

International Conference on Metals and Materials Research (ICMR 2016)

June 20-22, 2016

Indian Institute of Science, Bangalore, India

Programme Schedule

Day 1: 20th June 2016

08:30-09:30	Registration (Faculty Hall Reception Area)
Inauguration: 09:30-10:40: Faculty Hall	
09:30-09:35	Welcome: T.A. Abinandanan , <i>Chairman, Materials Eng., IISc, Bangalore</i>
09:35-09:40	About ICMR-2016: V.S. Raja , <i>Conference Chair, IIT Bombay</i>
09:40-09:50	Inauguration & Presidential Address: Anurag Kumar , <i>Director, IISc, Bangalore</i>
09:50-10:35	Inaugural Talk: 2-D Inorganic Analogues of Graphene C.N.R. Rao , <i>JNCASR, Bangalore</i>
10:35-10:40	Vote of Thanks: S. Subramanian , <i>Past Chairman, IIM Bangalore Chapter</i>
Tea & Group Photo: 10:40-11:30	
11:30-13:00	Plenary Session – 1: Faculty Hall Chair: I Manna , <i>IIT Kanpur & Pradip Dutta</i> , <i>IISc, Bangalore</i>
11.30-12:00	Optimizing the Mechanical Properties of Metallic Glasses A.L. Greer , <i>University of Cambridge, UK</i>
12:00-12:30	Studying defects in the TEM Barry Carter , <i>University of Connecticut, USA</i>
12:30-13:00	Pathways for developing high-temperature alloys: Knowledge, experimental tools, and serendipity K. Chattopadhyay , <i>IISc, Bangalore</i>
Lunch : 13:00-14:00	
Parallel Technical Sessions: 14:00 – 15:40	
Hall A: Materials Engineering Lecture Theatre	
Session – 1 A	Alloy Design & Development - I
June 20, 2016 (Day - 1)	Time: 14:00 – 15:40
Chair: R. Krishnan , <i>GTRE, Bangalore</i>	
14:00-14:25	History of Iron (and Steel) making in Sweden S. Seetharaman , <i>Royal Institute of Technology, Sweden</i>
14:25-14:50	The transformation of steel in the last fifty years Sanak Mishra , <i>Indian Steel Association, New Delhi</i>
14:50-15:15	Aluminium – Lithium (Al-Li) Alloys For Aerospace Applications N. Eswara Prasad , <i>DMSRDE, Kanpur</i>
15:15-15:40	Futuristic Materials for Defence Samir V. Kamat , <i>DMRL, Hyderabad</i>
Hall B: SSCU Auditorium	
Session – 1 B	Computational Materials Science – I
June 20, 2016 (Day - 1)	Time: 14:00 – 15:40
Chair: B. Gurumoorthy , <i>IISc Bangalore</i>	
14:00-14:25	Development of Approximate Gibbs Energy Functions based on Cluster Variation Method S. Lele , <i>IIT BHU, Varanasi</i>
14:25-14:50	TCS PREMAP – A Platform for the Realization of Engineered Materials and Products based on the State-of-the-Art Integrated Computational Materials Engineering (ICME) Framework

	Pradip, TCS, Pune
14:50-15:15	Physical Metallurgy in the ICME Era G. Phanikumar, IIT Madras
15:15-15:40	Phase field modelling of anisotropic precipitate morphologies: some computer experiments M. Gururajan, IIT Bombay
Hall C: MRC Auditorium	
Session – 1 C	Advanced Materials & Processing
June 20, 2016 (Day - 1)	Time: 14:00 – 15:40
Chair: A. M. Umarji, IISc, Bangalore	
14:00-14:25	Pack Aluminizing of Austenitic Stainless Steels V. A. Ravi, Cal Poly Pomona, USA
14:25-14:50	Emerging Trends in Processing of Advanced Metallic Materials S. N. Ojha, IIT BHU
14:50-15:15	High Nitrogen Stainless Steels for Nuclear Industry U. Kamachi Mudali, IGCAR, Kalpakkam
15:15-15:40	Development of Multifunctional Bioceramics and External Field Stimulated Cell Functionality Modulation: A New Paradigm Bikramjit Basu, IISc, Bangalore
Tea : 15:40-16:10	
Parallel Technical Sessions: 16:10 – 17:25	
Hall A: Materials Engineering Lecture Theatre	
Session – 2 A	Alloy Design & Development – II
June 20, 2016 (Day - 1)	Time: 16:10 – 17:25
Chair: Dilshad Akhtar, DRDO, Delhi	
16:10-16:35	Size Dependent Polymorphic Phase Transformation in Early Transition Metals Induced by Mechanical Attrition/Milling I. Manna, IIT Kanpur
16:35-17:00	Structural origin of industrial alloys C. Dong, Dalian Univ. of Technology, China
17:00-17:25	Materials selection for extreme environments – using property correlations and systematics John Rodgers, Nanoholdings, USA
Hall B: SSCU Auditorium	
Session – 2 B	Materials Design
June 20, 2016 (Day – 1)	Time: 16:10 – 17:25
Chair: O. N. Srivastava, BHU, Varanasi	
16:10-16:35	Microstructural Property Relationships of Plasma Sprayed YttriaStabilised Zirconia Coatings Chris Berndt, Swinburne Univ. of Technology, Australia
16:35-17:00	Bulk and Surface Grain Boundary Engineering for Improved Resistance to Corrosion and Stress Corrosion Cracking Resistance of Nuclear Alloys Vijay Vasudevan, University of Cincinnati, USA
17:00-17:25	Corrosion degradation of materials in nuclear reactors and its control Vivekanand Kain, BARC, Mumbai
19:00-22:00	Banquet at Hotel Le Meridien including Felicitation to Prof. Ranganathan

Day 2: 21st June 2016

09:00-10:30	Plenary Session – 2:Faculty Hall Chair: Vikram Jayaram, IISc, Bangalore & K. Muraleedharan, CGCRI, Kolkata
09:00-09:30	Development and Applications of Al- and Cu-based Metastable Metallic Alloys A. Inoue, Tohoku University, Japan
09:30-10:00	Evolution of Microstructures in Laser Processed Grey Cast Iron S. Banerjee, BARC, Mumbai
10:00-10:30	Interdisciplinary Measurements in a Spectrum of Applications Related to Frontier Technologies Baldev Raj, NIAS, Bangalore
Tea: 10:30-11:00	
Parallel Technical Sessions: 11:00 – 12:40	
Hall A: Materials Engineering Lecture Theatre	
Session – 3 A	Phase Transformations – I
June 21, 2016 (Day - 2)	Time: 11:00 – 12:40
Chair: Giridhar Madras, IISc, Bangalore	
11:00-11:25	In-situ tracking of defects and phase evolution in light alloys of magnesium and aluminum C. Ravindran, Ryerson University, Canada
11:25-11:50	An Integrated Approach for Understanding of Precipitate Morphologies and Applications to Light Metals Wenzheng Zhang, Tsinghua University, Beijing
11:50-12:15	Nanostructured Al-Fe-Cu quasicrystals and inverse Hall-Petch behavior N. K. Mukhopadhyay, IIT BHU
12:15-12:40	Disorder trapping during solidification of nickel aluminides R. Sankarasubramanian, DMRL, Hyderabad
Hall B: SSCU Auditorium	
Session – 3 B	Computational Materials Science – II
June 21, 2016 (Day - 2)	Time: 11:00 – 12:40
Chair: Abhik Choudhury, IISc, Bangalore	
11:00-11:25	Prediction of robust non-centrosymmetric topological Dirac semi-metallic state in ternary half-Heusler compounds Umesh Waghmare, JNCASR, Bangalore
11:25-11:50	Morphological instabilities in Cylindrical Pores T. A. Abinandanan, IISc, Bangalore
11:50-12:15	Industrial Realization of Integrated Computational Materials Engineering (ICME) Satyam Sahay, John Deere, Pune
12:15-12:40	Entropy and Entropic Stabilization of Alloy Phases S. Raju, IGCAR, Kalpakkam
Hall C: MRC Auditorium	
Session – 3 C	High Entropy Alloys
June 21, 2016 (Day - 2)	Time: 11:00 – 12:40
Chair: Om Prakash, Boeing International Corp., Bengaluru	
11:00-11:25	Physical metallurgy of high-entropy alloys J. W. Yeh, National Tsing Hua University, Taiwan
11:25-11:50	A combinatorial assessment of Al _x CrCuFeNi ₂ (0<x<1.5) complex concentrated alloys: microstructure, microhardness, and magnetic properties Rajarshi Banerjee, University of North Texas, USA
11:50-12:15	Challenges in High Entropy Alloy Research B. S. Murty, IIT Madras

12:15-12:40	Strength of Ultrafine-Grained High Entropy Alloys N. Balasubramanian, Bangalore
Lunch : 12:40-14:00	
Poster Session : Department of Materials Engineering: 14:00 – 15:30 Chair: Abhik Choudhury, IISc, Bangalore	
Tea: 15.30 – 16.00	
Hall B: SSCU Auditorium	
Session – 4 B	Quasicrystals
June 21, 2016 (Day – 2)	Time: 16:00 – 16:50
Chair: T. A. Bhaskaran, NAL, Bangalore	
16:00-16:25	Advance Characterization of Materials for High Temperature Applications Partha Ghoshal, DMRL, Hyderabad
16:25-16:50	Effect of quasicrystalline phase on the microstructure and mechanical properties of magnesium alloys Alok Singh, NIMS, Japan
Hall C: MRC Auditorium	
Session – 4 C	Phase Transformations - II
June 21, 2016 (Day – 2)	Time: 16:00 – 16:50
Chair: Kaushik Chatterjee, IISc, Bangalore	
16:00-16:25	Refined microstructures in metastable beta titanium alloys – role of non-conventional transformation pathways Hamish Fraser, Ohio State University, USA
16:25-16:50	Phase Transition and Anomalous Diffusion in Metastable β Ti-Mo Srinivasan G. Srivilliputtur, North Texas, USA
18:00-20:00	Dance Programme by Ms. Shobana at JRD Tata Auditorium, National Institute of Advanced Studies
20:00-22:00	Dinner at Green house, National Institute of Advanced Studies

Day 3: 22nd June 2016

Parallel Technical sessions: 09:00 – 10:30	
Hall A: Materials Engineering Lecture Theatre	
Session – 5 A	Materials Characterization
June 22, 2016 (Day - 3)	Time: 09:00 – 10:40
Chair: P. Shankar, Saveetha University, Chennai	
09:00-09:25	Surface mechanical and structural characterization to understand domains of tribology in automotive engines Vikram Jayaram, IISc, Bangalore
09:25-09:50	Microstructural Evolution and Structure-Property Relationships of Mushy State Rolled In-Situ Al-4.5Cu-5TiB ₂ Composite Rahul Mitra, IIT Kharagpur
09:50-10.15	Nanoscale quantitative magnetic information and probing optical band gap by HR-EELS in an aberration corrected transmission electron microscope Ranjan Datta, JNCASR, Bangalore
Hall B: SSCU Auditorium	
Session – 5 B	Advanced Materials - II
June 22, 2016 (Day - 3)	Time: 09:00 – 10:40
Chair: C.G.K. Nair, SIATI, Bangalore & Rudra Pratap, IISc, Bangalore	
09:00-09:25	Phase separation in Ce-Al (Ga) metallic glass R. S. Tiwari, BHU, Varanasi
09:25-09:50	Self-Accommodation in Nanocrystalline NiTi Shape Memory Alloys

	Gouthama, IIT Kanpur
09:50-10:15	Stabilization of coherent precipitates in nanoscale thin films Anandh Subramaniam, IIT Kanpur
10:15-10:40	Understanding Solidification of Alloys through Study of Glass/crystal Composites G. K. Dey, BARC, Mumbai
Hall C: MRC Auditorium	
Session – 5 C	Computation and Materials Education
June 22, 2016 (Day - 3)	Time: 09:00 – 10:40
Chair: E. S. Raja Gopal, IISc, Bangalore	
09:00-09:25	Toughness in metallic glasses Shantanu Madge, NML, Jamshedpur
09:25-09:50	Miller-Bravais Indexing Scheme: Beyond Its Classical Form R. K. Mandal, IIT BHU
09:50-10:15	Dislocations in Crystals: Some Interesting Facts and Models Rajesh Prasad, IIT Delhi
10:15-10:40	Optical Dilatometer: A New way to Understand and Quantify Sintering Kinetics of Iron Ore Pellets N. N. Viswanathan, IIT Bombay
Tea : 10:40 – 11:10	
Parallel Technical sessions: 11:10 – 12:50	
Hall A: Materials Engineering Lecture Theatre	
Session – 6 A	Materials Behavior
June 22, 2016 (Day - 3)	Time: 11:10 – 12:50
Chair: S. Gopalkrishnan, IISc, Bangalore	
11:10-11:35	Orientation Sensitive deformation in Zr alloys: experimental and modeling studies Dinesh Srivastava, BARC, Mumbai
11:35-12:00	Iron Age high-tin bronzes from Tamil Nadu and comparisons with southeast Asia Sharada Srinivasan, NIAS, Bangalore
12:00-12:25	Advanced Materials Technologies for Structural Component Repair Dheepa Srinivasan, GE, Bangalore
12:25-12:50	Solidification microstructure and temperature field during normal casting of Al-3Fe alloy Yu Fuxiao, North Eastern University, China
Hall B: SSCU Auditorium	
Session – 6 B	Materials Processing
June 22, 2016 (Day - 3)	Time: 11:10 – 12:50
Chair: K.A. Natarajan, IISc, Bangalore	
11:10-11:35	Oxygen Dissolved in Wrought Iron Kazuhiro Nagata, Tokyo Institute of Technology, Japan
11:35-12:00	The Indigenous Hafnium Metal: A Journey from Crust to Space S. C. Sharma, VSSC, Trivandrum
12:00-12:25	Microbially assisted processes in mineral processing, extractive metallurgy and environmental remediation S. Subramanian, IISc, Bangalore
12:25-12:50	Thermo-mechanical Simulation of Austenite Recrystallisation and Softening during Hot Rolling of Line Pipe Steel S. Manjini, JSW, Mumbai
Hall C: MRC Auditorium	
Session – 6 C	Advanced Materials - III
June 22, 2016 (Day - 3)	Time: 11:10 – 12:50
Chair: N. S. Mishra, NIFFT, Ranchi & P. Ramesh Narayanan, VSSC, Trivandrum	
11:10-11:35	Development of HSLA steels for Naval Applications

	R. Balamuralikrishnan, DMRL, Hyderabad
11:35-12:00	The Quest For Hydrophobic Metal M.S.M. Saifullah, Singapore
12:00-12:25	Biomedical Imaging Using Nanoparticles Chandan Srivastava, IISc, Bangalore
12:25-12:50	Development of an aluminium alloy for aerospace applications at higher temperatures Subodh Kumar, IISc, Bangalore
Lunch : 12:50 - 14:00	
Parallel Technical Sessions: 14:00 – 15:40	
Hall A: Materials Engineering Lecture Theatre	
Session – 7 A	Grain boundary Engineering
June 22, 2016 (Day - 3)	Time: 14:00 – 15:40
Chair: Jagadeesh Gopalan, IISc, Bangalore	
14:00-14:25	Rendering aluminium alloy 7010 resistant to stress corrosion cracking through engineering microstructures V. S. Raja, IIT Bombay
14:25-14:50	Recent trends in grain boundary engineering Satyam Suwas, IISc, Bangalore
14:50-15:15	Abnormal grain growth and mechanical behaviour of electrodeposited nanocrystalline Ni and alloys M.J.N.V. Prasad, IIT Bombay
15:15-15:40	Effect of crystallographic texture on twinning during cyclic loading: A case study on stainless steel and commercially pure titanium Nilesh Gurao, IIT Kanpur
Hall B: SSCU Auditorium	
Session – 7 B	Advanced Materials - IV
June 22, 2016 (Day - 3)	Time: 14:00 – 15:40
Chair: Praveen C. Ramamurthy, IISc, Bangalore	
14:00-14:25	Reactive spark plasma sintering process for synthesis of nanocrystalline ultra high temperature ceramic based nanocomposites Srinivasa Rao Bakshi, IIT Madras
14:25-14:50	Internal Hydrogen Embrittlement in Cr-Mn-N Austenitic Stainless Steels and a High Entropy Alloy M. Phaniraj, Seoul National University, South Korea
14:50-15:15	Phase Transformations in Al-based Quasicrystalline Intermetallics during Mechanical Milling T. P. Yadav, BHU, Varanasi
Hall C: MRC Auditorium	
Session – 7C	Functional Materials
June 22, 2016 (Day - 3)	Time: 14:00 – 15:40
Chair: Rajeev Ranjan, IISc, Bangalore	
14:00-14:25	Metallic glass composites for defence applications Bhaskar Majumdar, DMRL, Hyderabad
14:25-14:50	Structural Origin of Electrochemical Activity in Transverse Compositionally Graded Li(Ni, Mn) _x O _y Cathodes Joysurya Basu, IIT BHU
14:50-15:15	Atomic scale study of Cu clustering and pseudo-homogeneous nanocrystallization in Fe-Si based soft magnetic amorphous alloys K. G. Pradeep, Germany
High Tea: 15.40 – 16.10	