate all registration information. Please check here if you do not wish to have your e-mail address included in the post show attendance file provided to exhibiting companies.

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