FIRST CIRCULAR

IUMRS ICA 2013

Dec 16-20

Indian Institute of Science

Bangalore - 560012, India

This conference will be organized at Indian Institute of Science, Bangalore, India, under the aegis of MRSI. The conference will provide a platform for the Asian scientists to present and deliberate cutting edge research and development in the field of materials science and forge international collaboration. On behalf of the International Union of Materials Research Society, Materials Research Society of India cordially invites you to the International Conference in Asia - 2013 (IUMRS-ICA 2013).

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IMPORTANT DATES

Preregistration opens	: 15 Feb 2013
Abstract Submission opens	: 01 May 2013
Abstract Submission closes	: 31 July 2013
Communication of acceptance of Abstracts	: 02 Sept 2013
Online registration with payment opens	: 01 Aug 2013
Online registration with payment closes	: 15 Nov 2013

TOPICS

Electronic and Photonic Materials
Functional Materials
Energy and Green materials
Advanced Structural Materials
Materials Modelling and Simulation
Materials Characterization
Materials for Bio/Medical Applications

VENUE

J N Tata Auditorium, Indian Institute of Science

Contact Information

Prof. S.B. Krupanidhi
Vice President-General Secretary
Materials Research Society of India
Indian Institute of Science
Bangalore 560 012. INDIA.

Ph: 080 - 22932882/ 65334302
Email: sbkica2013@gmail.com

21 - Poster - 05	Ashish R. Tanna and Hiren H. Joshi	Influence of High Energy Mechanical Milling on Dielectric and Magentoelectric Properties of $25\%(Mn_{0.5}Cu_{0.5}Fe_2O_4)75\%[Ca_{0.1}Ba_{0.9}Zr_{0.1}Ti_{0.9}O_3]$ multiferroic composite	**ABS - 314 - ICA**
21 - Poster - 06	V. P. Singh and Chandana Rath	Hexagonal to Monoclinic Structural Transformation accompanied with intense White light emission in $SrAl_2O_4$ induced by ZnO	**ABS - 396 - ICA**
21 - Poster - 07	Manish Kumar S. Gangolu A.G. Rao, N. Prabhu V.P. Deshmukh B.P. Kashyap	Effect of Particulate Size on High Temperature Flow Properties of Aluminum -5% Boron Carbide Composites	**ABS - 572 - ICA**
21 - Poster - 08	S.M. Tazhibayeva K.B. Korzhynbayeva K.B.Musabekov A.A.Zhubanova	Adsorption of Metal Ions on The Surface of The Compositional Biosorbents	**ABS - 590 - ICA**
21 - Poster - 09	Jithin Raj Nandu. R. Krishnan G.L. Aswinikumar Shilpa Ajith, V.R. Rajeev K. Jayaraj	A statistical study on the dry reciprocating wear characteristics of A319/ (0-0.1) wt.%Sr modified alloy	**ABS - 662 - ICA**
21 - Poster - 10	G. Logesh and M. Balasubramanian	Processing and properties of carbon fiber reinforced reaction bonded silicon nitride composites	**ABS - 767 - ICA**
21 - Poster - 11	Manjusha Meera Rawat and K L Yadav	The effect of Sintering Temperature on Dielectric and Ferroelectric properties of $CoFe_2O_4 - BaTiO_3$ composite	**ABS - 814 - ICA**
21 - Poster - 12	Ravi V. Ingle Sandeep A. Arote Vilas A. Tabhane and Habib M. Pathan	The Composite of Cadmium Sulfide with Polyaniline in presence of Aqueous Acidic solvent	**ABS - 821 - ICA**
21 - Poster - 13	R. M. Kulkarni H. N. Narasimha Murthy G. B. Rudrakshi	Parametric Study of Twin Screw Extrusion for Processing Epoxy/Carbon Black Nanocomposites Using Orthogonal Array Technique	**ABS - 855 - ICA**
21 - Poster - 14	Mini V and Archana K Raghu S Subramanya K Sharanappa C Revanasiddappa M Devendrappa H	Dielectric Study of Polyaniline-nano clay composites	**ABS - 861 - ICA**
21 - Poster - 15	S.N.Alam Lailesh Kumar	Synthesis of EG and Development and Characterization of Zn-EG Nanocomposites	**ABS - 936 - ICA**
21 - Poster - 16	K.A. Vijayalakshmi M.Revanasiddappa K.Vanitha and S.C. Raghavendra	Synthesis and Characterization of Free Standing Thin Film of Polyanilne / FA / Ag Nano composites Induced by DC Glow Discharge Plasma	**ABS - 943 - ICA**

Adsorption of Metal Ions on The Surface of The Compositional Biosorbents

S.M.Tazhibayeva[1*], K.B.Korzhynbayeva[1], K.B.Musabekov[1], A.A.Zhubanova[2]

[1]*Faculty of Chemistry and chemical technology, Kazakh National University, Almaty, Kazakhstan*

[2]*Faculty of Biology and Biotechnolgy, Kazakh National University, Almaty, Kazakhstan*

Tazhibayeva_S@mail.ru

ABSTRACT

The development of biotechnology led to the widespread use of microorganism's cells for the recovery of metal ions from waste water industry. The advantage of sorbents based on the microorganisms cells before synthetic ion exchangers is their multifunctionality, which is caused by a wide variety of cell surface functional groups. The cell wall consists of polysaccharides, proteins and lipids, however, it is rich in functional groups such as hydroxyl, carboxyl, sulfate, phosphate and amine groups.

However, the use of microorganism's cells to extract metal ions from the solution does not always provide a complete water purification. To intensify the process of sorption is used immobilized on solid surfaces microorganism's cells. In this connection, the purpose is to study the adsorption of ions Cu^{2+} and Pb^{2+} from the solution on the surface of yeast cells *Rhodotorulo glutinis*, immobilized on diatomite.

The degree of extraction of the ions Cu^{2+} and Pb^{2+} from solution with an initial concentration of 63 mg/L and 207 mg/L using the yeast cells was 59.1 and 72.4% respectively.

To increase extraction degree of metal ions by yeast conducted experiments for their immobilization on the surface of diatomite.

According to the electrophoresis cell surface is negatively charged *Rhodotorulo glutinis*. Natural clay minerals are also negatively charged, diatomite's zeta potential is -21 mV. Therefore, for the attachment of cells to the surface of diatomite surface of diatomite has been modified cationic polymer - polyethylene imine (PEI). Coating the surface of diatomite PEI led to the achievement of the degree of immobilization $11,8 \cdot 10^6$ cell/g.

The composite of biosorbent extracts from the solution Cu^{2+} ions by 97.8%, and Pb^{2+} ions by 99.4%. In this case, the adsorption equilibrium is reached in 30 minutes.