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| **INTERNATIONAL CONFERENCE ON POWDER METALLURGY – PM20 – TECHNICAL PROGRAM** |
| **DAY 1 OF 3, Wednesday 19 Feb, 2020** |
| **VENUE: The Lalit Mumbai, Sahar Airport Road, Andheri (East), Mumbai, INDIA** |
| **INAUGRAL SESSION**  |
| 09:30 | All delegates seated & mobile phones silenced, thank you. |
| 09:3009:35 | **Welcome by Conveners** | T. R. Rama Mohan / Bijoy Sarma | Convener PM-20 |
| 09:3509:55 | **Presidential Address & Felicitations** | Aniket Gore | President, PMAI |
| 09:5510:25 | **Keynote Lecture** 01. Recent Trends in Powder Based Technologies and Applications  | G. Padmanabham | Director, ARCI, Hyderabad, India |
| 10:2510:55 | **Keynote Lecture**02. Synthesis and Sintering of Silicon Nitride for Radome Applications | K. Muraleedharan. | Director, CGCRI, Kolkata, India.  |
| 10:5511:00 | Vote of Thanks | Deep Prakash | Hon. Gen. Secretary PMAI |
| 11:0011:30 | **INAUGRATION OF EXHIBITION FOLLOWED BY TEA** |
| **PLENARY SESSION 1** | **Chair: P. Ramakrishnan** |
| 11:3012:00 | **Tamhankar Memorial Lecture** 03. Advances in Processing of High Temperature Materials at MIDHANI | S. K. Jha | Director (Production & Marketing), MIDHANI, Hyderabad, India |
| 12:0012:30 | **P. R. Roy Memorial Lecture**04. Plutonium Metallurgy in India | U. Basak | IAEA (Retired) |
| 12:3013:00 | **S. N. Acharyulu Memorial Lecture** 05. Exciting Journey of a Metallurgist through Nanocrystalline Materials using Particulate Technologies | B. S. Murty | Director, IIT Hyderabad |
| 13:0014:00 | **LUNCH** |
| **PLENARY SESSION 2** | **Chair: Bijoy Sarma** |
| 14:0014:30 | 06. Material Options for High Temperature SinteringKylan McQuaig, Neal Kraus, Bruce Lindsley, Hoeganaes Corporation, USA. Presented by Narsi Chandrachud, Hoeganaes, India.  |
| 14:3015:00 | 07. Premixes, Clean Mixes, Lean Alloys, Engineered mixes, S. R. Sundaram, FPMAI, Bangalore, India.  |
| 15:0015:30 | 08. PM Current and Future Conversion Opportunities in Modern Passenger Cars, Karas Lukasz, Mahesh Nipanikar, Höganäs, China/ India.  |
| 15:3016:00 | **TEA** |
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| **PLENARY SESSION 3** | **Chair: Narsi Chandrachud** |
| 16:0016:30 | 09. Microstructure-Processing-Properties Correlation in Heavy Alloys: An Exploration of New Sintering Paradigms, Anish Upadhyay, IITK, India. |
| 16:3017.00 | 10. Sintering Conditions and Mechanical Performances of Low Nickel PM Chromium Steels, Ivan Lorenzon1 Franco Buzzelli1, Mirko Nassuato1 / Deepak Nimbalkar2\*, 1 Pometon S.p.A, Italy/ 2 Pometon India. |
| 17:0017:30 | 11. An alternative to sponge iron for high green strength applications, Saba Mousavinasab, Prakash Khole, Rio Tinto, Canada/ India |
| 17:3018:00 | 12. Development of Powders for Additive Manufacturing and Nano Powders for Various Applications, R. VIJAY, International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad, India.  |
| 18:00 | **EXHIBITION CLOSES** |
|  19:30+ | **Gala Dinner for invitees and delegates sponsored by** **Venue: The Lalit Mumbai** **Cocktails, networking & dinner** |

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| **DAY 2 of 3, Thursday 20th Feb, 2020** |
| **PLENARY SESSION 4** | **Chair: U. Basak** |
| 09:3010:00 | 13. Compositional Effects on Ductility of Powder Metallurgy Iron-Phosphorus Alloys, S. K. Chaurasia, Ujjwal Prakash, Vikram Dabhade and S. K. Nath, India. |
| 10:0010:30 | 14. Cost Effective Material for Sinter-Hardening Applications (Astaloy® LH), Mahesh Nipanikar1, Linnea Molin2, Simon Tan 3, 1Höganäs India Pvt Ltd., 2Höganäs Korea Ltd., 3Höganäs China  |
| 10:3011:00 | 15. Use of Diffusion-Bonded Copper Powders for Improved Part-to-Part Stability, J. Campbell-Tremblay1\*, P. Khole2, 1Rio Tinto Metal Powders, Canada; 2Rio Tinto India |
| 11:0011:30 | **TEA** |
| **PLENARY SESSION 5** | **Chair: Amit Sinha** |
| 11:3012:00 | 16. Improving Machinability of Powder Metallurgy Components by Addition of Various Machining Additives, Rahul Lokmanwar, Mahesh Nipanikar, Höganäs, India.  |
| 12:00 12:30 | 17. An Experimental Study on Machining of Green Powder Compacts Harshal Kulkarni, Vikram V Dabhade, IITR, India |
| 12:3013:00 | 18. Use of Metallography for Analysis of Defects and Failure of PM Products, Priyanka Gaikwad1, Ellin Yang2, Vipul Utkar1, 1 Höganäs India Pvt. Ltd., 2 Höganäs China.  |
| 13:0014:00 | **LUNCH** |
| **PLENARY SESSION 6** | **Chair: N. B. Dhokey** |
| 14:0014:30 | 19. Soft Magnetic PM Components in Electric Vehicles & ARCI’s Perspectives on Coated Fe Composites, Malobika Karanjai, ARCI, India.  |
| 14:3015:00 | 20. Commercial Use of SMC in Electrical Buses, Serge Grenier, Rio Tinto, Canada |
| 15:0015:30 | 21. Somaloy® : Soft Magnetic Fe Powder – Improved Way of Making Electric Motors, Vipul Utkar1, Tsuya Hiroki2, Nipanikar Mahesh1, 1Höganäs India, 2Höganäs Japan.  |
| 15:3016:00 | **TEA** |
| **PLENARY SESSION 7** | **Chair: Bharat Panigrahi** |
| 16:00 16:30 | 22. Benefits of Laser Cladding Over Conventional Welding Process, Mangesh Patil1, Dong Carter2, Amitava Sen1, 1 Höganäs India. 2 Höganäs China.  |
| 16:3017:00 | 23. Wet-Chemical Processing of Gadolinium based Perovskites, Amit Sinha, BARC, India. |
| 17:0017:30 | 24. 3D Metal Printing: Challenging Incumbent PM Technologies, Deepak Kumar Pattanayak, CECRI, India.  |
| 17:3018:00 | 25. Wear and Friction Behavior of NiCrBSi Coatings at Elevated Temperature, Nikita Mohite1, Crystal Liu2, Bruc Zhang2, Kari Westerling2, Mangesh Patil1, 1Höganäs India Pvt. Ltd., 2Höganäs China.  |

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| **Day 3 of 3, Friday 21st Feb, 2020** |
| **Parallel Technical Sessions** |
|  | **SESSION 8ASession 8A****Chair: Anish UpadhyayaMetallics****Chair:Anish Upadhyaya**  | **SESSION 8BSession 8B****Chair: Tarasankar MahataCeramics****Chair: Tarasankar Mahata** | **SESSION 8CSession 8C****Chair: Deepak PattanayakComposites****Chair:Malobika Karanjai**  |
| 0930: 09:5009:3009:50 | 26. Effect of Compaction Pressure and Temperature on Densification and Properties of Sintered Copper, Shruti Srivastava1, Rishabh Kaneria2, Sheelendra Agnihotri2, Kamlesh Thapliyal2, Anish Upadhyaya2, 1CIPET, Lucknow; 2IITK, India. | 31. Synthesis and Densification of Chromium Diboride, J. K. Sonber\*, T. S. R. Ch. Murthy, Sanjib Majumdar, Vivekanand Kain, BARC, India.  | 36. 36. Ag@ZnO Core-Shell Nanocomposites: Highly Reactive and Reusable Nanophotocatalysts for Disinfection of Water Borne Bacteria, Suraj K. Tripathy, Kalinga Institute of Industrial Technology, India. |
| 09:50 10:1009:5010:10 | 27. Effect of Iron Powder on Air Activated Heating: A Comparison Between Electrolytic and Atomized Iron Powders, R. S. G. Abhijith1,2, Vyas Adusumalli2, Rupalee P. Mulay2, M. Vijayalakshmi1, Ajay S. Karakoti3, Satyanarayana V. N. T. Kuchibhatla21Mahatma Gandhi Institute of Technology, Hyderabad; 2Parisodhana Technologies, Hyderabad; 3Ahmedabad University, Ahmedabad, India.  | 32. Selection of Appropriate Heating Rates in Construction of Master Sintering Curve for La2Ti2O7 Ceramics, K. R. Kambale\*1, Krutika Rasal1, S. P. Butee2, A. R. Kulkarni2, N. Venkataramani2, 1COEP, Pune; 2IITB, India.  | 37. Carbon Fibres Reinforced CoCrFeNiMn HEA Composites Through Powder Metallurgy, Subhendu Naskar, Sahil Rohila, Rajashekar Bhupal D, Bharat B. Panigrahi, IITH, India. |
| 10:10 10:3010:1010:30 | 28. Thermal Stability of Nanocrystalline Mg-Mo Alloy Produced by ball milling, B. K. Samantaray1, N. Rai1, K. V. Rajulapati2, Rahul Ravi3, B. Srinivasa Rao3, N. Koundinya3, R. S. Kottada3, S. Gollapudi1, 1IITBBR, 2University of Hyderabad, 3IITM, India.  | 33. Preparation and Electrochemical Characterization of Ca Doped Nd2NiO4 Solid Oxide Fuel Cell Cathode Material, Pranjal Gandhrea, R. K. Lenkab, P. K. Patrob, L. Muhmooda, and T. Mahatab, aK. J. Somaiya College of Engineering, Mumbai; bPMD, BARC, India.  | 38. Development of AlCoCrFeNiTi0.5 HEA Particulate Reinforced Titanium Matrix Composites, Sahil Rohila, S. Naskar, Rajashekar Bhupal D., Bharat B. Panigrahi, IITH, India.  |
| 10:30 10:5010:3010:50 | 29. An automated methodology for assessing the microstructural attributes of liquid phase sintered microstructure, Mritunjay Kumar, Anish Upadhyay, IITK, India.  | 34. Development of Alumina-Zirconium Diboride Composite and its Thermal Characterization, Jyothi Sharma, Abhijeet Kalaskar, P. K. Patro, T. Mahata, Deep Prakash, BARC, India.  | 39. 39. Wear Behavior of High Entropy Alloy Reinforced Titanium Metal Matrix Composites, CH. V. Satyanarayanaraju1\*, Rahul Dixit1, A. Raj Kiran2, Ch. Bhargavi2, D. Lakshmi Priya2, 1 DRDO, 2Structural Solutions, Hyderabad, India.  |
| 10:50 11:1010:5011:10 | 30. Design and Development of Environment Friendly Materials for Thermoelectric Coolers, Natasha Nayak, Harshavardhan Patil and N. B. Dhokey, COEP, India.  | 35. Synthesis and Characterisation of Lithium Cerate Ceramics for Breeder Applications, Nida Khan, Amit Sinha, S. R. Nair, R. K. Lenka and V. Sudarsan, BARC, India. | 40. 40. Development of 15Cr Oxide Dispersion Strengthened Steel by Mechanical Alloying of Elemental Powders, Lekhraj Verma, Suhrit Mula and Vikram V Dabhade, IITR, India.  |
| 11:10 11:4011:1011:40 | **TEA** |
|  | **SESSION 9ASession 8A****Chair: Vikram DabhadeMetallics****Chair:Anish Upadhyaya**  | **SESSION 9BSession 8A****Chair: S.P. ButeeMetallics****Chair:Anish Upadhyaya**  | **SESSION 9CSession 8A****Chair: Vivek SingalMetallics****Chair:Anish Upadhyaya**  |
| 11:40 12:0011:4012:00 | 41. Microstructure and Mechanical Properties of Matrix Alloy (Ni-Fe-Co-W) Derived from Tungsten Heavy Alloys, U. Ravi Kiran, G. Prabhu, T. K. Nandy, DMRL, India. | 45. Development of Translucent Beryllia Ceramics, Sathi R. Nair, Amit Sinha\*, Pankaj K. Patro, Tarasankar Mahata, and Madangopal Krishnan, BARC, India.  | 49. Fabrication of High Entropy Alloy Filament through Powder Metallurgy for Electro-Spark Deposition on Inconel 718 Superalloy, Prince Sharma, Sahil Rohila, Subhendu Naskar, Bharat B. Panigrahi, IITH, India. . |
| 12:00 12:2012:0012:20 | 42. Phase Evolution, Microstructure of Non-Equiatomic Fe-Mn-Ni-Ti-Al-Si-C High Entropy Alloy Processed by Mechanical Alloying and Spark Plasma Sintering, Harsh Jain1, Yagnesh Shadangi1, Dibyendu Chakravarty2, N. K. Mukhopadhyay1, Devendra Kumar1, 1IIT BHU, 2 ARCI, India.  | 46. Influence of Sintering Parameters on Microstructural, Electrical and Thermal Properties of Y3Fe5O12 Ceramics, P. K. Patro\*, R. K. Lenka and T. Mahata, BARC, India.  | 50. Grain Growth Kinetics and Microstructural Stability of Mechanically Alloyed Fe-15Cr Oxide Dispersion Strengthened Steel, Lekhraj Verma, Suhrit Mula and Vikram V. Dabhade, IITR, India.  |
| 12:20 12:4012:2012:40 | 43. Fabrication and Characterization of Porous SS Supported Composite Palladium Membranes for Separation and Recovery of Hydrogen at High Pressure, G. V. Jawalea, B. C. Nailwalb, R. K. Lenkab, L Muhmooda, K. Singhb, R. C. Bindalb, Soumitra Karb\*, aK. J. Somaiya College of Engineering,Mumbai, bBARC, India.  | 47. Synthesis and Characterization of Lithia Stabilized Sodium Beta Alumina Solid Electrolyte, Rahul S. Jadhav, K. R. Kambale, S. P. Butee, Gauravo Behune, Nisarga Nagapure, COEP, India.  | 51 Medium Carbon Steel P/M Compacts with In-Situ Formed and Dispersed Tungsten Carbide, S. P. Butee\*, N. G. Soni, K. R. Kambale, COEP, India.  |
| 12:40 13:0012:4013:00 | 44. Role of Matrix Composition on Microstructure Evolution and Mechanical Properties of Tungsten Heavy Alloy, Saket Kumar1, Harish Ranot2\*, Mirtunjay Kumar2, Sandeep Sahni2,Anish Upadhyaya2, 1UCET, Vinoba Bhave University; 2IITK, India.  | 48. Mechanochemical Synthesis of Lithia Stabilised Zirconia Through Solid State Reaction and its Ionic Conductivity at Elevated Temperature, Snehal Gadekar, Kausthubh Kambale, S. P. Butee, Pravin Supe, COEP, India.  | 52. Microstructure Evolution and Properties of AlCoNiVWC High Entropy Alloy Cladding on IS2062 Steel, A. Verma, M. Abhinav, Shanmugasundaram T.\*, Defence Institute of Advanced Technology, India.  |
| 13:00 14:0013:001400 | **Lunch** |
|  | **SESSION 10ASession 8A****Chair: Murligopal K.Metallics****Chair:Anish Upadhyaya**  | **SESSION 10BSession 8A****Chair: Malobika KaranjaiMetallics****Chair:Anish Upadhyaya**  | **SESSION 10CSession 8A****Chair: I.S.R. SastryMetallics****Chair:Anish Upadhyaya**  |
| 14:00 14:2014:0014:20 | 53. Microstructure and Mechanical Properties of W-Ni-Fe Tungsten Heavy Alloy, Mirtunjay Kumar, Anish Upadhyaya and N. P. Gurao, IITK, India.  | 58. Use of Dilatometer for Sintering Optimization, Kamlesh Thapliyal, Sheelendra Agnihotri, Gouthama, Anish Upadhyaya, IITK, India.  | 63. Sintering Studies on Cu and Oxide Dispersed Cu-based Composites, Rishabh Kaneria, Anish Upadhyaya, IITK, India.  |
| 14:20 14:4014:2014:40 | 54. Synthesis of High Entropy Hardfacing Alloy (CrFeMnNiTiB0.492C0.205) for Extreme Wear Resistant Application, Neha Wagh, Mayuri Pandharpurkar and N. B. Dhokey, COEP, India.  | 59. Improvement of Mechanical Properties of AlCoCrFeNiSi High Entropy Alloy by Nickel Additive Sintering, Sahil Rohila, Subhendu Naskar, Bharat B. Panigrahi, IITH, India.  | 64. Powder Metallurgical Processing of Ag/Cu-Based Refractory Contact Materials, Raghvendra Singh Chauhan, Anish Upadhyaya, IITK, India.  |
| 14:40 15:0014:4015:00 | 55. Development of a Novel Multi-Phase Lightweight High Entropy Alloys Developed by High Energy Ball Milling and Spark Plasma Sintering, Sushil Yebaji, Pranjal Chauhan, T. Shanmugasundaram, Defence Institute of Advanced Technology, Pune, India.  | 60. Effect of Heat Treatment Temperatures on Microstructure and Mechanical Properties of 3D Printed Ti6Al4V Alloy, C. Vanithaa and Deepak K. Pattanayakb, a NIT, Warangal, bCECRI, India. .  | 65. Powder Metallurgy (P/M) of ODS Superalloys: A Review, S. D. Gaikwad, Vikram Dabhade, IITR, India. |
| 15:00 15:2015:0015:20 | 56. Fabrication of Ti3AlC2 MAX Phase through Sintering, Kush Kumar Nonia\*, K. Kamaja, Anish Upadhyaya, Monica Katiyar, IITK, India. .  | 61. Overview of Hardfacing Processes, Materials and Applications, R. R. Garbade, N. B. Dhokey, COEP, India. | 67. Microstructure of Sintered and Hot-Pressed Tungsten and Graphene Added Copper Based Composites, B.Saicharan1, B.Arun Kumar1, Sri Ram Vikas K2 and Sastry S. Indrakanti1,1RGUKT, Basar, 2 PVPSIT, Vijayawada, India |
| 15:20 15:4015:2015:40 | 57. Sintering and Oxidation Behavior of Ti3GeC2 MAX Phase Material, Rahul B. Manea\*, R. Vijaya and Bharat B. Panigrahib, aARCI, bIITH, India | 62. Application of EBSD in Microstructural Characterization of Sintered Alloys, Mrityunjay Kumar, M. Sivakumar, Gouthama, Anish Upadhyaya, IITK, India.  | 68. Preparation and Characterization of Barium Cerate Powders by Combustion Synthesis, Ch. K. V. Chaitanya, N. V. Gautham Reddy, V.Ajay Kumar and Sastry S. Indrakanti, RGUKT, Basar, India |
| 15: 40 16:00 | 69. Overview of Synthesis of Phosphors Via Rapid Exothermic Reactions, M. Sanjay, Ch. Prathyusha, E. Anjalipriya and Sastry S. Indrakanti, RGUKT, Basar, India | 70. Sintering of Copper - Zirconium Diboride (Cu-ZrB2) Composites, D.Muthya Venu, S. Saicharan, A.Ashok Kumar and Sastry S. Indrakanti, RGUKT, Basar, India |  |
| 16:00 16:1515:4016:00 | **Tea**  |
| 16:15 16:4516:0016:30 | **Concluding Session** |

**POSTER**

66. Thermal Plasma Processing of Metal and Ceramic Powders, Dr. K.S. Ganesh Prasad, Institute of Advanced Research, Koba, Gandhinagar, India.