



IIM
The Indian Institute of Metals
Metallurgy Materials Engineering

**55th National Metallurgists Day &
71st Annual Technical Meeting
(NMD-ATM 2017)**

Incorporating International Symposium on

Light Weighting for Defence, Aerospace & Transportation



BITS Pilani
K K Birla Goa Campus

11th -14th Nov, 2017

**Organized by
IIM Mumbai, Goa & Pune Chapters**

55th National Metallurgist Day (NMD) and 71st Annual Technical Meet (ATM) 2017 was held at Birla Institute of Technology and Sciences (BITS) – Pilani, K K Birla Campus at Goa from 11th to 14th Nov 2017. The conference was jointly organised by IIM Mumbai, Goa and Pune chapters.

The event commenced on 11th Nov 2017 with The International Theme Symposium on “Light weighting for Defence, Aerospace and Transportation”, which was inaugurated by Honourable Chief Minister of Goa, Mr Manohar Parrikar on 11th Nov 2017.

On 12th Nov 2017, the 71st Annual Technical Meet was inaugurated by Mr Arun Kumar, Secretary, Ministry of Mines. More than 1000 delegates from industry, academic and research institutes participated the NMD-ATM 2017, which included 450+ students. Two days of ATM had 75 sessions covering 5 different themes in which about 100 invited talks, 300+ contributory presentations, 285 short presentations and ~ 300 posters were presented. This year, in addition to conventional ferrous, non-ferrous and Metal sciences themes, new themes on Analytics to Industry 4.0 and career in Materials engineering attracted attention of delegates with fully packed halls. Special symposium was also arranged on “Iron Ore Mining: Issues and Solutions”, industry leaders & experts from Iron Ore mining participated.

13th Nov 2017 began with 2 plenary talks by Prof. Rishikesh T Krishnan, Director Indian Institute of Management, Indore on “From Jugaad to Systematic Innovation” and by Mr Balaji Iyer, Associate Partner McKinsey on “Electric mobility and Impact on metals and materials”.

55th National Metallurgist Day (NMD) was celebrated on 14th Nov 2017. Honourable Union Minister of Steel ShirChaudhary Birender Singh, Dr Aruna Sharma, Secretary, Ministry of Steel, Ms. Ruchika Chaudhry Govil and Ms UrvillaKhati, Jt. Secretaries, Ministry of Steel grace the occasion. The NMD awards were given by Honourable Minister and the IIM Awards were given Dr Biswajit Basu, President IIM. Mr Sajjan Jindal, Chairman and Managing Director JSW Steel Ltd received the IIM-JRD Tata Award 2017 for ‘Excellence in Corporate Leadership in Metallurgical Industries’.

Dr. Daya Swarup Memorial Lecture – 2017 on “Some Applications of Nano-Science and Technology in Structural and Heat Transfer Applications” was delivered by Prof S K Pabi, Professor & Dean, School of Engineering & Technology Adamas University.

Sri G D Birla Memorial Lecture – 2017 on “Development of Improved Materials for Sodium-cooled Fast Breeder Reactors” was presented by Dr Arun Kumar Bhaduri, Director, Indira Gandhi Centre for Atomic Research, Kalapakkam.

Professor N.P. Gandhi Memorial Lecture – 2017 on “Indigenous Development of Space Materials Achievements And Challenges” was given by Dr. PP Sinha Former Deputy Director, Vikram Sarabhai Space Centre, Trivandrum

In the Concluding & Valedictory session, the best oral presentation, poster presentation and IIM –Springer awards were given to following delegates



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71st Annual Technical Meeting (ATM)

AWARD 2017

THEME: Ferrous

BEST CONTRIBUTORY / ORAL PRESENTATION:

First Prize

Strategy Adopted to reduce hearth temperature in High Productivity large Blast Furnace at JSW
:Naveen Singh, Ravikanth P, Ubayadullah M, Venkatesan J, Avtar Singh, LR Singh JSW Steel Limited

Second Prize

Usage of technology at Cast House of Blast Furnaces, *Shivendra Dubey, Radha Raman Abhyuday, Dushyant Kumar, Tata Steel Limited*

Investigation on the Formation of Cracks in Continuously Cast Nb-V Micro-alloyed Steel through Physical Simulation and Microstructural Examination *Neelam Dewangan¹, Dilip Chandra G², Amiy Srivastava², M.J.N.V Prasad¹ and Viswanathan Nurni¹, ¹Department of Metallurgical Engg. & Material Science, Indian Institute of Technology, Bombay, ²Jindal Steels & Power Ltd., Angul*

THEME: Non-Ferrous

BEST CONTRIBUTORY / ORAL PRESENTATION:

First Prize

Optimisation of heat treatment process of Al-Cu-Si-Zr alloy to improve high temperature strength *by SuklaMondol, Saurabh Dixit, Ujjval Bansal, Alok Paul, Kamano Chattopadhyay IISc, Bangalore*

Second Prize

Nickel Alloys for critical applications *by Ashmita Patra, Narahari Prasad Mishra Dhatu Nigam Ltd*

Investigation of grain growth and CSL boundary evolution during strain annealing of nickel and phase field simulations, *by Jayaram, IIT Madras*

THEME: Materials Science and Engineering

BEST CONTRIBUTORY / ORAL PRESENTATION:

First Prize



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Nano-engineered Mg-MgH₂ system for Solar Thermal Energy Storage Application by Sanjay Kumar, Yoshitsugu Kojima, Vivekanand Kain, aNatural Science Centre for Basic Research and Development, Hiroshima University, 739-8530, Japan, bMaterials Processing & Corrosion Engineering Division, BARC, Mumbai-400 085, India

Second Prize

A Novel Approach towards Development of Sm₂Co₁₇ Permanent Magnets with Improved Magnetic Properties, by Mithun Palit, D M Rajkuma, D V Sridhara Rao, R P Mathur, & S V Kamat, DMRL, DRDO

MgO-MgCr₂O₄ based age-hardened bulk polycrystalline oxide 'ceramic alloys' by Udit kumar, Luv Gurnani, & Amartya Mukhopadhyay, IIT Bombay

Microstructural characterization and structural property correlation of high temperature niobium-based alloys by R. Tewari, G. K. Dey and V. K. Vasudevan, Materials Science Division, Bhabha Atomic Research Centre, Mumbai, & Department of Chemical and Materials Engineering, University of Cincinnati, Cincinnati, OH

Transition of sharp crack propagation to blow hole formation in a pre-cracked thin conductor under short duration electric current pulses by Deepak Sharma, Indian Institute of Science

BEST POSTER AWARD

ANAD - 4 Ultrasonic Assisted Synthesis of Al-4.4Cu- Grp Composite and its characterization by Ramendra Kumar Gupta, Jayakrishnan Nampoothiri, S. Dhamodharan, K.R. Ravi, V. Udhayabanu, Vivesvaraya National Institute of Technology, Nagpur & PSG Institute of Advanced Studies, Coimbatore

CMS - 8 Phase-field modelling of domain dynamics in x & Ba(Zr_{0.2}Ti_{0.8})O₃ & (1 - x) & (Ba_{0.7}Ca_{0.3})TiO₃ & (BZT-BCT) ferroelectric solid solution: composition and strain effects, by Soumya Bandyopadhyay, Saswata Bhattacharya, Department of Materials Science and Metallurgical Engineering, Indian Institute Of Technology Hyderabad

ACM - 9 Crystal chemistry of transition metal doped Apatites and their potential as antibacterial agents, by Arjak Bhattacharjee et al., Department of Materials Science and Engineering, Indian Institute of Technology Kanpur

PM - 8 Development of high strength Mg-LPSO composite by powder metallurgy by Kiranchand GR, Ravikanth Reddy, Bontasrinivasa Rao, National Institute of Technology, Warangal

AMC - 3 A novel method for fabrication of porous elastomer and its application by Chithra Parameswaran, Dipti Gupta, Indian Institute of Technology Bombay

MBM - 13 Investigating grain scale creep response in Zinc through nano-indentation by Aditya Gokhale et al. Indian Institute of Technology Delhi



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MBM – 18 Deformation induced defect formation in HPDC process, by *Shishira Bhagavath et al., IIT Bombay*

MT – 14 Factors Affecting Hole Expansion Ratio in hot rolled Auto Grade Steels by *Paparao Mondhi et al., JSW Steel Limited, Vijayanagar Works*

C – 15 :Comparisons of Protein Adsorption Kinetics and Degradation Rate of Mg-3Zn/HA Composites fabricated through Spark Plasma Sintering for Biomedical Application, by *SATISH JAISWAL, IIT ROORKEE*

SE – 13 Mechanical And Environmental Durability Of Superhydrophobic Aluminum Oxide Thin Film Coatings, by *Shalini Halan Joghee, PSG Institute of Advanced Studies*

IIM – SPRINGER AWARD 2017

For BEST SHORT ORAL&POSTER PRESENTATION

THEME: Ferrous

1st Prize: Evaluation of commercial reagent as selective flocculant for beneficiation of iron ore slimes, *1 Dharmendr Kumar, 2 Shashank Pardhikar, 1 Venugopal Tammishetti, 1 Beena Raj, 3 Suresh babu Dasari, 3 Shounak Banerjee, 1 Tata Research Development and Design Centre, Tata Consultancy Services, 2 IIT BHU, 3 Nalco Water India Ltd.*

2nd Prize: Feasibility Study of Dephosphorization of Slag Generated from BOF of an Integrated Steel Plant *Kumar Abhishek, Vikash Kumar, Nirvik Banerjee, Somnath Kumar, J Prasad, K.K Keshari, Somnath Ghosh, R & D Centre for Iron & Steel (RDCIS), SAIL*

THEME: Non-Ferrous

1st Prize: Reduction of within coil UTS variation and cracking issue in EC grade wire rods, by *Shahin Ahmad et al. Aditya Birla Sc. And technology center and Hindalco*

2nd Prize: Effects of aging on precipitate size, misfit and elemental segregation in Haynes-282 a Ni-based superalloy by *Ms. Shreya Mukherjee, IIT KGP*

THEME: Materials Science and Engineering

1st Prize: Failure Analysis of a Tongue Rail by *Abhilash Agnihotri, Dhananjay, Anirudha C S, Gurudath B, Preitish D'Silva, and Subray R Hegde, NITK Surathkal*

2nd Prize: Effect of La³⁺/Al³⁺ Doping on Mechanical and Biological properties of 45S5 based Bioactive Glass and Glass Ceramics by *Md Ershad, IIT (BHU)*

METALLOGRAPHY AWARD

Optical Microscopy:



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1. Appearance Does not Matter: we are all same, V Ramkumar NIT Trichy

SEM Microscopy:

1. Oxide spinning wheel: P Rajesh Kannan, NIT Trichy

TEM Microscopy

1. Coherent nano-sized ceramic precipitate in age hardened bulk polycrystalline 'ceramic alloy': Udit Kumar IIT Bombay