

MIM2010

International Conference on Injection Molding
of Metal, Ceramics and Carbides

MARCH 29–31 • HYATT REGENCY LONG BEACH
LONG BEACH, CA

*Register by
February 28
and save!*

*Sponsored by the
Metal Injection
Molding Association,
a trade association of
MPIF, and its affiliate
APMI International*

Special Opportunity:
All conference and
tutorial registrants will
receive *Injection
Molding of Metals and
Ceramics & MPIF
Standard 35, Materials
Standards for Metal
Injection Molded Parts*
with their registration.
The books will be
distributed at the
conference.

CO-CHAIRMEN:
Animesh Bose, FAPMI
Materials Processing, Inc.

Fred Robinson
Kinetics Climax, Inc.

The PIM industry (MIM—metal injection molding; CIM—ceramic injection molding; and CCIM—cemented carbide injection molding) has estimated sales of over \$1 billion and could possibly double in a span of five years. With this continued growth and interest, the industry has realized major technological advances and overcome numerous business challenges.

The objective of the conference is to explore these advances, assist in the transfer of technology, and investigate new developments in the field of injection molding of metal, ceramics, and carbides.

The conference is targeted at product designers, engineers, consumers, manufacturers, researchers, educators, and students. All individuals with an interest in this fascinating technology and application of its parts are encouraged to attend.

ALSO OFFERING...

Powder Injection Molding Tutorial

Monday, March 29

Conducted by
Randall M. German, FAPMI
San Diego State University

This course will provide a basis for determining options, uses, properties, applications, and opportunities for cost-effective PIM manufacturing. Individuals who will benefit from the tutorial include engineers, business managers, procurement managers, component designers, and technicians. This course is a must for consumers of PIM components and organizations that are exploring the opportunities associated with developing their own PIM manufacturing facilities. Registrants will receive the publication *Powder Injection Molding Design Applications Users Guide*.

conference schedule

monday, march 29

tutorial

9:00 a.m.–4:00 p.m. (includes lunch)
Powder Injection Molding Tutorial
Randall M. German, FAPMI
San Diego State University

This optional course, which requires a separate registration fee, is an ideal way for anyone looking for a solid grounding in the technology of PIM to obtain a comprehensive foundation in a short period of time.

Here is a partial list of topics that will be covered during the tutorial:

Introduction to the manufacturing processes: feedstocks, molding, debinding, sintering, and finishing

Definition of what constitutes a viable PIM component

Selection of materials based on component expectations and required properties

Assessment of the critical features of dimensional accuracy and material performance

Comparison of PIM to competing technologies

Review of the economical advantages of PIM

New applications, emerging markets, and examples of products never thought possible in net-shape manufacturing until PIM

5:00–6:00 p.m. (Cash Bar)

WELCOMING RECEPTION

All conference attendees, whether attending the tutorial or not, are invited to this reception



program schedule

MONDAY, MARCH 29, 2010

8:00–9:00 a.m. Registration
9:00 a.m.–4:00 p.m. PIM Tutorial
5:00–6:00 p.m. Welcoming Reception

TUESDAY, MARCH 30, 2010

7:00–8:00 a.m. Registration & Continental Breakfast
8:00 a.m.–5:30 p.m. Program (includes lunch)
5:30–7:00 p.m. Tabletop Exhibition/Networking Reception

WEDNESDAY, MARCH 31, 2010

7:00–7:30 a.m. Continental Breakfast
7:30 a.m.–4:30 p.m. Program (includes lunch)

tuesday, march 30

8:00 a.m.–5:30 p.m. (includes lunch)

GENERAL SESSION

North American MIM Status
Matthew Bulger, USA
NetShape Technologies–MIM

titanium focus session

Metal Powder Injection Molding of Various Titanium Compositions

Randall M. German, FAPMI, USA
San Diego State University

Oxygen Sources and Control in Titanium PIM Process

Eric Baril, Canada
National Research Council Canada/IMI

Effect of Additives on Sintering Response of Titanium by Powder Injection Molding

Antonryaj Arockiasamy, USA
Mississippi State University

High-Performance Injection Molded Ti-6Al-4V Alloy Materials added Mo, Fe, Cr

Hideshi Miura, Japan
Kyushu University

Titanium and Titanium–Nickel Parts Processed by PIM of TiH₂-Based Feedstocks

Efrain Carreño-Morelli, Switzerland
University of Applied Sciences Switzerland

Manufacturing of Implantable Medical Devices by Metal Injection Molding

J. Alan Sago, USA
Accellent Inc.

Cytotoxicity Study on the Titanium Alloy Parts Produced by Metal Injection Molding Technique

Rosdi Ibrahim, Malaysia
Advanced Materials Research Centre

wednesday, march 31

7:30 a.m.–4:30 p.m. (includes lunch)

GENERAL SESSION

Influence of Carbides Reinforcement on the Sintering Process of M2 HSS Feedstock

Gemma Herranz, Spain
Universidad de Castilla-La Mancha

MIM of 316L Stainless Steel Feedstock and Preparation for Numerical Simulations of Sintering Stage

Jean-Claude Gelin, France
FEMTO-St Institut/LMA, ENSMM

Advanced Stainless Steels through PIM Processing

Tim McCabe, USA
Kinetics Climax, Inc.

Particle-Size Distributions—Effect of Powder Size on Sintering and Part Properties

Toby A. Tingskog, USA
Sandvik Osprey Ltd.

The Relationship between Feedstock Solids Loading and Component Distortion in a Production MIM Process

Matthew Bulger, USA
NetShape Technologies–MIM

How to Correlate Part Dimensions Using Molding and Sintering Parameters

Philip Corrin, USA
ORMCO

KEYNOTE LUNCHEON

The MIM Advantage with Small Complex Parts Over Machining and Investment Casting, with a Focus on the Impact it has made in Orthodontics

Lars Gehlbach, USA
Sybron Dental Specialties



TECHNOLOGICAL PROCESS & PRODUCT INNOVATIONS

This session will be dedicated to the exchange of commercial capabilities and products.

Tabletop exhibitors will have the opportunity to offer a 10–15 minute presentation followed by a **Question & Answer Forum** at the end of the session.

5:30–7:00 p.m. (Cash Bar)

TABLETOP EXHIBITION & NETWORKING RECEPTION

DESIGN CASE STUDIES

Numerous case studies will be presented throughout the conference

Quantifying the Effects of Metal Injection Molding Automation

Ashley Nichols, USA
FloMet LLC

MIM Alloy 718 for Aerospace Components

Jimmy Lu, USA
Honeywell

Energy-Efficient Powder Injection Molding

Uwe Haupt, Germany
ARBURG GmbH + Co KG

Recycling of Ferrous Powders by Metal Injection Molding Process

Thierry Barriere, France
FEMTO-St Institut/LMA, ENSMM

Measurement and Assurance of Temperature Uniformity in a Batch MIM Sintering Furnace

Claus Joens, USA
Elnik Systems

Fabrication of Microstructured Parts by Nano-Imprint Lithography Sacrificial Plastic Mold Insert MIM Using Nanoscale Copper Powder

Yasuhiro Kanoko, Japan
Osaka Prefectural College of Technology

Parametric Optimization of Metal Injection Molding (MIM) Process Using ANOVA and ANNs

Mohamad Hamiuddin, India
Aligarh Muslim University

