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POWDER METALLURGY ASSOCIATION OF INDIA

Report on PM16

PMAI delegation to RFI

PMSC 2016 coming up

PM 17 International Conference,

first call for papers

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Editorial

The popular annual event of PMAI, the International Conference & Trade Exhibition PM-16 was organized at Hyatt Regency, Pune during Feb.2016, and a report on this is incorporated in this issue. The conference program included comprehensive plenary and parallel technical sessions & the presentation of over one hundred papers. Some of the highlights were presentations on the Status of PM in India by Mr. Gopinath, President of PMAI; The Status of European PM industry by Dr. Cesar Molins, Vice President of the European Powder Metallurgy Association (EPMA) and the Status of PM industry in Taiwan by Mr. C. L Chu, President of the Taiwan Powder Metallurgy Association.

The Trade Exhibition was inaugurated by Mr. M. Kikuchi, Chairman Porite Corporation, Japan. The conference included memorial lectures, invited and contributed technical papers; presentation of PMAI Fellows; several awards including best student paper and best PM product as well as cultural events.

This issue also covers the visit of a PMAI delegation to the Rifle Factory at Ishapore, the forthcoming Powder Metallurgy Short Course, PMSC-16 and the announcement of the next major event, PM-17 & 43rd Annual Technical Meeting of PMAI during Feb.2017 at Hotel Pride Plaza, Aerocity, New Delhi.

P. Ramakrishnan

Appeal

We need from PMAI members, news items for publication in this (thrice yearly) newsletter. We mean stuff like technical developments, new products, business developments, promotions, job changes, organizational changes, mergers & acquisitions or just plain gossip. We would like to publish your stories (editorial rights reserved) regularly.

NEWS LETTER

PM16 International Conference on Powder Metallurgy

The PM16 International Conference on Powder Metallurgy & Particulate Materials + Exhibition was held on 18 - 20 Feb, 2016 at the Hotel Hyatt Regency, Pune. The event was sponsored by Dorst Technologies, Fluidtherm, GKN Sintermetals, Hoeganaes, Hoganas, Osterwalder, Pometon, Rio Tinto, Singhal Sintered, Sintbush, SLM Metals, SMS GmbH, Speciality Sintered, Star Sintered, Haili Press and Co-Sponsored by Makin Metal powders. A total 101 technical presentations were made during this event which 221 delegates attended.



Inauguration by traditional lighting of the lamp
(left to right) Aniket Gore, Jt. Sec PMAI, Prof. T. R. Rama Mohan Co- Convener, N. Gopinath, President PMAI and Prof. P. Ramakrishnan, Convener

Convener Prof. P. Ramakrishnan welcomed the delegates and spoke on the importance of Powder Metallurgy as a superior net shaping technology for the manufacture of parts used in automotive, defence, aerospace, energy and engineering industries. He added that for the past 42 years PMAI has been promoting PM technology among academic institutions, R&D organisations, automotive industry and various industries making PM metallic, ceramic, and cermet powders and components. Representatives from these industries as well as prospective entrepreneurs are trained through short term courses, thematic workshops and international conferences / trade exhibitions and not the least, our annual technical meetings.

Mr. N. Gopinath, President PMAI in his welcome address described the Indian PM industry, the opportunities therein and the challenges to be met. India is the largest tractor manufacturer in the world, 2nd largest two wheeler and bus manufacturer, 5th largest manufacturer of heavy trucks, 6th largest car and 8th largest commercial vehicle manufacturer. He spoke on the new generation of PM automotive components and prospects in India for powder forging, powder injection moulding & additive manufacturing. He closed with the major upheavals that electric & driverless cars can bring to the automotive industry & opportunities for the PM community.

Mr. C. L. Chu, President of Taiwan Powder Metallurgy Association spoke on the status of PM industry in Taiwan. He said that 85% of powders are imported and the components produced in Taiwan have twin advantages of advanced technology & low production cost. PM applications have evolved into "Green Energy" industry since 2009 and these aspects are helping in the further progress of the PM industry.

TPMA conducts seminars at several universities to increase awareness of PM, courses with on-the-job training and co-operative education plans for trainee students before their graduation from school.

Vice-President of EPMA Dr. Cesar Molins gave a talk on the status and trends in the European PM Industry. European car production is recovering and PM Parts produced in 2014 was about 228,000 tons with a street value of approx. €10.2 Billion. MIM components sales had increased to about €275 million in 2014 and additive manufacturing machines sale increased by 55%.

According to Dr. Molins the technology trends are likely to be

- Strong cooperative push to prove PM as a viable technology for main gearbox gears.
- Development of surface densification as fatigue improvement technology.
- VVT applications in growing demand require sophisticated machining, including green machining and very tight tolerances.
- New lubricants capable of lubricating at reduced amounts to reach higher compacting densities
- Increasing electrification of vehicles seems to call for new soft magnetic applications but the scope is still unclear.
- Developments in bimetal high-performance bushings

PM 16 Fellows & Awards



Recipients of Fellowship of PMAI award
(left to right) Late Kempton Roll of MPIF
(his contemporary Prof. Emeritus Ramakrishnan accepted the award on his behalf) Mr Dayasagar Mrig who retired from GKN and Dr V N Vaidya who retired from BARC

PM 16 Memorial lectures



(Left to Right) Mr. V. Hariharan of Tata Motors delivering the S. L. N. Acharyulu Memorial Lecture, Dr. G. K. Dey of BARC delivering the P.R. Roy Memorial Lecture and Mr. David Prakash of Mahindra & Mahindra delivering the Tamahankar Memorial Lecture

Mr. V. Hariharan along with Mr. Deodatta Shende, both of Tata Motors delivered the **S. L. N. Acharyulu Memorial Lecture** on “**The Unexplored scope of Powder Metallurgy in Automobiles**” where he described the substantial untapped potential for PM parts in the automotive arena, illustrated by a few case studies.

Dr. G.K. Dey of BARC delivered the **P. R. Roy Memorial lecture** on “**Fabrication of Net Shapes by Combustion Synthesis and by using Lasers**”. He described the salient features of two rapid net shape forming processes, Combustion Synthesis aka self propagating high temperature synthesis (SHS) and laser engineered net shaping (LENS)

The **Tamahankar Memorial Lecture** was delivered by **Mr. David Prakash and Mr. Paresh Turakhia** of Mahindra & Mahindra on “**Alternative Thinking - Adopting Green Technology in Automobiles**”. Stringent emission norms for automobiles need to be imposed for the benefit of all. Several opportunities are available to the PM industry.

Grand PMAI Student Award

To encourage students make a career in powder metallurgy, PMAI introduced a Grand PMAI Student Award which comprises a fully paid trip to an international PM Conference outside India.

The winner of this award (chosen amongst papers presented in PM16) is **Prakash Mohan**, a PhD Scholar of Institute of Materials Technology (ITM-UPV), University Polytechnic of Valencia, Spain for his paper “**Effects of Fe and Mo Content on the Microstructure and Mechanical Properties of Ti-Mo Based Alloys Prepared by Elemental Blend and Mechanical Alloying Technique**”

He will receive an all expense paid trip to **World PM 2016 Congress** organised by the **European Powder Metallurgy Association (EPMA)** during **9-13 October, 2016 at Hamburg, Germany**

The PMAI Guiding Hand Award for Faculty

A cash award of Rs. 25,000/- and a certificate were presented to the principal guide of the winner of the grand PMAI student award, Prakash Mohan's guide **Dr. Vicente Amigó Borrás**, Universidad Politecnica de Valencia, Spain

The PMAI Award for Young Promising Professionals

A cash prize of Rs. 25,000/- & certificate for the best paper of industrial relevance were given to **Dr. Kaustubh Kambale**, Asst. Professor, College of Engineering, Pune and to **Mr. U. Ravi Kiran**, Scientist 'D', DMRL, Hyderabad

The Tendulkar Award

A cash prize of Rs. 10,000/- & certificate for the best paper on sintering were given to **Mr. Vijai Thavale**, Assist. Professor, CoEP for “**Forgeability of Astaloy and its Response to Thermal Processing**”



Seated (R to L) Praksh Mohan (Grand PMAI Student Award) Dr. Kaustubh Kambale & Mr. U. Ravi Kiran (Young Promising Professional award) and Mr. Vijai Thavale (Tendulkar Award) are waiting to receive their award from N. Gopinath, President PMAI

Best PM Part Award 2016

The Best PM Part Award 2016 was presented to **PRICOL Ltd** in recognition of their ability to meet the technical challenges in producing a complex part, for **FLYWEIGHT ASSEMBLY** (part of a diesel fuel injection pump).



PRICOL

Certificate of Excellence for PM Part 2016

Certificates of Excellence 2016 were presented to **GKN SINTER METALS P Ltd** for producing a complex PM part, “**HUB**” (for use in automotive transmission clutch assembly) as well as to **SPECIALITY SINTERED PRODUCTS P Ltd** for producing a single piece PM part which replaced a multiple part assembly “**ANNULUS ASSEMBLY**” (for use in starter motors)



GKN SINTER METALS



SPECIALITY SINTERED PRODUCTS

PM16 EXHIBITION

The PM16 exhibition of 19 Indian & overseas companies was inaugurated by Mr. Masanori Kikuchi, President, Porite, Japan



PMAI had arranged a special interest program for students & young professionals on “**Mastering Public Speaking**” by **Ms. Sashirekha Bhattacharya**, Psychologist & Counselor. She demonstrated with spontaneous wit & humor the mannerisms that need to be avoided while public speaking. She drove home the need for nervous speakers to retain a positive outlook and confident attitude. Her talk was well attended and applauded. Attendees interacted with her right through the gala dinner that followed.



Sashirekha Bhattacharya
receiving a memento from N. Gopinath

PMAI places on record the invaluable contribution of Mr. K. S. Samant Director PMAI, Mr. C. Venkateswaran, GM, Fluidtherm and the staff & students of the College of Engineering, Pune led by Prof. N. B. Dhokey without whose effort the conference would not have been the success it was.

PM 16 - Sponsors & Exhibitors

Sponsors

Dorst Technologies, Germany
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Singhal Sintered Products
SMS Meer GmbH, Germany
Yangzhou Haili, China

Fluidtherm Technology
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Pometon India
Sintbush (India)
Speciality Sintered

GKN Sinter Metals
Makin Metal Powders, UK
Rio Tinto Metal Powders
SLM Metals
Star Sintered Products

Exhibitors

Codina Metallic
PVA Industrial Vacuum Systems, GmbH
Unimark

Innomet Powders
SACMI, Italy

Newmet
Sharda Enterprises

PMAI delegation to Rifle factory Ishapore (RFI)

As a result of lobbying for increased use of Powder Metallurgy parts by PMAI an invitation was received from the Rifle Factory Ishapore (RFI) for a meeting with PM & MIM part makers to explore opportunities in the Indian small arms industry.

Mr. N. Gopinath, President PMAI led a delegation of ten members from GKN Sinter Metals, MIM Components, RVB Shorlube, Singhal Sintered, Sintercom, Speciality Sintered and Suraj Components.

Mr. Pradeep K R. Agarwal, officer in-charge (GM), RFI along with his senior colleagues displayed about 62 parts for manufacture through PM & MIM routes.



The RFI delegation from left:

Nitin Bassi
Suraj Components

Sidarth Singhal
Singhal Sintered

Niranjan Narkhede
Speciality Sintered

Jignesh Raval
Sintercom

Prafulla Diwan
GKN

Gopinath
PMAI

Bhandary
MIM Components

GKN sales rep.

Surender Singh
RVB Shorlube

PMSC-16

POWDER METALLURGY SHORT COURSE
brought to you by



**POWDER
METALLURGY
ASSOCIATION
OF INDIA**

**This popular 4 day course will be held in December, 2016
in
CHENNAI
Course syllabus, venue and dates will be announced shortly**



1st ANNOUNCEMENT & CALL FOR PAPERS

PM 17

Details & online registration
at
www.pmai.in/pm17

Several amazing awards are being offered during PM17 including fully paid attendance at a PM Conference and / or exhibition outside India as well as several other generous grants.

Details at www.pmai.in/pm17

INTERNATIONAL
CONFERENCE
ON POWDER METALLURGY
& PARTICULATE MATERIALS
+ EXHIBITION

and
43rd ANNUAL TECHNICAL MEETING OF PMAI

Mon 20th - Wed 22nd Feb-2017
Hotel Pride Plaza, Aerocity (IGI Airport)
New Delhi, India

www.pmai.in

Call for papers & Deadlines

- Submission of abstracts **09 Dec, 2016**
- Acceptance of abstracts **20 Dec, 2016**
- Submission of the complete paper* **31 Jan, 2017**

*Only complete papers that are received by the deadline and presented at the conference will be published in the Transactions of PMAI (after peer review) **and be eligible for awards**

This issue is sponsored by

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