

**Register by
February 2
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March 2, 2009

**Powder Injection
Molding Tutorial**
conducted by:

Randall M. German, FAPMI
San Diego State University
USA

March 3–4, 2009

PIM2009 Conference
Sponsored by the Metal
Injection Molding Association,
a trade association of MPIF,
and its affiliate
APMI International

PIM2009 Co-Chairmen:

Thomas W. Pelletiers
SCM Metal Products, Inc.
USA

Fred Robinson
Kinetics
USA

March 4–5, 2009

**Workshop on Medical
Applications of Micro
Powder Injection
Molding**
organized by:

Randall M. German, FAPMI
San Diego State University
USA

Young-Sam Kwon
CetaTech, Inc.
KOREA



**International Conference on
Powder Injection Molding
&
Workshop on Medical Applications of
Micro Powder Injection Molding**

March 2–5, 2009
The Royal Plaza Hotel
Lake Buena Vista (Orlando), FL

PIM 2009 CONFERENCE SCHEDULE

TUESDAY, MARCH 3

8:00 a.m.–5:30 p.m. (includes lunch)

PIM2009 Technical Session

North American PIM Status
Matt Bulger, USA
NetShape Technologies–MIM

Asian PIM Status
Junichi Hayashi, Japan
Epson Atmix Corporation

European PIM Status
Martin Kearns, UK
Sandvik Osprey Ltd.

**Effect of Powders and Binders on Rheological
Behavior and Molding Parameters in Powder
Injection Molding Process**
Seokyoung Ahn, USA
University of Texas–Pan American

**Developments in Gas Atomized Alloy Metal
Powders for MIM Applications**
Martin Kearns, UK
Sandvik Osprey Ltd.

**The Effect of Processing Variables on Gas
Penetration Depth in Gas-Assisted Powder Injection
Molding**
Seokyoung Ahn, USA
University of Texas–Pan American

**Molybdenum Setter with Ceramics Coating Layer
for Sintering and Annealing**
Masahiro Katoh, Japan
A.L.M.T. Corp.

Simulation of Micro-Parts Sintering
Thierry Barriere, France
Femto-ST Institute/LMA, ENSMM

**MIM of CoCr-Based Alloys Suitable for Medical
Device Applications**
J. Alan Sago, USA
Accellent Inc.

Keynote Luncheon Speaker: David Danitz
Novare Surgical Systems

Scarless Surgery
An overview of new surgical
techniques that allow major
surgeries to be performed
with no visible scars, and
the role that MIM plays in
making those techniques
possible.



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 15-
minute presentation followed by a **Question & Answer
Forum** at the end of the session.

5:30–7:00 p.m. (Cash Bar)

PIM Tabletop Exhibition & Networking Reception

WEDNESDAY, MARCH 4

8:00 a.m.–12:00 p.m.

PIM2009 Technical Session

Titanium Metal Injection Molding
Jochen Eichstädt, Germany
Polymer-Chemie GmbH

**Development of Powder Injection Molding
Process for Sponge Titanium Alloy**
Seong Jin Park, USA
Mississippi State University

**Debinding Factors for Metal Injection Moulding of
Grade 2 Titanium**
Emma Gill, UK
Morgan Advanced Ceramics

**Development of Copper Distributor by Powder
Injection Molding**
Young-Sam Kwon, Korea
CetaTech, Inc.

From Micromachining to MIM Micro-Parts
Jean-Claude Gelin, France
Femto-ST Institute/LMA, ENSMM

**Micro MIM Processing of Materials for Medical
Applications**
Philipp Imgrund, Germany
Fraunhofer IFAM

**Zirconia Drill and Burr for Dental Application by
PIM**
In-Jun Yoon, Korea
OSG Korea, Inc.

Design Case Studies
(Tentatively scheduled to present)
FloMet LLC
Kinetics
NetShape Technologies–MIM
Parmatech Corporation

WORKSHOP ON MEDICAL APPLICATIONS OF MICRO POWDER INJECTION MOLDING

WEDNESDAY, MARCH 4

1:30–6:00 p.m.

Micro PIM Workshop Session

An Assessment of Technical and Marketing Barriers

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

Keynote Speaker Dental Applications of Micro Powder Injection Molding

Seung-Ho Baek, Korea
Seoul National University

Tips for Dental Application by Micro PIM

Young-Sam Kwon, Korea
CetaTech, Inc.

Challenges of Micro-PIM

Timothy J. McCabe, USA
Kinetics

Fabrication of Micro-Components by Micro Powder Injection Molding

N. H. Loh, Singapore
Nanyang Technological University

Metal and Ceramic Micro Parts Produced by Powder Injection Molding (Micro PIM)

Volker Plotter, Germany
Forschungszentrum Karlsruhe GmbH
Institut für Materialforschung III

Lessons to be Learned from Nanostructures Supplied by Nature

Giselle Thibaudeau, USA
Mississippi State University

Zirconia Post for Dental Application by Micro PIM

In-Hwan Lee, Korea
B&L Biotech, Ltd.

Material Homogeneity in Ceramic Microarrays

Sundar V. Atre, USA
Oregon State University

6:30–7:00 p.m. (Cash Bar)
Reception

7:00–9:00 p.m.

Dinner Keynote Dinner Speaker Bioceramics, Biophotonics, and the Potential for Micro PIM Fabrication of Medical Devices

James F. Shackelford, USA
University of California



THURSDAY, MARCH 5

8:00 a.m.–7:00 p.m. (includes lunch)

Micro PIM Workshop Session

Advanced PIM Process of Ti-6Al-7Nb Materials for Medical Application

Hideshi Miura, Japan
Kyushu University

Refractory Metal Powders for Micro-Powder Injection Molding

John L. Johnson, USA
ATI Alldyne

Mixing of Nanoscale Powders and Polymers for Micro-Powder Injection Molding: Simulation Study

Seokyoung Ahn, USA
University of Texas-Pan American

R&D Activities for Micro-Mold System in KITECH

JeongJin Kang, Korea
Korea Institute of Industrial Technology

Equipment Challenges for Micro PIM

Uwe Haupt, Germany
ARBURG GmbH + Co KG

Dimensional Control/Defect Formation Problems and Solutions Related to Debinding and Sintering

Kuen-Shyang Hwang, Taiwan
National Taiwan University

Nanosize Powder Sintering: Modeling Concepts

Eugene Olevsky, USA
San Diego State University

Keynote Luncheon Speaker Consolidation of Nanoscale Powders by Nanopowder Agglomerate Sintering (NAS)

Jai-Sung Lee, Korea
Hanyang University Ansan Campus

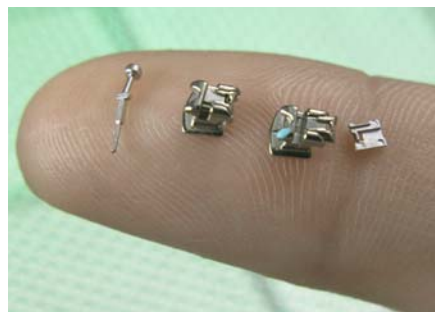
Granularity Issues in Computer Simulations Supporting Micro-PIM

Seong Jin Park, USA
Mississippi State University

Atomistic Simulations of Nanoparticle Sintering

Seong-Gon Kim, USA
Mississippi State University

Discussion



TUTORIAL

MONDAY, MARCH 2

9:00 a.m.–3:00 p.m. (includes lunch)

Powder Injection Molding

Tutorial (separate fee)

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

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

PROGRAM SCHEDULE

MONDAY, MARCH 2, 2009

8:00–9:00 a.m. Registration
9:00 a.m.–3:00 p.m. PIM Tutorial
6:00–7:00 p.m. Welcoming Reception (cash bar)

TUESDAY, MARCH 3, 2009

7:00–8:00 a.m. Registration & Continental Breakfast
8:00 a.m.–5:00 p.m. PIM2009 (includes Keynote Luncheon)
5:30–7:00 p.m. PIM2009 Tabletop Exhibition & Networking Reception (cash bar)

WEDNESDAY, MARCH 4, 2009

7:00–8:00 a.m. Registration & Continental Breakfast
8:00 a.m.–12:00 p.m. PIM2009 Program

12:00–1:30 p.m. Micro PIM Workshop Registration
1:30–6:00 p.m. Micro PIM Workshop
6:30–7:00 pm. Reception (cash bar)
7:00–9:00 pm. Micro PIM Workshop Keynote Dinner

THURSDAY, MARCH 5, 2009

7:00–8:00 a.m. Registration & Continental Breakfast
8:00 a.m.–7:00 p.m. Workshop Program (includes lunch)

GENERAL INFORMATION

CONFERENCE & TUTORIAL LOCATION:

The Royal Plaza Hotel
A Downtown Walt Disney World Resort
1905 Hotel Plaza Blvd.
Lake Buena Vista, FL 32830-2203
Tel: 407-828-2828
Guest Fax: 407-827-6338
www.royalplaza.com

REGISTRATION AND FEES:

All those planning to attend the PIM2009 Conference and/or the Micro PIM Workshop must register and receive badges. The PIM2009 conference registration fee includes participation in the March 3-4 technical program and tabletop reception & exhibit, refreshment breaks, breakfasts, and lunch. The Micro PIM Workshop registration fee includes participation in the March 4-5 workshop program, refreshment breaks, lunch and dinner.

Members of MPIF and APMI have special rates. Advanced and late registration rates are offered, as well as special rates for students. Only full-time students are eligible for the student rate, and proof of active student status (copy of current student I.D. or other proof) must accompany registration form to be eligible.

REGISTRATION CANCELLATION POLICY:

Registration fees will be refunded in full if a written request is received no later than February 2, 2009. Thereafter, written requests received up to February

27 will be subject to \$325 cancellation fee. Registrants who fail to attend, and who have not cancelled as noted are liable for the entire fee. Substitutions of attendees can be made at any time.

ACCOMMODATIONS:

Rooms have been reserved at the Royal Plaza Hotel, Lake Buena Vista, Florida, for Sunday, March 1, through Thursday, March 5. Standard rates are \$169 single/double per room plus applicable taxes. All hotel reservations must be made through MPIF. Your credit card information must be provided in order to guarantee a room. Hotel cancellation policy: less than 72 hours prior to arrival date will result in your being charged 100% of one night's stay plus taxes. Early departure fee: You will be charged 100% of one night's stay plus taxes.

TRANSPORTATION INFORMATION:

Most major airlines fly into Orlando International Airport. Hertz has been appointed the official car rental company. For discounts and reservations call: 1-800-654-2240 and identify yourself with the conference name and mention CV#01CB0019.

SUGGESTED DRESS:

The suggested dress for all activities is business casual.

REQUEST FOR FOREIGN VISAS:

Special letters of invitation that can be used in applying for entrance visas will be provided to

participants upon written request to Bonnie Kessler at MPIF, bkessler@mpif.org.

ADVANCE REGISTRATION

Take advantage of special early registration discounts by registering in advance. You may register by fax, online (using a credit card), or by mail. Registration and payment must be received no later than February 2, 2009, to qualify for the reduced rates. If you do not receive an acknowledgement by e-mail within 10 business days, please contact Susan Wright at mailto:swright@mpif.org.

TO REGISTER

You may either register online (using a credit card), or fill out the registration form and mail or fax it with full payment (payable to MPIF) to:



Metal Powder Industries Federation
105 College Road East
Princeton, NJ 08540-6692
FAX: (609)987-8523

Fax and mail registrations will be accepted until February 27. Late registrants should register on site.

CONFERENCE CANCELLATION POLICY:

MPIF may cancel or postpone this program because of unforeseen circumstances. If a program is cancelled or postponed, MPIF will refund registration fees but cannot be held responsible for any other related costs, charges, or expenses, including cancellation/change charges assessed by airlines or travel agencies. Programming subject to change.

REGISTRATION FORM

You may either register online (using a credit card by visiting our Web site www.mpif.org) or fill in the information below and fax or mail the form to MPIF.

PLEASE MAKE PHOTOCOPIES OF THIS FORM FOR MULTIPLE REGISTRATIONS

Please register me for PIM2009 and/or Micro PIM Workshop.

Send me information regarding exhibiting during the Tabletop Exhibition & Networking Reception on Tuesday, March 3, 2009.

Full Name _____
First Name for Badge _____
Job Title _____
Company _____
Address _____
City _____
State/Province _____ Zip _____ Country _____
Telephone _____ Ext. _____
FAX _____
E-mail _____

REGISTRATION FEES (in U.S. Dollars)

	Advance by Feb. 2	After Feb. 2	Amount
___ PIM Tutorial (separate fee)	\$445	\$575	\$ _____
PIM2009 Conference			
___ MPIF member	\$845	\$975	\$ _____
___ APMI member	\$945	\$1,075	\$ _____
___ *Non-member	\$1,070	\$1,200	\$ _____
___ Speakers/Students/Exhibitors	\$745	\$875	\$ _____
Micro PIM Workshop			
___ MPIF member	\$845	\$975	\$ _____
___ APMI member	\$945	\$1,075	\$ _____
___ *Non-member	\$1,070	\$1,200	\$ _____
___ Speakers/Students/Exhibitors	\$745	\$875	\$ _____

●● Save \$500 – Attend both PIM2009 & Micro PIM Workshop (subtract \$500) \$ _____

Total Fees Enclosed \$ _____

* Includes one-year complimentary membership in APMI International

METHOD OF PAYMENT

- Check made payable to MPIF is enclosed.
 Payment to follow by mail.
 Please charge my conference/workshop registration fee to:

AMEX VISA MasterCard

*Card Number _____

Security Code _____ Expiration (Month/Year) _____

(AMEX 4 digits on front, VISA/MasterCard 3 digits on back)

Signature _____

* Name on credit card and/or full billing address if different from info at left

HOTEL RESERVATIONS

- I will not require a hotel reservation.
 Please reserve a room in my name at the **Royal Plaza Hotel** at the special rate of \$169 single/ double. (Please circle one)

Arrival Date _____ Departure Date _____

Special instructions for hotel _____

Note: Credit card number must accompany reservation to guarantee accommodation. Hotel cancellation policy is 72 hours prior to arrival date.

RETURN TO:

Metal Powder Industries Federation
APMI International
105 College Road East
Princeton, NJ 08540-6692
Or FAX your registration to: 609-987-8523