

C K Majumdar Memorial Lecture

The C K Majumdar Memorial Lectures are organized by the Satyendra Nath Bose National Centre for Basic Sciences, Kolkata as a tribute to Late Professor Chanchal Kumar Majumdar, the Founder-Director of the Centre.



9th

C. K. Majumdar Memorial Lecture

Past Speakers

N Mukunda	<i>Geometric Phases for Two- and Three-Level Quantum Systems</i>	11 August 2001
B Sriram Shastry	<i>Dynamical Symmetries, Accidental Degeneracies and Transport in Many Body Systems</i>	1 January 2003
Sudhanshu S Jha	<i>Superconductivity in Solids: Misconceptions and Realities</i>	12 August 2003
Guruswamy Rajasekaran	<i>Recent Discoveries in Neutrino Physics</i>	11 August 2004
Jainendra K. Jain	<i>A new class of Fermions in Physics</i>	2 August 2005
David Logan	<i>Optics and transport in heavy electron materials: theory meets experiment</i>	11 December 2006
R Ramesh	<i>Whither Oxide Electronics?</i>	4 January 2008
Peter B Littlewood	<i>New condensates of matter and light</i>	5 January 2009

Title

Main problems and current challenges in systems with strongly correlated electrons

Speaker

Professor D Khomskii

II Physikalisches Institut,
Universitaet zu Koeln, Koeln, Germany

1st February 2011, 3.30 pm

Venue

**Rabindra-Okakura Auditorium
Block DD, Salt Lake, Kolkata**



**S N Bose National Centre for Basic Sciences
Kolkata**

Abstract

Main problems and current challenges in systems with strongly correlated electrons

Solids with strong electron-electron interactions, or strong electron correlations, attract considerable attention now. Among these systems are most of the transition metal and rare earth compounds - practically all important magnetic materials, high-T_c superconductors, materials with colossal magnetoresistance, etc. Their properties are extremely rich, which is mainly caused by the interplay of many degrees of freedom in them: charge, spin, orbitals, lattice. In this talk, after introducing main concepts, I will concentrate on several specific aspects of the rich physics of these materials, which at the moment attract special attention. These are: orbital physics; frustrated systems; multiferroics (materials combining magnetism and ferroelectricity); surfaces, interfaces and multilayers. I will also shortly discuss some basic unsolved problems and challenges in this field.

About the Speaker



Daniel Khomskii graduated from Moscow University in 1962. Starting in 1965, he worked in the Theoretical Department of the Lebedev Physical Institute of the Russian Academy of Science in Moscow. There, he defended his Ph.D. in 1969. In 1980, he obtained a second doctoral degree - the Russian equivalent to the German Habilitation or a professorship in the US. From 1992 to 2003, he was a Professor at Groningen University in the Netherlands and since 2003, he has been a guest Professor in Köln (Cologne University) in Germany. His main research interests are the theory of systems with strongly correlated electrons, metal-insulator transitions, magnetism, orbital ordering ("Kugel-Khomskii model") and superconductivity. He is a Fellow of the American Physical Society and has published more than 300 papers over the course of his career.

S. N. Bose National Centre for Basic Sciences

Block JD, Sector III, Salt Lake
Kolkata 700 098

On behalf of the Centre

I have great pleasure in inviting you to the

9th

C. K. Majumdar Memorial Lecture

to be delivered by

Professor D Khomskii

II Physikalisches Institut, Universitaet zu Koeln,
Koeln, Germany

on

Main problems and current challenges in systems with strongly correlated electrons

at

Rabindra-Okakura Bhavan Auditorium
DD 27A/1, Sector I, Salt Lake,
Kolkata 700 064

on

Tuesday, 1st February 2011 at 3.30 p.m.

followed by

High Tea (at 5.00 pm).

Arup K Raychaudhuri

Director