



POWDER METALLURGY ASSOCIATION OF INDIA

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Editorial

Dear Friends, PMAI Well wishers,

As we move to the 50th year of PMAI's existence, we have achieved a significant milestone.

Our newsletter kicks off with images of the Inaugural of our own office premises held on 22 January 2023. PMAI is now headquartered a location where numerous key stake holders and well wishers are based.

We present a detailed report on our successful International Conference held at Hotel Lalit in Mumbai between 13 to 15 March 2023.

We are pleased to announce introduction of a New Training Program - addressing the very important aspect of Plant Safety. The one day online Industrial Plant Safety Course will be conducted by Mr. Khadse, Sr. Manager - HSE at GKN Sintermetals Ltd., Pimpri. We encourage and request wide participation from PM Industry members.

We also acknowledge the achievements of our PM Fraternity in the Member News Section.

The Financial Year 2023-24 will see PMAI conduct all planned annual activities, concluding with Our Golden Jubilee International Conference PM24 which will be held at the Hyatt Regency in Pune from 25 February to 28 February 2024.

PMAI wishes you all continued good health and success for the coming days!

50 GOLDEN JUBILEE CELEBRATIONS
years of PMAI



PM 24

**INTERNATIONAL CONFERENCE ON POWDER METALLURGY
AND
PARTICULATE MATERIALS WITH
SHOW CASE EXHIBITION
49TH ANNUAL TECHNICAL MEETING OF PMAI**

Date : 25th February 2024 to 28th February 2024

**Venue : HYATT REGENCY, PUNE HOTEL & RESIDENCES,
Weikfield IT Park, Nagar Road, Pune, India, 411014**

Details at www.pmai.in

Topics

- Industrial PM (Press and Sinter) Technology for Auto, Electrical And M/C Parts
- Additive Manufacturing (AM)
- Powder Injection Moulding (MIM CIM)
- Compaction & Other Forming Processes
- Heat Treatment & Surface Engineering
- Materials for Energy Generation & Storage
- Sintering & Post Sintering Processes, Laser Sintering,
- Cladding and Coating
- Hard Metals & Diamond Tools
- Development Of Materials & Alloys for Emerging Applications
- Spark Plasma & Hot Press Sintering
- Refractory Metals
- PM Factory Automation
- Technical Ceramics & Composites
- Magnetic Materials
- Modelling & Simulation
- Materials For Aerospace, Defence & Nuclear Apps.
- Powder Production and Characterization
- Binder And Feedstock Development
- PM In Bio-Medical Apps & Devices
- Hot Isostatic Pressing (HIP)
- Functionally Gradient Materials
- Aluminium Sintering
- Vehicle Weight Reduction
- Porous Materials
- E V Batteries and Energy Materials
- Waste Management
- E-mobility Solutions and Electric Vehicles

NEWSLETTER

PMAI OFFICE

PMAI acquired its own office in an independent premises at Unit 401, K- Square, Baner, Pune. Office was formally inaugurated on 22nd January 2023. Many members were present at the inaugural ceremony





International Conference on Powder Metallurgy and Particulate Materials + Exhibition 2023 – PM 23

held on 13th - 15th March 2023
at Hotel The Lalit Mumbai, India. (www.pmai.in)

The Powder Metallurgy Association of India (PMAI) had organized a three-day International Conference on Powder Metallurgy and Particulate Materials +Exhibition 2023 (PMAI-PM23) on 13th – 15th March 2023 at Hotel The Lalit, Mumbai India.

We had 3 Title Sponsors for the prestigious conference M/s DORST Technologies, M/s FLUIDTHERM, and M/s RIO TINTO. The Platinum sponsors were ARCI, DR. FRITSCH, Fine Organics, Haili Machines, Höganäs, Innomet Powders, KRN alloys Pvt. Ltd., IMP, Makin Metal Powders, Pometon, Nikam Sintered, SACMI, Singhal Sintered, SLM Metals, Speciality Sintered Pvt. Ltd., PVA TePla AG, Osterwalder, TATA Steel Xitiz Technologies LLP.

Dr. Vaishali Poddar welcomed all the dignitaries present for the international conference. Prof. N.B. Dhokey, the convener PM23, delivered an overview of the event and highlighted the broad international participation on a variety of topics, such as Press & Sinter, Powder production, Additive manufacturing, Hard metals and diamond cutting tools, Emerging materials, technical ceramics and Composites, Surface Engineering, Battery Materials, Waste management and Simulation and Modelling. He emphasized that the conference offers a valuable opportunity for professionals from the powder metallurgy industry, as well as academia and research centres, to exchange ideas and engage in meaningful discussions about Powder Metallurgy.

At the inaugural lamp lighting ceremony, Ms. Jess Blackburn – Rio Tinto (Chief Guest), Mr. N Gopinath – Fluidtherm Furnaces (Past President-PMIA), Mr. Sunil Muralidharan-Hoganas India, Prof N B Dhokey (Convenor), Mr. Aniket Gore (President of the Powder Metallurgy Association of India) did the honours.

Mr. Aniket Gore, President – PMAI, introduced PMAI activities and presented a detailed deep dive into Indian Macro Economics, the current trends in the Indian

automotive industry and the PM industry in India. The insightful presentation shed light on all 3 aspects mentioned hereabove.

The Chief Guest for the inauguration of PM23, Ms. Jess Blackburn – Rio Tinto addressed on concerning opportunities and challenges for PM Technology. She highlighted the opportunities and challenges faced by PM Producers Globally.

As a gesture of gratitude, Mr. Aniket Gore, the President of PMAI, felicitated all sponsors listed hereunder: DORST Technologies represented by Mr. Roland Hering, Fluidtherm Technologies represented by Mr. N Gopinath, Rio Tinto represented by Mr. Vikram Merchant, Mr. Sidharth Singhal from Singhal Sintered, ARCI represented by R Vijay / Malobika, Dr. Fritsch represented by Mr. Ranveer Singh, Fine Organics represented by Mr. Nilesh Pawar, Hexagon Product Development Pvt. Ltd. represented by Mr. Jigar Talati, Hoganas India represented by Mr. Sunil Muralidharan, Incredible Machines represented by Mr. Viren Pandya, Innomet Advanced Materials Represented by Mr. Vinay, KRN alloys represented by Mr. Ranjeet Sahu, Makin Metal Powders represented by Mr. Mohan Gore, Newmet Ltd. represented by Mr. Manpreet Sachdeva, Nikam Sintered represented by Mr. Rajan Nikam, Osterwalder AG, represented by Mr. Zwygart, Pometon India represented by Mr. Deepak Nimbalkar, PVA Industrial Vacuum Systems GmbH represented by Mr Wolfgang Rein, Rio Tinto India represented by Mr. Vikram Merchant, Sacmi India represented by Mr. Stefano Capitelli, SLM Metal Pvt Ltd. represented by Mr. Piyush Agarwal, Speciality Sintered Products represented by Mr. Niranjana Narkhede, Tata Steel represented by Mr. , Xitiz Technomech LLP represented by Mr. Jaydev Patel, Yangzhou Haili Press of China represented by Mr. Ali.



Inauguration of International Conference Powder Metallurgy & Particulate Materials + Exhibition (PM23) on 13th March 2023 at Hotel The Lalit Mumbai, India.

In the presence of all the dignitaries, the international conference PM23 Souvenir was released which comprised of extended abstracts of all the invited and contributory talks on plethora of topics related to PM. The inaugural program was ended with Vote of thanks from Mr. Prakash Khole (Secretary, PMAI).



Exhibition and Poster Presentation at International Conference Powder Metallurgy & Particulate Materials + Exhibition (PM23) on 13th March 2023 at Hotel The Lalit Mumbai, India



The PM23 conference had an exciting line-up of speakers, including global industry leaders, researchers, and academics. The event featured 3 plenary lectures, 3 memorial lectures, 45 invited talks, and over 120 contributory papers.

All the plenary and memorial lectures were conducted, on the first day, 13th March 2023. All speakers were presented with mementos from PMAI. The day also included a poster presentation session. A special cultural event was organized for the participants and guests, featuring a high-energy instrumental jugalbandi presented by two young music maestros followed by Gala Dinner.

Over the following two days, 14th-15th March 2023, the conference featured three parallel sessions (in Three rooms i.e. Majestic Royal & Regal) catering to the wide spectrum of topics covered. Poster Presentations were conducted on 14th March 2023 in the afternoon. The invited speakers and Presenters were presented with the appreciation letter/Certificate and small from the PM23 organizing committee.

A dedicated team from the College of Engineering Pune, led by Swapnil Sable as the Conference Secretariat, along with Yogesh Fatangade, Vaishali Poddar, Rohit Garbade, Om Bhandhari,

Varun Muthiya, Komal Pnadya, Abhay Khade, Yashwrdhan Pathaare, and Sahil Kushare capably assisted with all the backend preparations.

In addition to this, selected peer reviewed manuscripts were recommended to various journals subscribed such as *Materials Today: Proceedings by Elsevier*, *Powder Metallurgy Journal by Taylor and Francis* and *Transaction of Powder Metallurgy Association of India*.

Plenary speakers:

Dr. Iñigo Iturriza (CEIT Spain), Prof. Satishchandra Ogale (IISER Pune India), Dr. Dr R. Vijay (ARCI Hyderabad)

List of Memorial Speakers:

R. V. Tamhankar Memorial lecture – Dr. G. Appa Rao (DMRL Hyderabad, India),
P. R. Roy Memorial lecture – Dr T. Mahata (BARC Mumbai, India),
Shri S. L. N. Acharyulu Memorial lecture – Dr Deep Prakash (DAE Delhi),

List of Invited Speakers: Dr. Sajan Kapil (IIT Guwahati), Dr Bharat Panigrahi (IIT Hyderabad), Dr. Gururaj Telsang (ARCI Hyderabad), Dr. Abhik Banerjee (RISE), Prof. Bala Vaidhyanathan (Loughborough University UK), Dr. R. Prakash (Centre for Automotive Energy Materials, ARCI), Dr. Jhumki Hait (Sr. Pr. Scientist, NML, Jamshedpur), Dr. N. Sathish (CSIR-AMPRI, BHOPAL), Dr. Sarika Phadke (KPIT Pune), Prof. Bharatkumar Suthar (IIT Bombay), Dr. D. Sivaprahasam (ARCI, Chennai), Prof. Shamit Bakshi (IIT Madras), Dr. Malobika Karanjai (ARCI Hyderabad), Dr. Joydip Doardar (ARCI Hyderabad), Dr. Gerald Tennyson and Pramod Zagade (TRDDC, Pune), Mr. Mohan Nainegali (Altair Engineering India Private Limited), K. Guruvadyathri (University of Hyderabad), Ajit Panigrahi (CSIR-IMMT), Sheela Singh (SRM University, Vijayvada), Prof. Dr.-Ing. habil. Udo Fritsching (IWT, Bremen, Germany), Ola Litström (Hoganas AB), Dr. Priyanshu Bajaj (m4p material solutions GmbH), Dr. Abhijit Ghosh (BARC Mumbai), Dr. Mithun Palit (DMRL Hyderabad), Dr. U. Ravi Kiran (DMRL Hyderabad), Dina

V. Dudina (Laboratory of Synthesis of Composite Materials, Novosibirsk, Russia), Devinder Yadav (IIT-Patna), Dr. Gérard Delette, (CEA, France), Dr. Vijay M. Nimbalkar (NMRL-DRDO), Mr. Amish Jani (RIL Mumbai), Harshad Natu (Magod Fusion Technologies Pvt. Ltd.), Dr. Tilak Joshi (CSIR-AMPRI, BHOPAL), Dr. Venkat A.N.Ch (CSIR-AMPRI, BHOPAL), Dr. R. SUNIL KUMAR (NIT Andhra Pradesh), Dr. Ajoy Kumar Pandey (NIT Warangal), Prof. Manoj Chopkar (NIT Raipur), Prof. Atul Deshpande (IIT HYDERABAD), Dr. Supriya Bera (NIT Durgapur (WB) Mr. Dev Bhise (Q-Gen Next Sustainability Tech).

Chairperson and Co-Chairperson for various sessions: Press and Sinter: Session Chairperson: Maobika Karanjai (ARCI, Hyderabad Dr. Joydip Doardar (ARCI Hyderabad); Powder Production: Session Chairperson: Dr V C Srivastava (NML Jamshedpur Mahesh Nipani (Höganäs India); Additive Manufacturing: Session Chairperson: Deepak K. Pattanayak (CSIR-CECRI), Dr. Saurabh Nene (IIT Jodhpur) Hard Metals: Session Chairperson: Vivek Singal (Consultant); Development of Materials and Alloys for Emerging Applications: Session Chairperson: Bharat B. Panigrahi (IIT Hyderabad), Dr. Sheela Singh (SRM University, Vijayvada), Atul Deshpande (IIT Hyderabad) Ajit Panigrahi (CSIR-IMMT), Prof. Manoj Chopkar (NIT Raipur), Prof. Atul Deshpande (IIT HYDERABAD); Technical Ceramics and Composites: Session Chairperson: Sandeep Butee (College of Engineering Pune), Ajit Kulkarni (IIT Bombay), Amit Sinha (BARC Mumbai), Battery & Energy Materials: Session Chairperson: Dr. Amartya Mukhopadhyaya (IIT Bombay), Ajit Kulkarni (IIT Bombay), Waste Management: Session Chairperson: Dr. Maniskumar Jha (NML Jamshedpur), Dr. Jhumki Hait (NML Jamshedpur), Dr. Vaishali Poddar (NIAMT, Ranchi) Modelling & Simulation: Session Chairperson: Dr. Supriya Sarkar (Allema India), Prof. Shamit Bakshi (IIT Madras), Surface Engineering: Session Chairperson: Dr. D.A. Karandikar (Kinetic Surface), Mr. Srinivas Ghule (Hoganas India) At the conclusion of the conference, Core PMAI Committee personnel, Participants and Session Chairpersons shared inputs, observations, suggestions and appreciation. Convener Dr N B Dhokey ended the program with a Vote of Thanks.



Valedictory function of the International Conference PM23 on 15th March 2023

Best PM Product Award at PM 23

Powder Metallurgy Association of India invited nominations for Best PM Product award during the International Conference PM 23 held on 13-15th March 2023 in Hotel The Lalit Mumbai.

The Purpose of the award is to recognize the innovation / expertise in the field of PM materials, design and manufacturing technology.

Mr. Aniket Gore – President PMAI,

Narsi Chandrachud – Retd. Executive Vice President GKN Sintermetals

Ilaria Rampin – Commercial and Marketing Director, Pometon was constituted to assess the nominations received.

After due review, committee submitted detailed observations and recommended the winners who were as under:

Speciality Sintered Products Pvt. Ltd Pune

Category PM Parts

Steering Assembly Parts - Fixed and Movable Gear

Hoganas India Pvt Ltd

Category PM Powders,

Astaloy CRS Powder

Fluidtherm Technology Pvt Ltd

Category PM process Equipment,

Roller Hearth Furnaces

A Certificate of Appreciation was awarded to:

Nikam Iron Sintered Products Pvt. Ltd.

For their attempt to indigenously manufacture Critical Capital Equipment – Compacting Presses Required for Powder Metallurgy.

Best Product Award Certificate and trophy for winners in each of the categories was presented during the conference

Best Paper Awards for the Presentations at PM 23

Sr. No.	Session	Title of the paper	Name of Author	Affiliation
1	Additive Manufacturing	In-house development of Alumina slurry for Digital Light Processing based Additive Manufacturing process	Seema Negi	IIT Bombay
2	Powder Production	Nanozirconia synthesis through a novel method-Salt Incorporated Precursor Spraying	Divya Padmanabhana	Pillai College of Engineering
3	Modelling & Simulation	Finite Element Simulation of Electromagnetic Axial Powder Compaction of SS 316 Powder	Nadimetla Thirupathi	IIT Goa
4	Press & Sinter	Synthesis and Characterization of Environment friendly Na _{0.4} K _{0.1} Bi _{0.5} TiO ₃ Ceramics for Multifunctional Applications	Pravin Varade	IIT Bombay
5	Materials for Emerging Applications	Microstructural characterization of interface created after joining 8-yttria-stabilized zirconia and ferritic stainless-steel using Na-free glass-based sealant	Shyam Maloo	BARC Mumbai
6	Surface Engineering	Novel blending methodology to produce nano-reinforced feedstock powders for thermal spraying	Ajaykumar Solanki	SVPIT Vasad
7	EV Batteries & Energy Materials	Sustainable Process for Clean Energy Generation Using Iron Powder	Swapnil Sable	COEP Tech Pune
8	Waste Management	Recovery of copper powder from electronic industry effluent	Shilpa Kalamani Bawkara	CSIR NML Jamshedpur



Powder Metallurgy Association of India

401, K Square, P K Shroff Road, Near Pre-Foundry School,
Pune 411045

Annual General Body Meeting of the Powder Metallurgy Association of India

Annual General Body Meeting of the Powder Metallurgy Association of India was held on Tuesday the 14th of March 2023, 19.00 hrs in the hall - The Majestic I, Hotel the Lalit Mumbai.

Meeting was presided by President Aniket Gore, on dais accompanied by Director K S Samant, Gen Secretary Prakash Khole, Treasurer Mahesh Nipanikar.

Salient features discussed during the meeting

" A Four-day short term course on Powder Metallurgy (PM) "Powder Metallurgy Short Course-22(PMSC22) took place from 21-24 September in virtual mode. This program was organized by PMAI in collaboration with Department of Metallurgy & Materials Science COEP and National Institute of Advance Manufacturing Technology Ranchi Campus. Dr Vaishali Poddar from NIAMT Ranchi and Dr Vijay Thavale from COEP Pune conveners -PMSC22 briefed about workshop. Dr Sandeep Butee Head of Department, Metallurgy and Materials Science COEP introduced various activities of department to the participants virtual present in inauguration. President PMAI Aniket Gore gave introduction about PMAI, and activities housed under flagship. Dr Vaishali Poddar explained about online mode of communication during PMSC22, Dr Vijay Thavale proposed vote of thanks.

In these four days course various 24 Topics related to PM were covered by twenty eminent speakers. Each session comprises of dedicated discussions, challenges, and opportunities in Powder Metallurgy Technology development. There were participants from different PM related industries. Technical institutes

" PMAI conducted a three-day course on Tool Design Process for PM Products in physical mode at Department of Metallurgy and Materials Science COEP Technology University (Unitary Public University of Govt of Maharashtra) during 8-10 November 2022. The course was conducted by Mr Sanjay Rastogi, who has more than 35 years of practical experience in automotive industry out of which 30 years in PM. The course presented in depth overview of compaction process and design of tools for new and prospective entrants to the PM product design and existing PM components manufacturers.

" PMAI conducted two-day course on a crucial area of "Heat Treatment of PM Parts" in Physical Mode at Department of Metallurgy and Materials Science COEP Technological University (Unitary Public University of Govt Of Maharashtra) Pune during 9th and 10th December 2022

Course was conducted by Mr N L Chandrachud having more than 40 years of rich experience in various industries in senior positions. The course presented a technology overview for new and prospective entrants to the PM. Mr Chandrachud was ably supported by Dr N B Dhokey of Metallurgy and Material Science Department of COEP Pune with Mr Sandeep Menavlikar consulting expert in heat treatment.

" A course on Quality in PM will be organized by PMAI

" A course on Industrial Safety will be organized by PMAI

Mr Rajendra Sethiya has kindly accepted to conduct these courses.

" Proposed to have special AGM by end of August of every year to approve final accounts before filing ITR in September.

We have committed to following activities in 2023-24.

PM Plant Safety and Quality Assurance - Proposed for next Quarter (April - June 2024)

PM Short Course

PM Tool Design

Course on Heat Treatment for PM and Tools.

PMAI Annual Conference proposed to be held in Q1 2024.



NEW PMAI TRAINING PROGRAM: INDUSTRIAL PLANT SAFETY!

Industrial Plant Safety is a Critical Aspect of PM Plant Operations. Plant Safety is critical to ensure prevention of **damage to Plant and Safety of Personnel** from Industrial Accidents. Good Plant Safety Protocol and Practise also ensures that unforeseen financial Losses are prevented.

Powder Metallurgy Association of India are pleased to introduce a **One day Online Training Program** elaborating the best Plant Safety Practises for the PM Industry. The Program will be conducted on 12 July 2023, from 09:30 a.m.



to 05:30 p.m. by **Mr. Shrikrushna Khadse, our Expert Faculty. Mr. Khadse** who has a B.E. in Electrical Engineering, Advanced Diploma in Industrial Safety and Diploma in Fire Engineering from Nagpur: An Authorised Safety Auditor and Competent Person under Factory Act (Maharashtra Government). He is an accredited Safety Auditor and Lead Auditor for ISO 14001 & ISO 45001

Standard. He has experience in training, coaching, facilitation and auditing on topics of Occupational Health & Safety Management, Incident Management, Process Safety Management & Industrial Safety Digitalisation.

Mr. Khadse has rich experience of more than 24 years of Industrial Safety in varied industries such as Powder Metallurgy, Power Generation, Leather Dyeing and Consumer Appliances. He has worked with reputed companies such as Tata Power, LG Electronics and Reliance Industries. Since 2010, Mr. Khadse is working as Senior Manager - HSE, with GKN SIntermetals Pimpri.

The Training Program is suitable for Plant Managers, Supervisors, Workers and Contractors.

Fees: INR 3000.

Registration: 20th June 2024 onwards, at our website www.pmai.in

Training Program Content:

1. Industrial Safety
 - a. Basic Safety
 - b. Risk Assessment (HIRA)
 - c. Near miss and Accident Preventions
 - d. Safety Committee and Safety Co-Ordinator
 - e. Best Practices on Safety
2. Fire Safety
 - a. Basic fire
 - b. Fire Triangle
 - c. How to use Fire Extinguisher
 - d. Fire Hydrant & System
3. Statutory Requirement pertaining to Occupational Safety and Health
 - a. The Factories Act, 1948 & Maharashtra Factory Rules 1963
 - b. Environment The water, Air and the Hazardous & Other Wastes
 - c. Maharashtra Fire Prevention and Life Safety Measures Act
4. Behavior Based Safety (BBS) Management & coaching
 - a. BBS Principles
 - b. ABC Technique
 - c. BBS Process Flow
 - d. Analyzing Exercise
5. Open Discussions.

Member News

Dr. Prakash Dhoka, Mr. Narsi Chandrachud & Mr . Rajendra Sethiya three of our members were honoured by College of Engineering, Pune (COEP) on 7th Jan' 23 for Illustrious Alumni Award in 75th Platinum Jubilee Celebration.

