

# **68th Investment Casting Institute Technical Conference and Equipment Expo 2021**

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7 - 10 November 2021

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**SUNDAY, NOVEMBER 7, 2021**

3:00 p.m. - 6:00 p.m. **REGISTRATION – Lobby Outside of Ambassador Room**

6:00 p.m. - 7:30 p.m. **WELCOME RECEPTION - Ambassador Room**

**MONDAY, NOVEMBER 8, 2021 – 7:00 a.m. Registration at DeVos Place**

8:00 a.m. - 8:10 a.m. **WELCOME INTRODUCTION \*\*\*\* 68th Technical Conference & Expo 2021**

8:10 a.m. – 9:00 a.m. **Russ Gallagher, ICI Director**  
*Bescast, Inc.*

**Russ Rosmait, ICI Academic Advisor**  
*Pittsburg State University*

**Annual Awards Ceremonies - Scholarships, Casting Contest, Innovator of the Year & Cast in Steel**

9:00 a.m. – 9:15 a.m. **Benjamin Fahrney, ICI Intern**  
*Pennsylvania State University - Behrend*

**Paper No. 1 - Page No. 1**  
ICI Intern Project

9:15 a.m. - 10:00 a.m. **Jerrold Weaver**  
*Non-Ferrous Founders' Society*

**Booth 212**

**Paper No. 2 - Page No. 9**  
The Integrated Casting Order Network (ICON)

10:00 a.m. – 10:20 a.m. **BREAK**

10:20 a.m. – 11:00 a.m. **Chris Whitehouse**  
*3M Technical Ceramics, Inc.*

**Paper No. 3 - Page No. 11**  
Shell Drying – Effect of Ambient Conditions Upon Drying & Shell Properties

11:00 a.m. – 11:40 a.m. **Gerald Richard**  
*MAGMA Foundry Technologies, Inc.*  
**Booth 204**

**Paper No. 4 - Page No. 31**  
An Investigation into Misrun Defects in Investment Cast Stainless Steel Castings

11:40 p.m. - 12:00 p.m. **Gerard Thiel**  
*University of Northern Iowa*

**Paper No. 5 - Page No. 39**  
AM4IC Report Out

12:00 p.m. - 1:00 p.m. **Lunch**

1:00 p.m. – 1:40 p.m. **Tom Mueller**  
*Mueller Additive Manufacturing Solutions*

**Paper No. 6 - Page No. 41**  
Optimization of an Aerospace Casting: A Case Study

1:40 p.m. – 2:20 p.m. **Dan Z. Sokol**  
*Renaissance Services – PERFECT – 3D*  
**Booth 318**

**Paper No. 7 - Page No. 49**  
Rapid, Low-Cost Tooling for Small Engine Castings

2:20 p.m. – 3:00 p.m. **Lee Chamberlain**  
*VA Technology Ltd.*  
**Booth 107**

**Paper No. 8 - Page No. 51**  
Automated Methods of Slurry Testing, Monitoring & Control

3:00 p.m. – 6:00 p.m. **EXPO**

TUESDAY, NOVEMBER 9, 2021

## 68th Technical Conference &amp; Expo 2021

8:00 a.m. - 8:05 a.m.	<b>Greeting</b>	
8:05 a.m. - 8:45 a.m.	<b>Angelika Priese</b> <i>Imerys Fused Minerals Murg GmbH</i>	<b>Paper No. 9 - Page No. 79</b> Development of Investment Casting Shells Based on Calcia Stabilised Zirconia for Ti-6Al-4V
8:45 a.m. - 9:25 a.m.	<b>Nip Singh, ICI Director</b> <i>S&amp;A Consulting Group</i>	<b>Paper No. 10 - Page No. 89</b> Process Control Standards (PCS) for Investment Castings
9:25 a.m. - 10:00 a.m.	<b>Raymond Monroe</b> <i>Steel Founders' Society of America</i> <b>Booth 512</b>	<b>Paper No. 11 - Page No. 91</b> Steel Performance Initiative (SPI) and Digital Innovative Design (DID)
10:00 a.m. - 10:15 a.m.	<b>BREAK</b>	
10:15 a.m. - 10:55 a.m.	<b>Phil Geers</b> <i>Blasch Precision Ceramics</i> <b>Booth 316</b>	<b>Paper No. 12 - Page No. 95</b> Implementing Best Practices & Reducing Process Costs For Refractory Use in Investment Casting & Alloy Production Foundries
10:55 a.m. - 11:35 a.m.	<b>Samuel Holt</b> <i>Georgia Southern University</i>	<b>Paper No. 13 - Page No. 109</b> The Effect of Firing Temperature & Time on Silica Based Investment Shells Strength
11:35 a.m. - 12:15 p.m.	<b>Iñaki Vicario</b> <i>Consarc Engineering Ltd.</i> <b>Booth 308</b>	<b>Paper No. 14 - Page No. 117</b> Process Cycle Time Analysis & Optimisation for Efficient Vacuum Precision Investment Casting Furnaces
12:15 p.m. - 1:00 p.m.	<b>LUNCH</b>	
1:00 p.m. - 1:40 p.m.	<b>Mark Oles</b> <i>Pine Tree Castings</i> <b>Alfred Kaulius</b> <i>Paramelt</i> <b>Booth 309</b>	<b>Paper No. 15 - Page No. 137</b> Pattern Cleaning Study of Pattern Formulation Effects on Surface Energy Measurements
1:40 p.m. - 2:20 p.m.	<b>Dr. Sergejs Spitanis</b> <i>ALD Vacuum Technologies</i> <b>Booth 202</b>	<b>Paper No. 16 - Page No. 181</b> Investment Castings with Unique Levitation Melting Technology FastCast
2:20 p.m. - 3:00 p.m.	<b>Dr. Sam Ramrattan</b> <i>Western Michigan University</i>	<b>Paper No. 17 - Page No. 187</b> Analysis of Thermal Distortion Data to Detect Issues in Investment Shell Materials
3:00 p.m. - 6:00 p.m.	<b>EXPO</b>	
6:30 p.m. - 8:00 p.m.	<b>EVENING RECEPTION</b>	

**WEDNESDAY, NOVEMBER 10, 2021**

**68th Technical Conference & Expo 2021**

8:00 a.m. - 8:05 a.m. **Greeting**

8:05 a.m. - 9:05 a.m. **Shayla Rivera – Keynote Speaker**

**Keynote Address: Awareness Brings Change**

9:05 a.m. – 9:45 a.m. **Noel O’Sullivan**  
*University of Limerick*

**Paper No. 18 - Page No. 199**  
Enhancing Porosity & Permeability of Ceramic Shells  
For Investment Casting through Pre-wetting

9:45 a.m. – 10:25 a.m. **Mark White**  
*IMPRO Industries USA*

**Paper No. 19 - Page No. 219**  
Tensile Bar Castings

10:25 a.m. – 10:30 a.m. **Joseph Fritz**  
*ICI Executive Director*

**Best Paper Award, Closing Remarks and  
Adjournment**