International Conference on Quantum Effects in Solids of Today (I-ConQuEST)

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K.S. Krishnan Discussion Meeting on Frontiers in Quantum Science (FQS2010)

of the Quantum Science Centre of the Institute of Mathematical Sciences (IMSc), Chennai, India

December 20 to 23, 2010

National Physical Laboratory, New Delhi (India)

OVERVIEW & SCOPE

Condensed matter systems display a rich variety of quantum effects when subjected to low temperatures. The study of quantum phase transitions tuned by high magnetic fields, pressure and/or injected charge carriers is a field of contemporary interest. The discovery of new compounds; the ability to synthesize clean interfaces, heterostructures, tunnel junctions and field effect devices, which allow manipulation of carrier density in the material; clever ways of nano-structuring and advanced imaging techniques have permitted visualization of quantum phenomena and simultaneously have opened up avenues for their technological usage.

The purpose of this conference is to review recent development in the studies of quantum processes in bulk materials, surfaces, interfaces, nano materials and nanostructured materials. Both theoretical and experimental aspects of quantum processes such as electron-electron correlations, correlations driven phase transitions, superconductivity and magnetism in correlated electronic systems; electron, spin- polarized-electrons and superconducting condensate transport in mesoscale and nanoscale planar structures and tunnel junctions; integral and fractional quantum Hall effect in new class of materials such as graphene, oxide interfaces and other novel 2D systems; topological insulators in two and three dimensional systems, design and synthesis of such system which show robust topological states at ambient temperature, spin Hall effect and other quantum transport phenomena in such systems, and applications of these phenomena in quantum metrology.

Important Dates **: Abstract Submission: October 15, 2010; Abstract Decision: October 31, 2010**

(Young researchers and graduate students are encouraged to participate even without an abstract)

REGISTRATION IS MANDATORY

Registration Fee : Foreign Faculty Members $ 300; Foreign Students $ 100; Indian Faculty Members Rs. 5000; Indian Students Rs. 2000

Conference Chair **: R. C. Budhani;** ***Co-Chair*** **: Hari Kishan, R. Shankar (IMSc.);** ***Secretaries*** **: Govind, H.K. Singh**

INVITED SPEAKERS

Franz J. Ahlers
Physikalisch Technische Bundesanstalt, Germany
Eva Andrei
University of Rutgers, USA
Arun Bansil
North Eastern University, USA
G. Baskaran
Institute of Mathematical Sciences, Chennai, India
Ernst Bauer
Vienna University of Technology, Vienna
Venkat Chandrasekhar
North Western University, USA
Ratnamala Chatterjee
Indian Institute of Technology-Delhi, India
Herve Courtois
Joseph Fourier University, France
Yoran Dagan
Tel-Aviv, Israel
Kedar S. Damle
Tata Institute of Fundamental Research, India
Mandar Deshmukh
Tata Institute of Fundamental Research, India
Arindam Gosh
Indian Institute of Science, India
Richard L. Greene
University of Maryland, USA
Anjan Gupta
Indian Institute of Technology-Kanpur, India
M. Zahid Hasan
Princeton University, USA
Axel Hoffmann
Argonne National Laboratory, USA
Zakir Hossain
Indian Institute of Technology-Kanpur, India
J. K. Jain
Pennsylvania State University, USA
Kazushi Kanoda
University of Tokyo, Japan
Aharon Kapitulnik
Stanford University, USA
Ribhu Kaul
University of California, S.B., USA
H.R. Krishnamurthy
Indian Institute of Science, India
Brijesh Kumar
Jawaharlal Nehru University, India
Jerome Lesueure
LPEM, France
Jeremy Levy
University of Pittsburgh, USA
***Peter Littlewood**
Cavendish Laboratory, Cambridge University, UK
Pinaki Majumdar
Harish-Chandra Research Institute, India
Sudhanshu S. Mandal
Indian Association for Cultivation of Science, India
***Franco Nori**
University of Michigan, USA
Bruce Normand
University Freiburg, Switzerland
N. P. Ong
Princeton University, USA
Madini Padmanabhan
Indian Institute of Science, India
David Pappas
National Institute of Science & Technology, USA
R. Prasad
Indian Institute of Technology, Kanpur, India
T. V. Ramakrishnan
Banaras Hindu University, India
Mohit Randheria
Ohio State University, USA
Arup Raychaudhuri
S N Bose National Centre for Basic Sciences, India
Pratap Raychaudhuri
Tata Institute of Fundamental Research, India
E. V. Sampathkumaran
Tata Institute of Fundamental Research, India
D.D. Sarma
Indian Institute of Science, India
Siddharth (Montu) Saxena
University of Cambridge, UK
Thomas Schurig
Physikalisch Technische Bundesanstalt, Germany
Ajay K. Sood
Indian Institute of Science, India
S. Sridhar
North Eastern University, USA
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University of South Florida, USA
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Indian Institute of Technology-Kanpur, India
Jean-Marc Triscone
University of Geneva, Switzerland
Nandini Trivedi
Ohio State University, USA
Alexander Tzalenchuk
National Physical Laboratory, UK
Venky Venkatesan
National University of Singapore, Singapore
Ashwin Vishwanath
University of California, Berkeley, USA
Katsunori Wakabayashi
National Institute of Material Science, Japan

***Confirmation Awaited**

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