

15th World Conference on Investment Casting & Equipment Expo (WCIC 2022)

It's A Small World After All

Anaheim, California, USA
21-24 August 2022

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15th WCIC 2022

INVESTMENT CASTING

It's A Small World After All

Receptions

Sunday 5:30 p.m.

Tuesday 6:30 p.m.

Exposition

Monday & Tuesday
2:00 p.m. - 6:00 p.m.

SUNDAY, AUGUST 21, 2022

3:00 p.m. - 7:30 p.m.

5:30 p.m. - 8:30 p.m.

REGISTRATION – Adventure Lawn

WCIC OPENING CEREMONY and WELCOME RECEPTION – Adventure Lawn

Recognitions & Annual Awards Presentation

MONDAY, AUGUST 22, 2022

7:00 a.m. – 5:30 p.m.

REGISTRATION DESK – Disneyland Center Lounge

8:00 a.m. – 8:05 a.m.

GENERAL SESSION - Disneyland Center Ballroom

Greeting

8:05 a.m. – 9:05 a.m.

Keynote Address: Lessons from The Miracle on The Hudson
Jeff Skiles, Co-Pilot US Airways Flight 1549

9:05 a.m. – 9:20 a.m.

European Market Trends ...page 1

Carlos Olabe, EICF Executive Director

9:20 a.m. – 9:35 a.m.

Asian Market Trend ...page 3

Across the Far East Region – Yukio Nasu, JFS

9:35 a.m. – 9:50 a.m.

North American Market Trends ...page 5

Joseph Fritz, ICI Executive Director

9:50 a.m. – 10:00 a.m.

Global Market Trends ...page 7

Joseph Fritz, ICI Executive Director

10:00 a.m. – 10:15 a.m.

BREAK

10:15 a.m. – 10:45 a.m.

Process Cycle Time Analysis & Optimisation for Efficient Vacuum

Precision Investment Casting Furnaces ...page 9

Iñaki Vicario, Consarc Engineering

Booth No. 224

10:45 a.m. – 11:15 a.m.

Investigation on Permeability Measurement Method of Investment Casting Shell Molds

and Influencing Factors on Permeability ...page 27

Ryosuke Naito, IHI Corporation

11:15 a.m. – 11:45 a.m.

A Novel Prime Coat Slurry Mineral for Aluminum Investment

Castings ...page 35

Kevin Rudolph, O'Fallon Casting; Steven Ashlock, Kyanite Mining Corp.

Booth No. 324

11:45 a.m. – 12:30 p.m.

LUNCH - Disneyland South Ballroom

12:30 p.m. – 1:00 p.m.

A Shop Floor Approach to Continuous Improvement in Investment Cast

CF8M Components For Biomedical Applicationspage 45

Dr. Roger Lumley, AW Bell Pty Ltd.

Booth No. 313

1:00 p.m. - 1:30 p.m.

Advanced Analysis Techniques of Slurry Stability Utilising Zeta Potential Testing

of Colloidal Silica ...page 56

Gavin Dooley, REMET UK

Booth No. 217

1:30 p.m. – 2:00 p.m.

Viscosity Control for Consistent Casting Shell Building ...page 71

Dr. Sunil Kumar, Rheonics

Booth No. 222

2:00 p.m. – 6:00 p.m.

EXPO – Disneyland Exhibit Hall & Disneyland North Ballroom

TUESDAY, AUGUST 23, 2022

- 7:00 a.m. – 5:30 p.m. **REGISTRATION DESK** – Disneyland Center Lounge
- 8:00 a.m. – 8:05 a.m. **GENERAL SESSION** - Disneyland Center Ballroom
Greeting
- 8:05 a.m. – 9:05 a.m. **Panel Discussion: Process Control Standards (PCS) for Investment Castings – Global Rollout ...page 86**
Brian Ferg, Member Emeritus
Joseph Fritz, Investment Casting Institute
Thad Nykiel, Kovatch Castings Inc.
Tom Planz, Kovatch Castings Inc.
Nip Singh, S&A Consulting Group LLP
- 9:05 a.m. – 9:35 a.m. **Thermal Properties Evaluation of Investment Casting Shell by Hot Disk Transient Plane Source Method ...page 88**
Nip Singh, S&A Consulting Group LLP
Artem Trofimov, Orton Ceramic Foundation **Booth No. 523**
- 9:35 a.m. – 10:05 a.m. **Advanced Core Removal for the Modern IC Foundry ...page 104**
Howard Pickard, Andrew Smith, LBBC Technologies **Booth No. 409**
- 10:05 a.m. – 10:20 a.m. **BREAK**
- 10:20 a.m. – 10:50 a.m. **ICI Intern Project Report ...page 116**
Nolan Sykes, Concurrent Resources LLC
- 10:50 a.m. – 11:20 a.m. **Evaluation of Printed Wax Pattern Molds ...page 118**
Tom Mueller, Mueller Additive Manufacturing Solutions
- 11:20 a.m. - 11:50 a.m. **Shifting the Engineering Focus of Back-up System Design (Novel Backup Binder for Investment Casting) ...page 126**
George Salomon, David Scott, Nalco Water – An Ecolab Company **Booth No. 320**
Sam Scott, Chromalloy Castings, Tampa
- 11:50 a.m. – 12:30 p.m. **LUNCH** - Disneyland South Ballroom
- 12:30 p.m. – 1:00 p.m. **Autoclave Technology ...page 169**
Michael Kugelgen, MK Technology GmbH **Booth No. 308**
- 1:00 p.m. – 1:30 p.m. **Development of Ni Based Superalloy with High Temperature Strength, Low Density & Excellent Castability for Turbine Wheel...page 171**
Yoshiki Kumagai, Daido Steel Co., Ltd.
- 1:30 p.m. – 2:00 p.m. **Ceramic Foundry Cores by 3D Printing ...page 181**
Richard Gagnon, 3DCeram Sinto
- 2:00 p.m. – 6:00 p.m. **EXPO** – Disneyland Exhibit Hall & Disneyland North Ballroom
- 6:30 p.m. – 8:00 p.m. **RECEPTION – Adventure Lawn**

WEDNESDAY, AUGUST 24, 2022

- 7:00 a.m. – 12:00 p.m. REGISTRATION DESK – Disneyland Center Lounge
- 8:00 a.m. – 8:05 a.m. **GENERAL SESSION** - Disneyland Center Ballroom
Greeting
- 8:05 a.m. – 8:35 a.m. **Enablers for Driving Forward a Precision Investment Casting World Class Foundry...page 196**
Carlos Olabe, EICF Executive Director
- 8:35 a.m. – 9:05 a.m. **Casting Industry Megatrends...page 198**
Diran Apelian, University of California, Irvine
- 9:05 a.m. – 9:35 a.m. **Meeting The Challenge...page 200**
Jack Ziemba, Aristo-Cast
- 9:35 a.m. – 10:05 a.m. **Wireless Sensors for Investment Casting Shell Data Acquisition...page 204**
Nathaniel Bryant, University of Northern Iowa
- 10:05 a.m. – 10:35 a.m. **Advanced Plasma Coating of Wax Injection Moulds – Eliminating Release Agents from the Investment Casting Process...page 222**
Dr. Dirk Lehmkus, Fraunhofer IFAM
- 10:35 a.m. – 10:50 a.m. **BREAK**
- 10:50 a.m. – 11:20 a.m. **Investment Casting Metrology Growth and Sustainability...page 233**
*Tim Ruland, Chris Tinker, Alexander Hautanen, Hitchiner Manufacturing, Inc.
Josh Sullivan, Capture 3D*
- 11:20 a.m. – 12:00 p.m. **How It Is Made – Ceramic Shell Raw Materials Produced by The Fusion Process...page 246**
Michael Weissenbacher, IMERYS
- 12:00 p.m. – 12:30 p.m. **Closing Ceremony**
Announcement of 16th WCIC Venue & Closing
Best Paper Award
Acknowledgements
- 5:30 p.m. – 8:00 p.m. **GALA BANQUET – Sleeping Beauty Pavilion**
(Registration Add-On – Not included in Delegate Registration)

THURSDAY, AUGUST 25, 2022

- 7:45 a.m. – 12:00 p.m. **FOUNDRY & SUPPLIER FACILITY TOURS** – Meet in Disneyland Hotel Lobby
(Registration Add-On – not included in Delegate Registration)