

REPORT ON DAE-BRNS 4th INTERDISCIPLINARY SYMPOSIUM ON MATERIALS CHEMISTRY (ISMC – 2012)

The DAE-BRNS 4th Interdisciplinary Symposium on Materials Chemistry (ISMC-2012) organized by Chemistry Division and Society for Materials Chemistry was held at BARC during 11-15 December, 2012. With an overwhelming response from participants from India and abroad, the symposium was convened with 34 invited talks and about 500 contributed papers covering frontline research in diverse areas of Material Science such as nuclear materials, nanomaterials, thin films, devices and sensors, materials for energy conversion and storage, biomaterials, magnetic materials, catalysts, soft matter, carbon based materials, high purity materials, organic materials, computational materials chemistry and so on. The deliberations were focused on materials research programmes for harnessing power from nuclear fission, fossil fuels, hydrogen and other sources. The development of new technologies based on nanomaterials for the above applications e.g. in separation science and sensors was discussed at large. Dr. Srikumar Banerjee former Chairman, Atomic Energy commission, in his keynote address highlighted the importance of materials chemistry in emerging technologies. In particular he emphasized on materials for nuclear technology and environment.

Other speakers from India and abroad gave invited talks on a variety of topics such as Nanotechnology-driven cancer therapy, materials issues in solar cells, functional materials, complex chemical hydrides for hydrogen storage, diamond thin films for electronics, non-linear dielectric nano-crystals, mixed protonic-anionic conducting ceramics, high performance SOFC, advanced energy storage options for clean environment, frustrated fluorides, nanomaterials for energy applications, carbon nanocomposites, metalated nucleobase-carbon nanotube conjugates, ODS alloys, advanced nuclear fuels, partitioning and its impact on nuclear fuel cycle, electrochemical and fluorometric sensors, gold Nanoparticles for sensor applications, perovskite-type materials for energy and environment, fluorescent molecular assembly for the sensing of TNT, vesicles, colloids and mammalian cells, high performance electrolytes for solid oxide electrochemical cells, disorder influenced magnetic phase transition, catalysis by Subnanometer and nanometer size clusters, topological defects in graphene, BN, BCN and MoS₂, advanced solid-state NMR, novel magnetochemical effects, lead free soldering materials, shape memory alloys, One-dimensional nanomaterials, hydration of cement, thermochemical methods for hydrogen generation and multicomponents soft matter. In addition, several short presentations were also made.

In the five day long deliberations, 16 scientists from advanced countries like USA, UK, France, Italy, Israel, Japan and Czech Republic, and 18 scientist from our national research centres, IITs, BARC, IGCAR and IISER delivered the presentations of their recent work. About 500 posters presentations carried out in four consecutive days (11-14 December, 2012) were well attended by all the delegates with keen interest. For about 125 posters presented each day, seven best posters were selected on each day for awards by the expert committee. Valedictory session on 15th December, 2012 was

presided over by Dr. T. Mukherjee, Director, Chemistry Group. Dr. S. Kailas, Director, Physics Group was the chief guest of the valedictory function. Many students, invited speakers and other delegates gave their feedback about the event.

The deliberations and interactions among the delegates during platform of ISMC-2012 is likely to culminate in several new BRNS projects as desired by various non-DAE delegates. A special lecture on BRNS activities was also organized. A large participation from Non-DAE delegates in ISMC-2012 also indirectly served the purpose of out-reach.

Photograph

From Left to Right: