

## ISRS-2004

### ISRS-2004 Program

#### 20<sup>th</sup> December 2004

08:00 – 08:30	Registration
08:30 – 09:00	Inauguration
09:00 – 09:30	Keynote lecture-1: <b>Mr. B. Muthuraman</b> (TATA Steel)
09:30 – 10:00	High Tea
10:00 – 12:00	Session I – Joining, Casting and Solidification (JCS)
12:00 – 13:00	Lunch
13:00 – 14:00	<b>Poster Session – I</b>
	IA - Joining, Casting and Solidification (JCS)
	IB - Advanced Ceramics (AC)
	IC - Magnetic Materials (MM)
14:00 – 14:30	Keynote lecture-2: <b>Dr. D. Banerjee</b> (DRDO)
14:30 – 15:45	Session II – Advances in Iron and Steel (AIS)
15:45 – 16:00	Tea
16:00 – 18:00	Session III – Advanced Ceramics (AC)
18:00 – 18:15	Tea
18:15 – 19:45	Session IV – Magnetic Materials (MM)
20:00 – 21:00	Conference Dinner

#### 21<sup>st</sup> December 2004

08:00 – 08:30	Keynote lecture-3: <b>Prof. S. Ranganathan</b> (IISc)
08:30 – 09:45	Session V – Composites (COM)
09:45 – 10:00	Tea
10:00 – 12:15	Session VI – Process Modelling and Simulation (PMS)
12:15 – 13:15	Lunch
13:15 – 14:15	<b>Poster Session - II</b>
	IIA - Composites (COM)
	IIB - Process Modelling and Simulation (PMS)
	IIC - Surface Engineering (SE)
	IID - Nano Materials (NM)
14:15 – 14:45	Keynote lecture-4: <b>Prof. C.G.K. Nair</b> (MATS University)
14:45 – 16:30	Session VII – Surface Engineering and Environmental Degradation (SE)
16:30 – 16:45	Tea
16:45 – 19:00	Session VIII – Nano Materials (NM)
19:15 – 20:30	Cultural Programme
20:30 – 21:30	Dinner

#### 22<sup>nd</sup> December 2004

08:00 – 08:30	Invited Talk by <b>Prof. Takashi Sekiguchi</b> (Tsukuba University)
08:30 – 09:45	Session IX – Advanced Materials I (AMI)
09:45 – 10:00	Tea
10:00 – 12:00	Session X – Advanced Materials II (AMII)
12:00 – 13:00	Lunch
13:00 – 14:00	<b>Poster Session - III</b>
	IIIA - Environmental Degradation (ED)
	IIIB - Advanced Materials (AM)
	IIIC - Mechanical Behavior of Materials (MBM)
	IIID - Advances in Materials Processing and Evaluation (AMP)
14:00 – 14:30	Keynote lecture-5: <b>Dr. Baldev Raj</b> (IGCAR)
14:30 – 16:15	Session XI – Mechanical Behavior of Materials (MBM)
16:15 – 16:30	Tea
16:30 – 18:00	Session XII – Advances in Materials Processing and Evaluation (AMP)
18:00 – 18:30	High Tea
18:30 – 19:30	Concluding Session

**Technical Sessions  
December 20, 2004**

08:00 – 08:30	Registration
08:30 – 09:00	Inauguration
09:00 – 09:30	Keynote lecture-1 <b>Mr. B. Muthuraman</b> (TATA Steel) <b>Recent Advances in Steels</b>
09:30 – 10:00	High Tea
10:00 – 12:00	<b>Oral Session I – Joining, Casting and Solidification</b> Chairpersons: Prof. D.R.G. Achar and Prof. K. Prasad Rao
<b>OR-JCS-1</b>	<b>Characterization of Explosive Weld Interfaces</b> <i>N. Raghu<sup>1</sup>, Sanjay K. Rai<sup>2</sup>, Anish Kumar<sup>1</sup>, T. Jayakumar<sup>1</sup> and K.V. Kasiviswanathan<sup>1</sup></i> <sup>1</sup> Inspection Technology Group, Indira Gandhi Center for Atomic Research, Kalpakkam, India <sup>2</sup> Center for Advanced Technology, Indore, India
<b>OR-JCS-2</b>	<b>Joining of Ferritic Oxide Dispersion Strengthened Alloys</b> <i>Venu G. Krishnardula, Nofrijon I. Sofyan and William F. Gale</i> Materials Research and Education Center, Auburn University, Auburn, Alabama, USA
<b>OR-JCS-3</b>	<b>Modification of AA 5083 Weld Joint Characteristics</b> <i>Wajira Mirihanage and Nanda Munasinghe</i> Department of Materials Engineering, University of Moratuwa, Moratuwa, Sri Lanka.
<b>OR-JCS-4</b>	<b>Experimental Investigation on the Transverse Shrinkage Stress And Distortion Generated in Butt Welded Joints</b> <i>M. Ravi Reddy, K. Devakumaran and P.K. Ghosh</i> Department of Metallurgical & Materials Engineering, Indian Institute of Technology, Roorkee, India
<b>OR-JCS-5</b>	<b>Modeling and Optimization of Electron Beam Welding Process using ANOVA</b> <i>Dasharath Ram<sup>1</sup>, S. Saikumar<sup>1</sup> and P.V. Moahan Ram<sup>2</sup></i> <sup>1</sup> Defence Research Development Laboratory, Hyderabad, India <sup>2</sup> Department of Mechanical Engineering, P.S.G College of Technology, Coimbatore, India
<b>OR-JCS-6</b>	<b>Solidification Behavior of Liquid Immiscible Al-In Alloys</b> <i>S. Umamaheswara Rao and G.V.S. Sastry</i> Department of Metallurgical Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India
<b>OR-JCS-7</b>	<b>Thermo Mechanical Treatment of 2219 GTA Welds Made of Sc and Mg Modified 2319 Fillers</b> <i>B. Kamsala Devi, S.R. Koteswara Rao and K. Prasad Rao</i> Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
<b>OR-JCS-8</b>	<b>Kinetics of Carbon dissolution in Ferrosilicon Alloys</b> <i>Pedro J. Yunes</i> School of Material Sciences and Engineering, University of New South Wales, Sydney, Australia
12:00 – 13:00	Lunch

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13:00 – 14:00

### Poster Session IA: Joining, Casting and Solidification

- PO-JCS-1**      **Fixing boundary conditions for solidification simulation of aluminum alloy plate casting**  
*A. Pani Kishore and T. S. Prasanna Kumar*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-JCS-2**      **Friction Welding of Austenitic Stainless Steel and Optimization of Weld Quality**  
*P. Sathiy<sup>1</sup>, S. Aravindan<sup>2</sup> and A. Noorul Haq<sup>2</sup>*  
<sup>1</sup>Department of Mechanical Engineering, J.J.College of Engineering and Technology, Tiruchirappalli, India.  
<sup>2</sup>Department of Production Engineering, National Institute of Technology, Tiruchirappalli, India
- PO-JCS-3**      **Studies on Partially Melted and Fusion Zone of GTA Welded Al-Zn-Mg Alloys**  
*R. Ananda Selvi and K. Prasad Rao*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-JCS-4**      **Narrow Gap GMA Welding of Thick 304LN Stainless Steel Pipes**  
*Shrirang Kulkarni<sup>1</sup>, P.K. Ghosh<sup>1</sup>, S. Ray<sup>1</sup>, H.S. Kushwaha<sup>2</sup>, K.K. Vaze<sup>2</sup>, P.K. Singh<sup>2</sup> and J. Krishnan<sup>3</sup>*  
<sup>1</sup>Department of Met. and Mat. Engineering, Indian Institute of Technology Roorkee, India  
<sup>2</sup>Reactor Safety Division, <sup>3</sup>Manufacturing Section, CDM, BARC, Mumbai, India
- PO-JCS-5**      **Effect of Inoculation on Aluminum Alloy Welds**  
*N. Ramanaiah, B.S. Murty and K. Prasad Rao*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-JCS-6**      **Modifiner – a Novel Master Alloy for Combined Grain Refinement and Modification of Al-7Si Alloy**  
*A.K. Prasada Rao<sup>1</sup>, B.S. Murty<sup>2</sup>, K. Das<sup>1</sup> and M. Chakraborty<sup>1</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering Indian Institute of Technology, Kharagpur, India  
<sup>2</sup>Department of Metallurgical and Materials Engineering Indian Institute of Technology, Madras, India
- PO-JCS-7**      **Joining of Plastics by Frictional Vibration**  
*K. Panneeselvam, S. Aravindan and A. Noorul Haq*  
Department of Production Engineering, National Institute of Technology, Tiruchirappalli, India
- PO-JCS-8**      **Effect of Scandium and Lithium additions to Al-Cu Alloy GTA Welds**  
*P. Nagaraju, S.R. Koteswara Rao, M. Kamaraj and K. Prasad Rao*  
Department of Metallurgical and Materials Engineering IIT Madras, Chennai, India
- PO-JCS-9**      **Real Time Weld Defect Analysis Using Machine Vision System And Image Processing**  
*S.R. Koteswara Rao<sup>1</sup>, K. Seshank<sup>4</sup>, P. Siddhartha<sup>2</sup>, K. Rangan<sup>1</sup> and M.S. Shunmugam<sup>3</sup>*  
<sup>1</sup>Dept of Metallurgical and Materials Engg, <sup>2</sup>Dept of Civil Engg, <sup>3</sup>Department of Mechanical Engg, IIT Madras, India  
<sup>4</sup>M.N.M Jain Engg. College, Chennai, India

13:00 – 14:00

### Poster Session IB: Advanced Ceramics

- PO-AC-1**      **Fabrication of Multilayer Chip Inductors using Ni-Cu-Zn Ferrites**  
*V. Seetha Rama Raju, T. Krishanaveni and S.R. Murthy*  
Department of Physics, Osmania University, Hyderabad, India

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- PO-AC-2 Solid State Electrical Conductivity and Photogalvanic Studies of  $[\text{Ni}_2(\text{Et}_2\text{dte})_2\text{Fe}(\text{CrO}_4)_2(\text{H}_2\text{O})_2]$**   
*J. Judith Vijaya and K.S. Nagaraja*  
Department of Chemistry, Loyola Institute of Frontier Energy, Loyola College, Chennai, India
- PO-AC-3 Downconversion Parameters of Singly and Doubly Doped CaS Phosphors**  
*Rajesh Sharma<sup>1</sup>, H.S. Bhatti<sup>1</sup>, Atul Gupta<sup>2</sup>, Karamjit Singh<sup>2</sup>, N.K. Verma<sup>3</sup> and Sunil Kumar<sup>3</sup>*  
<sup>1</sup>Institute of Engineering and Emerging Technologies, Baddi, India.  
<sup>2</sup>Department of Physics, Punjabi University, Patiala, India.  
<sup>3</sup>SPMS, Thapar Institute of Engineering and Technology, Patiala, India
- PO-AC-4 Dielectric Relaxor Studies on Double Doped Bismuth Titanate**  
*A. Siddeshwar, G. Prasad and G.S. Kumar*  
Materials Research Lab, Department of Physics, Osmania University, Hyderabad, India
- PO-AC-5 Effect of Annealing on Dielectric Responce of  $(\text{Pb}_{0.8}\text{Ba}_{0.2})(\text{Yb}_{0.5}\text{Ta}_{0.5})\text{O}_3$  Ceramic**  
*Dibyaranjan Rout<sup>1</sup>, V. Subramanian<sup>2</sup>, K. Hariharan<sup>1</sup>, V. Sivasubramanian<sup>1</sup> and V.R.K. Murthy<sup>1</sup>*  
<sup>1</sup>Department of Physics, Indian Institute of Technology Madras, Chennai, India  
<sup>2</sup>Materials Science Division, Indira Gandhi Centre for Atomic Research, Kalpakkam, India
- PO-AC-6 Synthesis and Characterization of Hydroxy-Apatite produced from Egg-Shell**  
*P. Dasgupta<sup>1</sup>, A. Singh<sup>1</sup>, S. Adak<sup>2</sup> and K M. Purohit<sup>1</sup>*  
<sup>1</sup>Department of Chemistry, National Institute of Technology, Rourkela, India  
<sup>2</sup>Department of Ceramic Engineering, National Institute of Technology, Rourkela, India
- PO-AC-7 Role of Polymer Matrix in Gel Electrolyte Morphology**  
*R. Balaji*  
Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Powai, Mumbai, India
- PO-AC-8 Synthesis and Dielectric Behaviour of Ti Doped Strontium Stannate**  
*Sindhu Singh, P. Singh, C.R.. Gautam, O. Parkash and D. Kumar*  
Department of Ceramic Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India
- PO-AC-9 Dielectric Characterization of  $\text{Ca}_{0.1}\text{Sr}_{0.9}\text{R}_{0.1}\text{Bi}_{1.9}\text{Ta}_2\text{O}_7$  (R=La, Nd, Pr) Ceramics**  
*Rizwana<sup>1</sup>, G.S. Kumar<sup>2</sup> and P. Sarah<sup>1</sup>*  
<sup>1</sup>CVR College of Engineering, Vastunagar, Mangalpalli, India.  
<sup>2</sup>Department of Physics, Material Research Laboratory, Osmania University, Hyderabad, India
- PO-AC-10 Dielectric Behaviour in the Glass Ceramic System  $[(\text{Pb}_{1-x}\text{Sr}_x)\text{O}.\text{TiO}_2]-[\text{2SiO}_2.\text{B}_2\text{O}_3]-[\text{3K}_2\text{O}-\text{7BaO}]$  with addition of  $\text{La}_2\text{O}_3$  ( $0.0 \leq x \leq 0.5$ )**  
*Chandkiram Gautam<sup>1</sup>, D. Kumar<sup>1</sup>, O. Parkash<sup>1</sup>, O.P. Thakur<sup>2</sup> and C. Prakash<sup>2</sup>*  
<sup>1</sup>Department of Ceramic Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India  
<sup>2</sup>Electroceramics Division, Solid State Physics Laboratory, Delhi, India
- PO-AC-11 ESR, IR and Optical Absorption Studies of  $\text{Cu}^{+2}$  Spin Probe in  $x\text{Na}_2\text{O}-(50-x)\text{ZnO}-50\text{B}_2\text{O}_3$  Ternary Glasses**  
*J. Chinna Babu, S. Suresh and V. Chandra Mouli*  
Department of Physics, Osmania University, Hyderabad, India.
- PO-AC-12 Ionic Conductivity Measurements in Gadolinia Doped Cerium Oxides**  
*K. Muthukumar<sup>1</sup>, P. Kuppusami<sup>2</sup>, E. Mohandas<sup>2</sup>, V.S. Raghunathan<sup>2</sup> and S. Selladurai<sup>1</sup>*  
<sup>1</sup>Department of Physics, Anna University, Chennai, India  
<sup>2</sup>Materials Characterisation Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

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- PO-AC-13**      **Effect of Magnesium Oxide on Sol-Gel Spun Alumina Fibres**  
*J. Chandradass and M. Balasubramanian*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India.
- PO-AC-14**      **Transport and Magnetic Properties of  $\text{Sr}_2\text{Fe}_{1-x}\text{Cr}_x\text{MoO}_6$  double Perovskite System**  
*N. Anantha Ramaiah, B. Vittal Prasad, G. Narsinga Rao and D. Suresh Babu*  
Department of Physics, Osmania University, Hyderabad, India
- PO-AC-15**      **Microstructure Evaluation of Machinable Mica Based Glass Ceramics for Dental Application**  
*Shibayan Roy*  
Department of Materials and Metallurgical Engineering, Indian Institute of Technology Kanpur, India
- PO-AC-16**      **Effect of Heterovalent Substitution of Nd And Nb at B-Site on the Dielectric and Electrical Properties of  $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3$  Ceramics**  
*Syed Mahboob, G. Prasad and G. S. Kumar*  
Department of Physics, Osmania University, Hyderabad, India
- PO-AC-17**      **Preparation of Hydroxyapatite by Chemical Route and Development of Porous Bioceramics**  
*A. Singh<sup>1</sup>, P. Dasgupta<sup>1</sup>, S. Adak<sup>2</sup>, D. Sarkar<sup>2</sup> and K. M. Purohit<sup>1</sup>*  
<sup>1</sup>Department of Chemistry, <sup>2</sup>Department of Ceramic Engineering, National Institute of Technology, Rourkela, India
- PO-AC-18**      **Control of Abnormal Grain Growth and Dielectric Properties of Ferroelectric Strontium Barium Niobate**  
*Pankaj Kumar Patro*  
Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology, Bombay, Mumbai, India
- PO-AC-19**      **Synthesis, Structure and Electrical Conduction Behaviour of the system  $\text{Sr}_{1-x}\text{Nd}_x\text{Ti}_{1-x}\text{Mn}_x\text{O}_3$  ( $x < 0.50$ )**  
*Prakash Singh, C.R. Gautam, Sindhu Singh, Devendra Kumar and Om Parkash*  
Department of Ceramic Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India
- PO-AC-20**      **A Physical Property Study of  $\text{SrBi}_{5-x}\text{La}_x\text{FeTi}_4\text{O}_{18}$  prepared through Oxalate Precursor Route**  
*E. Venkata Ramana, S.V. Suryanarayana and T. Bhima Sankaram*  
Department of Physics, Osmania University, Hyderabad, India
- PO-AC-21**      **Optimisation of Barium Titanate Slip for Tape Casting**  
*V. Vinothini<sup>1</sup>, Paramanand Singh<sup>2</sup> and M. Balasubramanian<sup>1</sup>*  
<sup>1</sup>Composites Technology Centre, <sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-AC-22**      **Photoluminescence of Sintered ZnO Phosphors**  
*Atul Gupta<sup>1</sup>, H S. Bhatti<sup>1</sup>, Rajesh Sharma<sup>2</sup>, Karamjit Singh<sup>1</sup>, N.K. Verma<sup>3</sup>, Sunil Kumar<sup>3</sup> and Rajiv Sharma<sup>4</sup>*  
<sup>1</sup>Department of Physics, Punjab University, Patiala, India  
<sup>2</sup>Institute of Engineering and Emerging Technologies, Baddi, India  
<sup>3</sup>SPMS, Thapar Institute of Engineering and Technology, Patiala, India  
<sup>4</sup>Multani Mal Modi College, Patiala, India
- PO-AC-23**      **Effect of Niobium Doping on Electrical Properties of ZnO based Varistors**  
*Archana Pandey, C.R. Gautam, D. Kumar and Om Parkash*  
Department of Ceramic Engineering, Institute of Technology, Banaras Hindu University, Varanasi India

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- PO-AC-24**      **Nanocrystalline  $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_{1.6}\text{F}_{0.4}$  Bioceramic by Microwave Processing**  
*N. Ramesh Babu, A. Gupta, M. Harish, K. Prasad Rao and T.S. Sampath kumar*  
Department of Metallurgical and Materials Engineering Indian Institute of Technology Madras, Chennai, India
- PO-AC-25**      **High toughness alumina – zirconia nanocomposites from sol gel nanopowders**  
*A. Thirunavukkarasu, S.K. Malhotra and Paramanand Singh*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- 13:00 – 14:00      **Poster Session IC: Magnetic Materials**
- PO-MM-1**      **Microstructural Characterization of Ball Milled Nd-Fe-B**  
*T. Mahesh Kumar<sup>1</sup>, G. Markandeyulu<sup>2</sup>, K. Prasad Rao<sup>1</sup> and K.V.S. Rama Rao<sup>2</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering,  
<sup>2</sup> Department of Physics, Indian Institute of Technology Madras, Chennai, India
- PO-MM-2**      **Influence of A-Site Disorder on the Magnetoresistance in  $\text{Pr}_{0.74}\text{Sr}_{0.26}\text{MnO}_3$  and  $\text{Pr}_{0.7}\text{HO}_{0.04}\text{Sr}_{0.26}\text{MnO}_3$  Manganites**  
*N. Rama<sup>1</sup>, J.B. Philipp<sup>2</sup>, M. Opel<sup>2</sup>, V. Sankaranarayanan<sup>1</sup>, R. Gross<sup>2</sup> and M.S. Ramachandra Rao<sup>1</sup>*  
<sup>1</sup>Department of Physics, Indian Institute of Technology Madras, Chennai, India  
<sup>2</sup>Walther-Meissner Institute, Bavarian Academy of Sciences, Walther-Meissner Strasse. 8, Garching, Germany
- PO-MM-3**      **Effect of Al on Magnetic Properties of  $\text{Nd}_2\text{Fe}_{27.5}\text{Ti}_{1.5}$**   
*Ravi<sup>1</sup>, G. Markandeyulu<sup>2</sup> and K. Prasad Rao<sup>1</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering, <sup>2</sup>Department of Physics, Indian Institute of Technology Madras, Chennai, India
- PO-MM-4**      **Effect of Al Substitution and Interstitial Modification by C in  $\text{SmTbFe}_{17}$**   
*J.C. Ingersoll, G. Markandeyulu, V.S. Murty and K.V.S. Rama Rao*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India
- PO-MM-5**      **Magnetic and Electrical Studies on  $\text{Y}_{1-x}\text{Gd}_x\text{Fe}_2$**   
*J. Arout Chelvane and G. Markandeyulu*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India
- PO-MM-6**      **Magnetic Properties of  $\text{YGdFe}_{17}\text{Al}$  and  $\text{YGdFe}_{16}\text{CoAl}$**   
*R. Srilatha, G. Markandeyulu and V.S. Murty*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India
- 14:00 – 14:30      Key note lecture-2 **Dr. D. Banerjee (DRDO)**  
**Technology, Materials and Warfare**
- 14:30 – 15:45      **Oral Session II: Advances in Iron and Steels**  
Chairpersons: Prof. S. Sundaresan and Dr. V.Subramanya Sarma
- OR-AIS-1**      **Development of Self Lubricating Sintered Steels for Tribological Applications**  
*S Dhanasekaran and R Gnanamoorthy*  
Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai, India
- OR-AIS-2**      **Copper Bearing IF Steels: Ageing and Annealing Behaviour**  
*Radhakanta Rana*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur, India

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- OR-AIS-3**      **Development of Coated Electrodes for Welding of HSLA Steels**  
*R.Chhibber<sup>1</sup> and G.C. Kaushal<sup>2</sup>*  
<sup>1</sup>Department of Mechanical and Industrial Engineering, <sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology Roorkee, India
- OR-AIS-4**      **Studies on Phosphoric Irons for Concrete Reinforcement Applications**  
*Gadadhar Sahoo and R. Balasubramaniam*  
Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur, India
- OR-AIS-5**      **The effect of inhomogeneous precipitate distribution during casting on the microstructures and properties of steel**  
*D. Chakrabarti, C. L. Davis and M. Strangwood*  
The University of Birmingham, Department of Metallurgy and Materials, Edgbaston, Birmingham, B15 2TT UK
- 15:45 – 16:00      Tea
- 16:00 – 18:00      **Oral Session III: Advanced Ceramics**  
Chairpersons: Prof. Paramanand Singh and Dr. V. Sampath
- OR-AC-1**      **Complex Impedance Studies On Layer Structured Lanthanum Substituted SBT Ceramics**  
*M. Raghavender, G. S. Kumar and G. Prasad*  
Department of Physics, Osmania University, Hyderabad, India.
- OR-AC-2**      **Characterisation of Thin Films Of Novel Ionic Conductors prepared by Pulsed Laser Ablation**  
*Surya Narayan Padhi<sup>1</sup>, K. Muthukumar<sup>2</sup>, P. Kuppasami<sup>3</sup>, E. Mohandas<sup>3</sup>, V.S. Raghunathan<sup>3</sup> and K. R. Hebbar<sup>1</sup>*  
<sup>1</sup>Department of Materials and Metallurgical Engineering, National Institute of Technology, Surathkal, India  
<sup>2</sup>Department of Physics, Anna University, Chennai, India  
<sup>3</sup>Materials Characterization Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India
- OR-AC-3**      **Tribological Properties of TiCN-Ni Cermets: Influence of NbC Addition**  
*B.V. Manoj Kumar and Bikramjit Basu*  
Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur, India.
- OR-AC-4**      **Microfabricated Multiscale Conformal Structures**  
*M.T. Northen<sup>1</sup> and K. L. Turner<sup>2</sup>*  
<sup>1</sup>Materials Department, <sup>2</sup>Mechanical and Environmental Engineering Department, UC Santa Barbara, Santa Barbara, USA
- OR-AC-5**      **Dielectric and Electromechanical Coupling Coefficients of  $[(\text{Na}_{(1-x)} \text{K}_x)_{1/2}\text{Bi}_{1/2}]\text{Pb}_y\text{TiO}_3$  Ceramics**  
*P. Vijaya Bhaskar, S.V. Suryanarayana and T. Bhima Sankaram*  
Department of Physics, Osmania University, Hyderabad, India
- OR-AC-6**      **Measuring Temperature using Luminescence of Embedded Europium Doped Sensors**  
*M.M. Gentleman and D.R. Clarke*  
Materials Dept., University of California, Santa Barbara, CA, USA
- OR-AC-7**      **Thermal Stability and Ferroelectric Properties of  $\text{Pb}[(\text{Zn}_{1/3}\text{Nb}_{2/3})_{0.91}\text{Ti}_{0.09}]\text{O}_3$  Single Crystal for Ultrasonics Transducer Applications**  
*J. Bubesh Babu, G. Madeswaran, S. Moorthy Babu and R. Dhanasekaran*  
Crystal Growth Centre, Anna University, Chennai, India

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- OR-AC-8**      **Domain Alignment and Microcracking as Sources of Acoustic Emission in PZT Ceramics During Phase Transition**  
*K. Prabakar and S.P. Mallikarjun Rao*  
Physics Department, University College of Science, Osmania University, Hyderabad, India
- 18:00 – 18:15      Tea
- 18:15 – 19:45      **Session IV: Magnetic Materials**  
Chairpersons: Prof. M. Nageswara Rao and Dr. G. Markandeyulu
- OR-MM-1**      **A Novel Remote Magnetostrictive Biosensor for the Detection of Salmonella Typhimurium**  
*R. Guntupalli<sup>1</sup>, Ramji S. Lakshmanan<sup>1</sup>, T.S. Huang<sup>2</sup>, Z.Y. Cheng<sup>1</sup> and Bryan. A. Chin<sup>1</sup>*  
<sup>1</sup>Materials Research and Education Center, <sup>2</sup>Department of Nutrition and Food Science, Auburn University, Auburn, Alabama, USA
- OR-MM-2**      **Magnetotransport Studies of Nd<sub>0.5</sub>Ca<sub>0.3</sub>Sr<sub>0.2</sub>MnO<sub>3</sub> Prepared by Sol Gel Method**  
*S. Savitha Pillai, P. N. Santhosh and G. Rangarajan*  
Department of Physics, Indian Institute of Technology, Madras, Chennai, India.
- OR-MM-3**      **Magnetoelectric Properties in NCF/PVDF Particulate Composites**  
*S. Narendra Babu, T. Bhima Sankaram and S.V. Suryanarayana*  
Department of Physics, Osmania University, Hyderabad, India.
- OR-MM-4**      **Effect of Ta<sup>5+</sup> Substitution on the Ground State of CMR Manganites**  
*L. Seetha Lakshmi<sup>1</sup>, K. Dörr<sup>2</sup>, K. Nenkov<sup>2</sup>, A. Handstein<sup>2</sup>, V. Sridharan<sup>1</sup>, V. Sankara Sastry<sup>1</sup> and K.H. Müller<sup>2</sup>*  
<sup>1</sup>Materials Science Division, Indira Gandhi Centre for Atomic Research, Kalpakkam, India  
<sup>2</sup>IFW Dresden, Postfach 270116, Dresden, Germany
- OR-MM-5**      **Magnetic Properties of 4f Element Doped SnO<sub>2</sub> Diluted Magnetic Semiconductor**  
*K. Mohan Kant, K. Sethupathi and M.S. Ramachandra Rao*  
<sup>1</sup>Department of Physics, Indian Institute of Technology Madras, Chennai, India.
- OR-MM-6**      **Electrodeposition of Co/Cu Films on n-Si for Giant Magnetoresistance**  
*T. Sripadmini<sup>1</sup>, Debabrata Pradhan<sup>1</sup>, Amit Nath<sup>2</sup>, Rajiv Shekhar<sup>3</sup> and Monica Katiyar<sup>3</sup>*  
<sup>1</sup>Hydrometallurgy Lab, <sup>2</sup>Electronic Materials lab, <sup>3</sup>Department of Materials and Metallurgical Engineering, Indian Institute of Technology Kanpur, India



December 21, 2004

- 08:00 – 08:30 Key note lecture-3: **Prof. S. Ranganathan** (IISc Bangalore)  
**The Materials Tetrahedron**
- 08:30 – 09:45 **Session V: Composites**  
Chairpersons: Prof. S.K. Malhotra and Dr. M. Balasubramaniam
- OR-COM-1 Infiltration Kinetics of Al-Mg Alloy into Al<sub>2</sub>O<sub>3</sub> Preforms**  
*Debdutt Patro and Vikram Jayaram*  
Department of Metallurgy, Indian Institute of Science, Bangalore, India
- OR-COM-2 Electrical Characteristics of Carbon Composite Electrode for Neuronal and Biochemical Sensing**  
*Sherjang Singh*  
University of Cincinnati, Cincinnati, Ohio, USA
- OR-COM-3 Separation and Recovery of Matrix and Reinforcement from Aluminum Matrix Composites by Salt Flux Addition**  
*K.R. Ravi<sup>1</sup>, B.C. Pai<sup>1</sup>, R.M. Pillai<sup>1</sup> and M. Chakrobarthy<sup>2</sup>*  
<sup>1</sup>Metal Processing Division, Regional Research laboratory, Thiruvananthapuram, India  
<sup>2</sup>Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India
- OR-COM-4 Hydrogen Absorption Properties of Mg-based Composite Materials**  
*M. Kandavel and S. Ramaprabhu*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India.
- OR-COM-5 Interfacial Phenomena in Carbon Nanotube Reinforced Al-Based Composite Structure Synthesized by Plasma Spray Forming**  
*T. Laha and A. Agarwal*  
Department of Mechanical and Materials Engineering, Florida International University, Florida, USA
- 09:45 – 10:00 Tea
- 10:00 – 12:15 **Session VI: Process Modelling and Simulation**  
Chairpersons: Prof. T.S. Prasanna Kumar and Dr. K.C. Hari Kumar
- OR-PMS-1 Modeling Tailor Welded Blanks - A Critical Issue**  
*R. Ganesh Narayanan and K. Narasimhan*  
Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology, Bombay, Mumbai, India
- OR-PMS-2 Comparison of experimental and finite element results for Elastic-Plastic Stress/Strain Behaviour of Notched Shaft under Proportional and Non-Proportional loading**  
*Nimali T. Medagedara*  
Department of Mechanical Engineering, The Open University of Sri Lanka, Nawala, Nugegoda.
- OR-PMS-3 Heat Transfer Analysis of Dry Slag Formation and Lance Skulling in BOF Vessel**  
*M. Malathi and B. Deo*  
Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur, India
- OR-PMS-4 A Fluid - Solid Interaction Model of The Solid Phase Epitaxy in Silicon**  
*L.S. Yellapragada, M.B. Broussard and A.-V. Phan*  
Department of Mechanical Engineering, University of South Alabama, AL, USA.

## ISRS-2004

- OR-PMS-5**      **Theoretical analysis and computer simulation of the Particle gradient distribution in a centrifugally cast functionally gradient material**  
*Prem E.J. Babu, T.P.D. Rajan, S. Savithri, U.T.S. Pillai and B.C. Pai*  
Regional Research Laboratory, Trivandrum, India.
- OR-PMS-6**      **Molecular Dynamics Simulation of Ternary Glasses  $\text{Li}_2\text{S}-\text{P}_2\text{S}_5-\text{LiI}$**   
*R. Prasada Rao and M. Seshasayee*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India
- OR-PMS-7**      **Effect of Applied Stress on Single Particle Morphological evolution**  
*M.P. Gururajan and T.A. Abinandanan*  
Department of Metallurgy, Indian Institute of Science, Bangalore, India
- OR-PMS-8**      **Numerical Simulation and Experimental Investigation of Laser Bending of Steel Plate**  
*Pei Jibin, Zhang Liwen, Wang Cunshan and Dong Chuang*  
The State Key Laboratory for Materials Modification by Laser, Ion and Electron Beams, Dalian, China
- OR-PMS-9**      **Molecular Dynamics Simulation of Glass forming Ability (GFA) in Zn-Mg-X system**  
*C. Ayas, H. Mekhrabov and V. Akdeniz*  
Middle East Technical University, Metallurgical and Materials Engineering Department, Ankara, Turkey
- 12:15 – 13:15      Lunch
- 13:15 – 14:15      **Poster Session IIA – Composites**
- PO-COM-1**      **A Feasibility Study on the Formation of  $\text{MgAl}_2\text{O}_4/\text{Al}$  In-Situ MMC from Silica Sources**  
*V.M. Sreekumar<sup>1</sup>, R.M. Pillai<sup>1</sup>, B.C. Pai<sup>1</sup> and M. Chakraborty<sup>2</sup>*  
<sup>1</sup>Regional Research Laboratory, Thiruvananthapuram, India  
<sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India
- PO-COM-2**      **Microstructural Evolution of Al-Si based Composites reinforced with in-situ  $\text{TiB}_2$  particles**  
*A. Mandal<sup>1</sup>, M. Chakraborty<sup>1</sup> and B. S. Murty<sup>2</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India  
<sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Madras, Chennai India
- PO-COM-3**      **Study on Dry Sliding Wear Behavior of Aluminum Alloy 2219/SiCp-Gr Hybrid Composite based on Taguchi Technique**  
*A.Dinesh, S. Basavarajappa and G. Chandramohan*  
Department of Mechanical Engineering, PSG College of Technology, Coimbatore, India
- PO-COM-4**      **Characterization of P/M Processed Ti/TiCp Composites**  
*C.R. Anoop and Paramanand Singh*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-COM-5**      **Tribological Properties of Cast Copper-SiC-Graphite Hybrid Composites**  
*R. Noor Ahmed<sup>1</sup> and C.S. Ramesh<sup>2</sup>*  
<sup>1</sup>H.K.B.K College of Engineering, Bangalore, India  
<sup>2</sup>Research Centre, Ghousia College of Engineering, Ramanagaram, India

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- PO-COM-6**      **Development and Dry Sand Rubber Wheel Abrasion Wear Characteristics of CO<sub>2</sub> Sand Cast Al-7075-Al<sub>2</sub>O<sub>3</sub> Particulate Metal Matrix Composite**  
*Indumathi B. Deshmanya<sup>1</sup> and S.M. Shashidhara<sup>2</sup>*  
<sup>1</sup>Department of Mechanical Engineering, PDA College of Engineering, Gulbarga, India  
<sup>2</sup>Department of Mechanical Engineering, Siddaganga Institute of Technology, Tumkur, India
- PO-COM-7**      **Evaluation of Mechanical Properties of Aluminium Alloy 2219/SiCp-Gr Reinforced Metal Matrix Composites-an Experimental Investigation**  
*S. Basavarajappa, Dinesh. A and G. Chandramohan*  
Department of Mechanical Engineering, PSG College of Technology, Coimbatore, India
- PO-COM-8**      **Study of Abrasive Wear behaviour of Al-Si (12.2)-SiC Metal Matrix Composite synthesized using Vertex method**  
*M. Ramachandra and K. Radhakrishna*  
Dept. of Mechanical Engg, B M S College of Engg. Bangalore, India
- PO-COM-9**      **Effect of Stacking Sequence and Ply Angle on Notch Strength and Fracture Criterion in Composite Laminates**  
*Mahendran, G.S. Shivashankar and K.A. Jagadeesh*  
Mechanical Engineering Department, PSG College of Technology, Coimbatore, India
- PO-COM-10**      **Spark Plasma Sintering of TiB<sub>2</sub>-based Composites**  
*T. Venkateswaran<sup>1</sup>, Bikramjit Basu<sup>1</sup> and Doh-Yeon Kim<sup>2</sup>*  
<sup>1</sup>Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur, India  
<sup>2</sup>School of Materials Science and Engineering and Research Institute of Advanced Materials, Seoul National University, Seoul, Korea
- 13:15-14:15      **Poster Session IIB - Process Modelling and Simulation**
- PO-PMS-1**      **A Genetic Algorithm based Optimum Design of Laminated Composite Drive Shafts**  
*Ajith, T. Rangaswamy, S. Vijayarangan, and G. Chandramohan*  
Department of Mechanical Engg, PSG College of Technology, Coimbatore, India
- PO-PMS-2**      **Robotic Devices for Reliable Nondestructive Evaluation of Nuclear Components**  
*G. Senthil Kumaran<sup>1</sup>, K.V. Kasiviswanathan<sup>1</sup>, Baldev Raj<sup>1</sup>, T. Nagarajan<sup>2</sup>, and M. Singamperumal<sup>2</sup>*  
<sup>1</sup>Indira Gandhi Centre for Atomic Research, Kalpakkam, India  
<sup>2</sup>Indian Institute of Technology, Madras, India
- PO-PMS-3**      **Design Optimization and Failure Analysis on Lap, Wavy-Lap and Stepped Composite Adhesive Bonded Joints**  
*G.S. Shiva Shankar, S. Vijayarangan, and G. Krishna*  
PSG College of Technology, Coimbatore, India
- PO-PMS-4**      **Analysis of Milling Parameters on Reduction of CuO/Cu<sub>2</sub>O with Aluminum in a High-Energy Ball Milling using Taguchi Techniques**  
*Md. Ashfaq, T. Venugopal and K. Prasad Rao*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-PMS-5**      **Optimal Design and Analysis of an Automotive Composite Drive Shafts**  
*T. Rangaswamy, S. Vijayarangan, R.A. Chandrashekar, T.K. Venkatesh, and K. Anantharaman*  
Department of Mechanical Engineering, PSG College of Technology, Coimbatore, India

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- PO-PMS-6**      **Mathematical Modeling of Ledge Profile in Simulated Hall-Heroult Cell**  
*Ramesh Kumar Nayak<sup>1</sup> and Rajiv Shekhar<sup>2</sup>*  
<sup>1</sup>Hydrometallurgy lab, Indian Institute of Technology Kanpur, India  
<sup>2</sup>Department of Materials and Metallurgical Engineering, Indian Institute of Technology Kanpur, India
- PO-PMS-7**      **Finite Element Analysis of Equal Channel Angular Extrusion (ECAE) Processes**  
*Krishnaiah, K. Kumaran, Uday Chakkingal and P. Venugopal*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-PMS-8**      **Prediction of Bearing Failure and Three-Dimensional Contact Stress Analysis of a Pin Loaded Composite Laminates**  
*G.S. Shiva Shankar, Chanakya and Radakrishnan*  
Mechanical Department, PSG College of Technology, Coimbatore, India
- PO-PMS-9**      **Physical and Mathematical Modeling of Fluid Flow and Residence Time Phenomena in a Multi-Strand Tundish with and without an Upper Buoyant Phase**  
*Anil Kumar*  
Department of Materials and Metallurgical Engineering, Indian Institute of Technology Kanpur, India
- PO-PMS-10**      **Hot Working and Modeling of the resulting microstructure of D-9 Stainless Steel using Artificial Neural Network**  
*Sumantra Mandal<sup>1</sup>, P.V. Sivaprasad<sup>1</sup> and R.K. Dube<sup>2</sup>*  
<sup>1</sup>Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India  
<sup>2</sup>Department of Metallurgical Engineering, Indian Institute of Technology, Kanpur, India
- PO-PMS-11**      **Effect of Elastic Inhomogeneity on Microstructural Evolution: a Phase Field Study**  
*Saswata Bhattacharyya and T.A. Abinandanan*  
Department of Metallurgy, Indian Institute of Science, Bangalore, India
- 13:15 – 14:15      **Session IIC - Surface Engineering**
- PO-SE-1**      **Role of Additives on the Electrochemical Behavior of Cu-Zn Alloy Deposit from Acid Tartarte Bath**  
*K. Amutha, KR.Marikkannu, A.Kannan, T.Vasudevan and G.Paruthimal Kalaigan*  
Department of Industrial Chemistry, Alagappa University, Karaikudi, India
- PO-SE-2**      **Surface Hardening of AISI 304, 316, 304L and 316LN Stainless Steels Using Cyanide Free Salt Bath Nitriding Process**  
*T. Kumar<sup>1</sup>, P. Jambulingam<sup>2</sup>, M. Gopal<sup>3</sup> and A. Rajadurai<sup>4</sup>*  
<sup>1</sup>Department of Mechanical Engineering, SRM Engineering College, Kattankulathu, India  
<sup>2</sup>Hi – Tech Processes Limited, Chennai, India  
<sup>3</sup>DMI College of Engineering, Chennai, India  
<sup>4</sup>Department of Production Technology, MIT campus, Anna University, Chennai, India
- PO-SE-3**      **Laser Boriding of Austenitic type 304L Stainless Steel**  
*J.P. Deebasree<sup>1</sup>, R. Thirumurugesan<sup>2</sup>, P. Shankar<sup>2</sup>, R.V. Subba Rao<sup>2</sup>, P. Gopalakrishnan<sup>1</sup> and M. Vijayalakshmi<sup>2</sup>*  
<sup>1</sup>PSG College of Technology, Peelamedu, Coimbatore, India  
<sup>2</sup>Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India
- PO-SE-4**      **Characterisation of NiCr Coatings On Ni- And Fe- based Superalloys by HVOF Techniques**  
*T.S. Sidhu, R.D. Agrawal and S. Prakash*

## ISRS-2004

- Metallurgical and Materials Engineering Department, Indian Institute of Technology Roorkee, India
- PO-SE-5**      **Studies on Nickel-Alumina Electrocomposite Coatings of Over Mild Steel Substrate**  
*K.R. Marikkannu, K. Amutha, G. Paruthimal Kalaignan and T. Vasudevan*  
Department of Industrial Chemistry, Alagappa University, Karaikudi, India
- PO-SE-6**      **Surface Modification of Martensitic Stainless Steel using a Metal Working CO<sub>2</sub> Laser**  
*Vamsi Chaitanya Bommi<sup>1</sup>, M. Krishna Mohan<sup>2</sup> and Satya Prakash<sup>1</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology Roorkee, India  
<sup>2</sup>Department of Metallurgical Engineering, NIT Warangal, India
- PO-SE-7**      **Neutral and Ion Energies at Cathode in Glow Discharges**  
*Suraj Kumar Sinha and S. Mukherjee*  
FCIPT (Institute for Plasma Research), Gandhinagar, India
- PO-SE-8**      **Corrosion Studies on Gas Tungsten Arc Surface Modified AZ91C Magnesium Alloy**  
*C. Padmavathi, K. Srinivasa Rao and K. Prasad Rao*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- 13:15 – 14:15      **Poster Session IID – Nanomaterials**
- PO-NM-1**      **Synthesis, Characterization and Nonlinear Optical Properties of Stable, Polymer-Embedded PbS Nanoparticles**  
*Pushpa Ann Kurian and C. Vijayan*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India
- PO-NM-2**      **Characterization of Cobalt Nanoparticle from a Cobalt Resistant Strain of Neurospora Crassa**  
*K. Rashmi<sup>1</sup>, T. Krishnaveni<sup>2</sup>, S. Ramana Murthy<sup>2</sup> and P. Maruthi Mohan<sup>1</sup>*  
<sup>1</sup>Department of Biochemistry, <sup>2</sup>Department of Physics, Osmania University, Hyderabad, India
- PO-NM-3**      **Thermal Stability and Damping Characters of High Performance Epoxy Filled with Nanolayered Silicate Clay Nanocomposites**  
*T.P. Mohan, M. Ramesh Kumar and R. Velmurugan*  
Composites Technology Centre, Indian Institute of Technology Madras, Chennai, India
- PO-NM-4**      **Particle size Comparison of Soft-Chemically prepared Nickel and Copper Aluminate Spinel**  
*Debasis Dhak and Panchanan Pramanik*  
Department of Chemistry, Indian Institute of Technology Kharagpur, India
- PO-NM-5**      **Alkali Resistance of Polyester-Clay Nanocomposites**  
*P. Jawahar and M. Balasubramanian*  
Department of Metallurgical and Materials Engineering and Indian Institute of Technology Madras, Chennai, India
- PO-NM-6**      **Development and Characterization of W-based Nanocomposites prepared by Mechanical Alloying**  
*N.A. Syed, B.S. Murty and, S.K. Pabi*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India

## ISRS-2004

- PO-NM-7**      **Processing and Abrasive Wear Behaviour of Nylon Clay Nanocomposite**  
*G. Srinath and R. Gnanamoorthy*  
Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-NM-8**      **Synthesis, Characterisation and Electrical Transport Properties of Manganite Nanoparticles**  
*C. Krishnamoorthy, K. Sethupathi and V. Sankaranarayanan*  
Department of Physics, Indian Institute of Technology, Chennai, India
- PO-NM-9**      **Study and synthesis of Fe-Al<sub>2</sub>O<sub>3</sub> Nanocomposite through Ball Milling**  
*M. Jain<sup>1</sup>, V. Srinivas<sup>2</sup> and B.S. Murty<sup>1</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering, <sup>2</sup>Department of Physics, IIT Kharagpur, India  
<sup>3</sup>Department of Metallurgical and Materials Engineering, IIT Madras, Chennai, India
- PO-NM-10**      **Growth of Ultra-Thin Parallel Metal Nanosheets using Sol-Gel derived Sodium Beta Alumina Crystal as Template**  
*B.N. Pal and D. Chakravorty*  
Indian Association for the Cultivation of Science, Kolkata, India
- 14:15 – 14:45      Key note lecture-5: **Prof. C.G.K. Nair** (MATS University)  
**Materials Research for Sustainability**
- 14:45 – 16:30      **Session VII: Surface Engineering**  
Chairpersons: Prof. S.K. Seshadri and Dr. M. Kamaraj
- OR-SE-1**      **Research on Modified Layers of Material Surface for Cr<sub>12</sub>MoV cold die**  
*X.F. Ding<sup>1</sup>, Y. Tan<sup>2</sup>, F.G. Wang<sup>1</sup> and B.Q. Chen<sup>1</sup>*  
<sup>1</sup>Department of Materials Engineering, Dalian University of Technology, Dalian, China  
<sup>2</sup>Department of Materials Science and Engineering, University of California, Los Angeles, CA, USA
- OR-SE-2**      **Gas Phase Nitridation of Chromium Plated Stainless Steel**  
*Ananthi Sankaran<sup>1</sup>, P.K. Ajikumar<sup>2</sup>, M. Kamruddin<sup>2</sup>, R. Nithya<sup>2</sup>, P. Shankar<sup>2</sup>, A.K. Tyagi<sup>2</sup> and Baldev Raj<sup>2</sup>*  
<sup>1</sup>PSG College of Technology, Coimbatore, India  
<sup>2</sup>Metallurgy and Materials Group Indira Gandhi Centre for Atomic Research, Kalpakkam, India
- OR-SE-3**      **Electroless Ni-B and Ni-B-Si<sub>3</sub>N<sub>4</sub> Composite Coatings - their Role in Surface Engineering**  
*K. Krishnaveni<sup>1</sup>, T.S.N. Sankaranarayanan<sup>1</sup> and S.K. Seshadri<sup>2</sup>*  
<sup>1</sup>National Metallurgical Laboratory, Madras Centre, Chennai, India  
<sup>2</sup>Department of Metallurgical Engineering, Indian Institute of Technology, Chennai, India
- OR-SE-4**      **Limiting Catalytic Coke Formation by the Application of Adherent SiC Coatings via Pulsed Laser Deposition to the Inner Diameter of Tube Material Traditionally Used for Ethylene Pyrolysis Service**  
*A. Chauhan, W. Moran, W. Si, S. Ge and H. J. White*  
Department of Materials Science and Engineering, Stony Brook, New York, USA
- OR-SE-5**      **Characterisation of Plasma Sprayed NiCrAlY, Ni-20Cr and Ni<sub>3</sub>Al Coatings on a Ni-Based Superalloy Inconel 718**  
*S.B. Mishra, S. Prakash and K. Chandra*  
Department of Metallurgical & Materials Engineering, Indian Institute of Technology Roorkee, Roorkee, India

## ISRS-2004

- OR-SE-6**      **Studies on the Enhancement of the Photocatalytic Inhibition of Microbial Fouling by Anodized Titanium Surfaces**  
*Judy Gopal<sup>1</sup>, R.P. George<sup>1</sup>, P. Muraleedharan<sup>1</sup>, S. Kalavathi<sup>2</sup>, G. Mangamma<sup>2</sup> and H.S. Khatak*  
<sup>1</sup>Corrosion Science and Technology Division, Materials Characterization, <sup>2</sup>Materials Science Division, Indira Gandhi Centre for Atomic Research, Kalpakkam, India
- OR-SE-7**      **High Temperature Oxidation Behavior of Materials for Supercritical Fossil Fuel Power Plant in Air and O<sub>2</sub> + Water Vapour Environments**  
*P. Mathiazhagan and A.S. Khanna*  
Corrosion Science and Engineering, Indian Institute of Technology Bombay, Mumbai, India
- 16:30 – 16:45      Tea
- 16:45 – 19:00      **Oral Session VIII: - Nanomaterials**  
Chairpersons: Prof. B.S. Murty and Dr. S.S. Battacharya
- OR-NM-1**      **Control of Crystal Size and Photoluminescence Properties of Nano-ZnO/PES Composite Film Prepared by Semi-in-situ Route**  
*J. Hu, M. Li, H. J. Deng and C. W. Nan*  
Department of Materials Science and Engineering, Tsinghua University, Beijing, China
- OR-NM-2**      **ErSb/GaSb Metal/Semiconductor Nano-Composite Grown by Molecular Beam Epitaxy**  
*M.P. Hanson<sup>1</sup>, D.C. Driscoll<sup>1</sup>, E.R. Brown<sup>2</sup> and A.C. Gossard<sup>1</sup>*  
<sup>1</sup>Materials Department, University of California, Santa Barbara, USA  
<sup>2</sup>ECE Department, University of California, Santa Barbara, USA
- OR-NM-3**      **Al-based Nanocomposites By Non-Equilibrium Processing Routes**  
*S.S. Nayak<sup>1</sup>, D.H. Kim<sup>2</sup>, S.K. Pabi<sup>1</sup> and B.S. Murty<sup>3</sup>*  
<sup>1</sup> Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India  
<sup>2</sup> Center for Noncrystalline Materials, Department of Metallurgical Engineering, Yonsei University, Seoul, South Korea  
<sup>3</sup> Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Madras, Chennai, India
- OR-NM-4**      **The Structural and Optical Study of InGaN/GaN Multiple Quantum Wells**  
*J.C. Zhang<sup>1</sup>, J.F. Wang<sup>1,2</sup>, J. Chen<sup>1</sup>, T. Dai<sup>3</sup>, Q. Sun<sup>1</sup>, Y.T. Wang<sup>1</sup> and H. Yang<sup>1</sup>*  
<sup>1</sup>State Key Laboratory on Integrated Optoelectronics, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China  
<sup>2</sup>Department of Physics, Wuhan University, Wuhan, China  
<sup>3</sup>Beijing laboratory of Electron Microscopy, Institute of Physics, Chinese Academy of Sciences, Beijing, China
- OR-NM-5**      **Production and Characterization of Phenol Formaldehyde / Modified Montmorillonite Nanocomposites**  
*Tasan C. Cem and Kaynak Cevdet*  
Department of Metallurgical and Materials Engineering, Middle East Technical University, Ankara, Turkey
- OR-NM-6**      **Size Dependent Linear and Non Linear Optical Properties of CdS And PbS Nanocrystals Synthesized by Chemical Methods**  
*K. Suresh Babu<sup>1</sup>, Prathap Haridoss<sup>1</sup> and C. Vijayan<sup>2</sup>*  
<sup>1</sup>Department of Metallurgical and Materials Engineering, <sup>2</sup>Department of Physics, Indian Institute of Technology Madras, Chennai, India

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- OR-NM-7**      **Nanocomposite Materials for Electronic Nose**  
*Prashant K. Jha, Katarzyna M. Sawicka, P.I. Gouma*  
Department of Materials Science, SUNY at Stony Brook, NY, USA
- OR-NM-8**      **Plasma Spray Assembly of Nanoparticles to Near Net Shaped Bulk Nanocomposites**  
*V. Viswanathan<sup>1</sup>, Soon-Jik Hong<sup>1</sup>, K. Rea<sup>1</sup>, S. Deshpande<sup>1</sup>, S. Patil<sup>1</sup>, P. Georgieva<sup>1</sup>, T. McKechnie<sup>2</sup> and S. Seal<sup>1</sup>*  
<sup>1</sup>Surface Engineering and Nanotechnology Facility & Plasma Nanomanufacturing AMPAC and Department of Mechanical, Materials and Aerospace Engineering, University of Central Florida, Orlando, FL, USA  
<sup>2</sup>Plasma Process Inc., Huntsville, AL, USA
- OR-NM-9**      **A Study on ABS/Montmorillonite Nanocomposite**  
*Mohamed Ansari<sup>1</sup>, Hanafi Ismail<sup>2</sup> and Ahmad Baharuddin<sup>3</sup>*  
<sup>1</sup>Faculty of Engineering and Computer Technology, Asian Institute of Medicine, Science and Technology, Sungai Petani, Kedah Darul Aman, Malaysia.  
<sup>2</sup>School of Materials and Mineral Resources Engineering, Engineering Campus,  
<sup>3</sup>School of Mechanical Engineering, Engineering Campus, Universiti Sains Malaysia, Nibong Tebal, Pulau Pinang, Malaysia.
- 19:15 – 20:30      Cultural Programme
- 20.30 – 21:30      Dinner



December 22, 2004

- 08:00 – 08:30 Invited Talk by **Prof. Takashi Sekiguchi** (Tsukuba University, Japan)  
**Research Opportunities in Japan**
- 8:30 – 09:45 **Session IX: Advanced Materials I**  
Chairpersons: Prof. C.V. Gokularatnam and Dr. Uday Chakkingal
- OR-AM1-1 Cermet Thin Films in Gas Sensing**  
*Ameva Moghe and Relva C Buchanan*  
Material Science and Engineering, University of Cincinnati, OH, USA
- OR-AM1-2 The Effect of Coal Ash Composition on Properties of Waste-Based Geopolymers**  
*Louise M. Keyte, Grant C. Lukey and Jannie S.J. van Deventer*  
Department of Chemical and Biomolecular Engineering, The University of Melbourne, Parkville, Victoria, Australia
- OR-AM1-3 Catalytic Synthesis of Carbon Nanotubes from Acetylene Using Mm Based C 15 Type AB<sub>2</sub> Alloy Hydride Materials as Catalysts and their Hydrogen Adsorption Studies**  
*M.M. Shaijumon and S. Ramaprabhu*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India.
- OR-AM1-4 The role of solid silicates on the formation of geopolymers derived from coal ash**  
*C. Rees, G.C. Lukey and J.S.J. Van Deventer*  
Department of Chemical and Biomolecular Engineering, The University of Melbourne, Victoria, Australia.
- OR-AM1-5 Reduction in Magnesium Related Emission of Deep Ultraviolet Light Emitting Diodes**  
*C. Moe, K. Vampola, S. Newman, M.C. Schmidt, A. Chakraborty, B. Moran, S.K. Keller and S. P. Den Baars*  
Departments of Materials Science and Electrical and Computer Engineering, University of California at Santa Barbara, California, USA
- 09:45 – 10:00 Tea
- 10:00 – 12:00 **Session X: Advanced Materials II**  
Chapersons: Prof. A. Subramanyam and Dr. T.S. Sampath Kumar
- OR-AM2-1 Microstructural Development and Mechanical Property Relationships in Wide-Gap Transient Liquid Phase Bonding of Single Crystal to Polycrystalline Nickel-Base Superalloys**  
*Rajeev Aluru, Nofrijon I. Sofyan and William F. Gale*  
Materials Research and Education Center, Auburn University, Auburn, Alabama, USA
- OR-AM2-2 Development of Biomass Ash Filters for High Temperature Applications**  
*K. Umamaheswaran<sup>1</sup> and Vidya S. Batra<sup>2</sup>*  
<sup>1</sup>Vellore Institute of Technology, Vellore, India  
<sup>2</sup>The Energy & Resources Institute, New Delhi, India.
- OR-AM2-3 Interface Mediated Growth of Thin Pentacene Films**  
*A. Al-Mahboob, J. T. Sadowski, A. Y. Fujikawa, T. Nagao, K. Nakajima and T. Sakurai*  
Institute for Materials Research, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai, Japan
- OR-AM2-4 Thermal Expansion Behavior of Invar Film for Micro Electro-Mechanical Systems Application**  
*Anand Dokania*  
University of Ulm, Germany
- OR-AM2-5 Hydrogen Absorption Characteristics in Mm Based C 15 Type AB<sub>2</sub> Alloys**

## ISRS-2004

G. Srinivas, V. Sankaranarayanan and S. Ramaprabhu

Department of Physics, Indian Institute of Technology Madras, Chennai, India

**OR-AM2-6 Multivalent Lipid-DNA Complexes for Non-Viral Gene Delivery: Correlation Between Structure and Efficiency**

Heather M. Evans, A. Ahmad, K. Ewert and C.R. Safiny

Departments of Materials, Physics, and Biomolecular Science and Engineering, UCSB, Santa Barbara, CA, USA

**OR-AM2-7 Effect of Co-Dopants on Colour Tuning of ZnS:Mn Yellow Phosphor**

P. Thiyagarajan<sup>1</sup>, M. Kottaisamy<sup>2</sup>, K. Sethupathi<sup>1</sup> and M.S. Ramachandra Rao<sup>1</sup>

<sup>1</sup>Department of Physics, <sup>2</sup>Material Science Research Centre, Indian Institute of Technology Madras, Chennai, India.

**OR-AM2-8 High Quality Epitaxial Lateral Overgrown GaN Via Metal Organic Vapor Phase Epitaxy**

J. Chen, J.C. Zhang, J.F. Wang, S.M. Zhang, J.J. Zhu and H. Yang

State Key Laboratory on Integrated Optoelectronics, Institute of Semiconductors, CAS, Beijing, China

12:00 – 13:00 Lunch

13:00 – 14:00 **Poster Session IIIA - Environmental Degradation**

**PO-ED-1 Synergistic Action of DTPMP – Zn<sup>2+</sup> System on Corrosion of Stainless Steel in Sea Water**

J. Wilson Sahayara<sup>1</sup>, Susai Rajendran<sup>1</sup>, Muthu Megala<sup>1</sup>, A. John Amalraj<sup>1</sup> and P. Manjula<sup>2</sup>

<sup>1</sup>Corrosion Research Centre, Department of Chemistry, GTN Arts College, Dindigul, India

<sup>2</sup>Department of Chemistry, APA College for Women, Palani, India

**PO-ED-2 FTIR Study of Dehydration Dynamics in Natural Zeolites**

K. Shiva Prasad and P.S.R. Prasad

National Geophysical Research Institute, Hyderabad, India

**PO-ED-3 Parametric Study of CO<sub>2</sub>/H<sub>2</sub>S Corrosion of Carbon Steel for pipeline application.**

G.S. Das and A.S. Khanna

Corrosion Science and Engineering, Indian Institute of Technology Bombay, Powai, Mumbai, India

**PO-ED-4 Effect of Moisture on the Mechanical Properties of Glass Fiber Reinforced Polymer Matrix Woven Fabric Material**

M. Raghavendra<sup>1</sup>, C.M. Manjunatha<sup>2</sup>, M. Jeeva Peter<sup>3</sup>, C.R. Venugopalan<sup>3</sup> and

H.K. Rangavittal<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, BMS College of Engineering, Bangalore, India

<sup>2</sup>Structural Integrity Division, National Aerospace Laboratories, Bangalore, India

<sup>3</sup>RWR and DC, Hindustan Aeronautics Limited, Bangalore, India

**PO-ED-5 High Temperature Oxidation Behaviour of Plasma Sprayed NiCrAlY Coatings on Ni-based Superalloys in air**

Harpreet Singh, D. Puri and S. Prakash

Metallurgical and Materials Engineering Department, Indian Institute of Technology Roorkee, India

**PO-ED-6 Effect of Aluminizing-Chromate Multi-Diffusion Coating on Microstructure and High Temperature Oxidation of Incoloy Alloy 909 for Gas Turbine Engine Components**

Soon-Woo Kwon<sup>1</sup>, Kun-Su Son<sup>1</sup>, Jae-Hong Yoon<sup>1</sup>, Keesam Shin<sup>1</sup>, Jin-Sung An<sup>2</sup> and Hyun-Soo Kim<sup>3</sup>

<sup>1</sup>Department of Metallurgy and Materials Science, Changwon National University, Changwon, Korea

<sup>2</sup>Sermatech Korea Co. Ltd, Changwon, Korea

<sup>3</sup>Korea Electrotechnology Research Institute, Changwon, Korea

**PO-ED-7 Assessment of Interlaminar Shear Strength of Hybrid Composite subjected to a fluctuating Humid Environment**

*S. Mula, B. C. Ray and P. K. Ray*

Department of Metallurgical and Materials Engineering, National Institute of Technology Rourkela, India

**PO-ED-8 Electroremediation of Hexavalent Chromium contaminated soils at bench scale**

*Rajeev Kumar, G.P. Bajpai, and Rajiv Shekhar*

Department of Materials and Metallurgical Engineering, Indian Institute of Technology Kanpur, India

**PO-ED-9 Degradation of Material Properties of a Cupronickel Alloy in Ammoniacal Environments**

*D.C Agarwal<sup>1</sup> and Alankar Singh<sup>2</sup>*

<sup>1</sup>Indian Navy and Commandant (JG)

<sup>2</sup>Indian Coast Guard Institute of Armament Technology, Girinagar, Pune, India

13:00 – 14:00

**Session IIIB - Advanced Materials**

**PO-AM-1 Effect of Boron and Polyaniline on Hydrogen Absorption Properties in  $\text{ZrMn}_{0.85}\text{Cr}_{0.1}\text{V}_{0.05}\text{Fe}_{0.5}\text{Ni}_{0.5}$**

*A. Leela Mohana Reddy, T. R. Kesavan and S. Ramaprabhu*

Alternate Energy Technology and Magnetic Materials Laboratory, Department of Physics, Indian Institute of Technology Madras, Chennai, India

**PO-AM-2 Studies on the Stability of Decagonal Phase in  $\text{Al}_{70}\text{Ni}_{24}\text{Fe}_6$  System by High Energy Ball Milling**

*T.P. Yadav<sup>1</sup>, N.K. Mukhopadhyay<sup>2</sup>, R.S. Tiwari<sup>1</sup> and O.N. Srivastava<sup>1</sup>*

<sup>1</sup>Department of Physics, Banaras Hindu University, Varanasi, India

<sup>2</sup>Department of Metallurgical Engineering, IT-Banaras Hindu University, Varanasi, India

**PO-AM-3 Photovoltaic Assisted Photoelectrochemical Hydrogen production and Storage of Hydrogen using Composite Materials**

*M. Krishna Kumar<sup>1</sup>, N. Mani<sup>1</sup>, A. Subrahmanyam<sup>2</sup> and S. Ramaprabhu<sup>1</sup>*

<sup>1</sup>Alternate Energy Technology and Magnetic Materials Laboratory,

<sup>2</sup>Semiconductor Laboratory, Department of Physics, Indian Institute of Technology Madras, Chennai, India

**PO-AM-4 New Generation Material for Aerospace application**

*Pravin Dharammali, Sanjay Sawant and Sandeep Butte*

Govt College of Engineering Shivaji Nagar, Pune, India

**PO-AM-5 Biphasic Nanocables from an Organofullerene Derivative at air-water Interface**

*S. Shankara Gayathri and Archita Patnaik*

Department of Chemistry, Indian Institute of Technology Madras, Chennai, India

**PO-AM-6 Effect of Surface and Grain Boundary on Lattice Thermal Conductivity of Polycrystalline Silicon Layers**

*Apurva Jain and Anil Kumar*

Department of Physics and Meteorology, Indian Institute of Technology, Kharagpur, India

**PO-AM-7 Synthesis and Characterization of Enzyme modified Polyaniline Impregnated Carbon (Panic) Electrode Material for Rechargeable Battery**

*L. John Kennedy, G. Sekaran, A. Gnanamani, S. Swarnalatha and D. Issac Franklin*

Department of Environmental Technology

Central Leather Research Institute, Adyar, Chennai, India

**PO-AM-8 Effect of Composition on the Transformation Temperatures of Cu-Al-Ni based Shape Memory Alloys**

## ISRS-2004

Anup Kumar Keshri, Paramanand Singh and Uday Chakkingal

Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

PO-AM-9

**Zr based bulk metallic glass/ W fibre composite- Fabrication and characterization**

S. Neogy<sup>1</sup>, A. Mukherjee<sup>2</sup>, B. Ashwini<sup>3</sup>, D. Srivastava<sup>1</sup>, R. T. Savalia<sup>1</sup>, G. K. Dey<sup>1</sup>, N. Venkatraman<sup>4</sup> and P.K. De<sup>1</sup>

<sup>1</sup>Materials Science Division, <sup>2</sup>Materials Processing Division Bhabha Atomic Research Centre, Mumbai 400 085, India

<sup>3</sup>Metallurgical & Materials Engineering Department, Indian Institute of Technology, Madras

<sup>4</sup>Defence Metallurgical Research Laboratory, Kanchanbagh, Hyderabad 500 058, India

PO-AM-10

**Development of Piezo-Smart Materials and Devices**

B. Sahoo, V.A.Jaleel and P.K. Panda

Materials Science Division, National Aerospace Laboratories, Bangalore, India

PO-AM-11

**Mineralisation and cross-linking techniques to improve the mechanical properties of Hard Tissue analogues**

D. Gotor and J.T. Czernuszka

Department of Materials, University of Oxford, Oxford, UK

13:00 – 14:00

**Session IIIC - Mechanical Behavior of Materials**

PO-MBM-1

**Creep Deformation and Fracture of indigenously developed Nitrogen-Alloyed Type 316L(N) Stainless Steel- Mechanistic and engineering aspects**

C. Girish Shastry<sup>1</sup>, M.D. Mathew<sup>1</sup>, K. Bhanu Sankara Rao<sup>1</sup>, S.L.Mannan<sup>1</sup> and S.D. Pathak<sup>2</sup>

<sup>1</sup>Indira Gandhi Centre for Atomic Research, Kalpakkam, India

<sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

PO-MBM-2

**Causes of Deviation of the Ball Indentation test results and its corrective measures**

Sabita Ghosh and Goutam Das

National Metallurgical Laboratory, Jamshedpur, India

PO-MBM-3

**Creep Deformation behaviour of Titanium modified Austenitic Stainless Steel**

S. Latha, M.D. Mathew, K. Bhanu Sankara Rao and S.L. Mannan

Metallurgy and Materials Group, IGCAR, Kalpakkam, India

PO-MBM-4

**Stress Controlled very Low Cycle Fatigue behaviour of Mild Steel**

A. Satyadevi<sup>1</sup>, S.S. Bhattacharya<sup>2</sup> and S.M. Sivakumar<sup>1</sup>

<sup>1</sup>Department of Applied Mechanics, <sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

PO-MBM-5

**Tensile and Fracture Behavior of 6061 Al-SiCp Metal Matrix Composites**

Vikram Singh and R.C. Prasad

Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Powai, Mumbai, India

PO-MBM-6

**Rolling Contact Fatigue studies on Case Carburized and Cryogenic Treated EN 353 gear material**

V. Manoj, K. Gopinath and G. Muthuveerappan

Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai, India

PO-MBM-7

**Estimation of Stress Concentration and its effect on strength and efficiency of bolted joints of Composite Laminate with drilled hole and moulded -in hole**

B. Srinivasa Rao, G.S. Shiva Shankar and V.Krishnaraj

Mechanical Department, PSG College of Technology, Coimbatore, India

PO-MBM-8

**Effect of Grain Size on Fretting Fatigue behavior of AISI 304 Stainless Steel**

M. Jayaprakash, J. Sumanth Kumar, K. Siva Prasad and S. Ganesh Sundara Raman

## ISRS-2004

Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

### PO-MBM-9 **Effect of Ageing on the Mechanical Properties of Pb and Sb added AZ91 Magnesium Alloy**

A. Srinivasan, U.T.S. Pillai, S.G.K. Pillai, K.K. Ravikumar and B.C. Pai

Metal Processing Division, Regional Research Laboratory, Trivandrum, India

13:00 – 14:00

### **Session IIIC - Advances in Materials Processing and Evaluation**

### PO-AMP-1 **Superplastic Bulge Forming of a Ti-Al-Mn Alloy**

B. Yogesha and S.S. Bhattacharya

Materials Testing Facility, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

### PO-AMP-2 **Processing of Low Carbon Equivalent Ductile Iron**

Prashant Parhad and D.R. Peshwe

Department of Mechanical Engineering, KITS Ramtek, India

### PO-AMP-3 **Aging behaviour of Aluminium alloy 6101 subjected to Equal Channel Angular Extrusion and conventional Cold Extrusion**

D. Nagarajan, Uday Chakkingal and P.Venugopal

Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, India

### PO-AMP-4 **Spray Forming and Tribological study of Al-2Cu-40Sn Alloy**

M. Anil<sup>1</sup>, M.K. Ghosh<sup>1</sup> and S.N. Ojha<sup>2</sup>

<sup>1</sup>Department of Mechanical Engg, <sup>2</sup>Department of Metallurgical Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India

### PO-AMP-5 **Effect of Deposition Parameters on Mn Doped ZnGa<sub>2</sub>O<sub>2</sub> Phosphor grown by PLD**

Md. Imteyaz Ahmad<sup>1</sup>, K. Kottasamy<sup>2</sup>, M.S. Ramachandra Rao<sup>2</sup> and S.S. Bhattacharya<sup>1</sup>

<sup>1</sup>Department of Metallurgical and Materials Engineering

<sup>2</sup>Materials Science Research Centre, Indian Institute of Technology Madras, Chennai, India

### PO-AMP-6 **Effect of Mechanical Activation on the acid leaching characteristics of Indian Ilmenite**

C. Sasikumar<sup>1</sup>, S. Srikanth<sup>1</sup> and N.K. Mukhopadhyay<sup>2</sup>

<sup>1</sup>National Metallurgical Laboratory Madras Centre, CSIR Madras Complex, Post TTTI, Taramani, Chennai, India

<sup>2</sup>Department of Metallurgy, Institute of Technology, Banaras Hindu University, Varanasi, India

### PO-AMP-7 **Ultrafine Grain Refinement and Superplasticity of Ti-6Al-4V processed by Cryo-Rolling**

Kothapalli Praveen, Rajeev Kumar and S. S. Bhattacharya

Materials Testing Facility, Materials Forming Laboratory, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

### PO-AMP-8 **Experimental Studies on healing of Asphalt mixtures**

Venkaiah Chowdary

Department of Civil Engineering, Indian Institute of Technology Madras, Chennai, India

### PO-AMP-9 **Consolidation Behavior of Cu-Co-Fe Pre-alloyed Powders**

R.R. Thorat, P. K. Brahmankar and T. R. Rama Mohan

Department of Mechanical Engineering, Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad, India

### PO-AMP-10 **Ultrasonic Phased array for defect characterization**

L. Satyanarayan, Krishnan Balasubramaniam and C.V.Krishnamurthy

## ISRS-2004

- Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-AMP-11**     **Determination of Transmission Spectra using Ultrasonic NDE**  
*P. Padma Kumar, Krishnan Balasubramaniam and C. V. Krishnamoorthy*  
Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai, India
- PO-AMP-12**     **Nondestructive Depth Profiling of Multilayer Semiconductor Films by a Photothermal Deflection Technique**  
*K. Sathiyamoorthy, C. Vijayan and M.P. Kothiyal*  
Department of Physics, Indian Institute of Technology Madras, Chennai, India
- 14:00 – 14:30     Key note lecture- **Dr. Baldev Raj** (IGCAR, Kalpakkam)  
**Challenges in Metallurgy and Materials Science for Robust Fast Breeder Reactor Technology**
- 14:30 – 16:15     **Session XI: Mechanical Behavior of Materials**  
Chairpersons: Prof. S.D. Pathak and Dr. S. Ganesh Sundara Raman
- OR-MBM-1**     **Work Hardening Behavior of the Ni-Fe Based Superalloy IN 718**  
*K.V.U. Praveen, G.V.S. Sastry and Vakil Singh*  
Department of Metallurgical Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India
- OR-MBM-2**     **Microstructure and Fracture Behaviour of Nb-Si-Mo Alloys**  
*K. Chattopadhyay, R. Mitra and K. K. Ray*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India
- OR-MBM-3**     **Creep Behaviour of 3YTZ in the Presence of Silica**  
*Santonu Ghosh and Atul H. Chokshi*  
Department of Metallurgy, Indian Institute of Science, Bangalore, India
- OR-MBM-4**     **Some Studies on Superplasticity in a Fine Grained AA5083 Alloy**  
*P. Surya Prakash Rao and S.S. Bhattacharya*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India
- OR-MBM-5**     **Operational Risks due to Rolling Contact Fatigue (RCF) and Wear of Rails and Wheels: Development of Framework for Integrated Prediction Models for Mitigation of Operational Risks**  
*V. Reddy*  
Queensland University of Technology School of MMME 2, George Street P.O Box 2434 Brisbane, Australia
- OR-MBM-6**     **Low Cycle Fatigue Behaviour of a Modified 9Cr 1Mo Ferritic Steel**  
*Vani Shankar<sup>1</sup>, M. Valsan<sup>1</sup>, R. Kannan<sup>1</sup>, K. Bhanu Sankara Rao<sup>1</sup>, S.L. Mannan<sup>1</sup> and S.D. Pathak<sup>2</sup>*  
<sup>1</sup>Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India  
<sup>2</sup>Department of Metallurgical and materials Engineering, Indian Institute of Technology Madras, Chennai, India
- OR-MBM-7**     **Cryogenic Wear of Self-Mated Alumina: a first report**  
*Rohit Khanna and Bikramjit Basu*  
Laboratory for Advanced Ceramics, Department of Materials and Metallurgical Engineering,

## ISRS-2004

Indian Institute of Technology Kanpur, India

16:15 – 16:30 Tea

16:30 – 18:00 **Session XII: Advances in Materials Processing**  
Chaipersons: Prof. P. Venugopal and Dr. Prathap Haridoss

**OR-AMP-1** **Near Net Shape Forming Via Vacuum Plasma Spray Forming**  
*K. Balani and A. Agarwal*  
Mechanical and Materials Engineering, Florida International University,  
10555 W. Flagler Street, CEAS 3464, Miami, FL, USA

**OR-AMP-2** **A Novel Low Temperature Synthesis of SrTiO<sub>3</sub> from Sr-Oxalate and TiO<sub>2</sub>**  
*P.K. Roy and J. Bera*  
Department of Ceramic Engineering, National Institute of Technology, Rourkela, India

**OR-AMP-3** **Effect of Processing Parameters on ZnO Films Deposited by Combustion Flame Pyrolysis**  
*R. Kavitha and V. Jayaram*  
Department of Metallurgy, Indian Institute of Science, Bangalore, India

**OR-AMP-4** **Experimental and Modelling Studies on Vapour Phase Synthesis of Titania Nano Particles**  
*Ani K. John and G. D. Surender*  
Regional Research Laboratory, Trivandrum, India

**OR-AMP-5** **Nondestructive Characterization of Thermal Ageing Behaviour at 753 K in M250 Maraging Steel**  
*K.V. Rajkumar<sup>1</sup>, Anish Kumar<sup>1</sup>, S. Vaidyanathan<sup>1</sup>, T. Jayakumar<sup>1</sup>, Baldev Raj<sup>1</sup> and K.K. Ray<sup>2</sup>*  
<sup>1</sup>Indira Gandhi Centre for Atomic Research, Kalpakkam, India  
<sup>2</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India

**OR-AMP-6** **Simultaneous Plastic Deformation and Joining of Dissimilar Sintered P/M Preforms by Cold Extrusion**  
*B. Vamsi Krishna, P. Venugopal and K. Prasad Rao*  
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

18:00 – 18:30 High Tea

18:30 – 19:30 Concluding Session