

# Workshop on Quantum Chaos and Quantum Information

IC&SR Hall III, IIT Madras

Wednesday 21 July 2010

**8:30 - 9:00** Registration

**9:00 - 9:30** Inauguration

**Session Chairperson: V. B. Sheorey**

**9:30 - 10:15** Steven Tomsovic, WSU Pullman and IIT Madras

*Quantum Chaos: Origins and Developments*

**10:15 - 10:45** HIGH TEA

**10:45 - 11:30** Steven Tomsovic, WSU Pullman and IIT Madras

*Quantum Chaos: Origins and Developments*

**11:30 - 13:00** R. Simon, The Institute of Mathematical Sciences, Chennai

*An invitation to quantum information science*

**13:00 - 14:30** LUNCH

**Session Chairperson: V. Balakrishnan**

**14:30 - 15:15** O. Giraud, Université Paris-Sud, Orsay

*Multifractal properties of quantum wavefunctions*

**15:15 - 16:00** Aditi Sen (de), Harish-Chandra Research Institute, Allahabad

*Distributed quantum information processing*

**16:00 - 16:30** TEA

**16:30 - 17:15** V. K. B. Kota, Physical Research Laboratory, Ahmedabad

*Two-body random matrix ensembles for quantum many-body chaos*

**17:15 - 18:00** M. S. Santhanam, Indian Inst. of Science Ed. and Research, Pune

*Classically induced suppression of energy growth in a chaotic system*

Thursday 22 July 2010

**Session Chairperson: V. K. B. Kota**

**9:00 - 10:30 M. Znidaric**, University of Ljubljana

*Quantum chaos in quantum information*

**10:30 - 11:00 TEA**

**11:00 - 11:45 Jiangbin Gong**, National Univ. of Singapore, Singapore

*Exploring quantum critical systems via driven cold-atom systems*

**11:45 - 12:30 S. Lakshmibala**, Indian Inst. of Technology Madras, Chennai

*Recurrence properties of quantum observables*

**12:30 - 14:00 LUNCH**

***Session Chairperson: A. Buchleitner***

**14:00 - 14:45 Santosh Kumar**, Jawaharlal Nehru University, New Delhi

*Jacobi family of crossover random matrix ensembles: Theory and applications*

**14:45 - 15:30 Sudhir Jain**, Bhabha Atomic Research Centre, Mumbai

*Quantum mechanics of classically non-integrable systems: Analytical methods and results*

**15:30 - 16:00 TEA**

**16:00 - 16:45 Pragya Shukla**, Indian Inst. of Technology Kharagpur

*Quantum phase transitions in kicked rotor with a smooth potential*

**16:45 - 17:30 J. Bandyopadhyay**, National University of Singapore, Singapore

*Quantum chaotic system as a model of decohering environment*

**Friday 23 July 2010**

***Session Chairperson: D. Ullmo***

**9:00 - 10:30 A. Buchleitner**, University of Freiburg, Germany

*Dynamical and statistical aspects of quantum entanglement*

**10:30 - 11:00 TEA**

**11:00 - 11:45 Arun Pati**, Institutue of Physics, Bhubaneshwar

*Nonlinear quantum theory, closed time-like curves and No-Purification of mixed states*

**11:45 - 12:30 D. Braun**, Université Paul Sabatier, Toulouse

*Quantifying quantumness and the quest for queens of quantum*

**12:30 - 13:30 LUNCH**

**Session Chairperson: M. V. Satyanarayana**

**13:30 - 14:15 Ujjwal Sen**, Harish-Chandra Research Institute, Allahabad

*Frustration in quantum spin models: A quantum information perspective*

**14:15 - 15:00 Sibasish Ghosh**, The Institute of Mathematical Sciences, Chennai

*Dynamics of entanglement under the influence of local heat baths*

**15:00 - 15:15 TEA**

**15:00 - 16:00 POSTER SESSION**

**16:30**

**DAKSHINCHITRA OUTING**

**and**

**WORKSHOP DINNER**

**Saturday 24 July 2010**

**Session Chairperson: S. Tomsovic**

**9:00 - 9:45 D. Ullmo** , Université Paris-Sud, Orsay

*The mesoscopic Kondo problem: Slave fermion mean field approach and random matrices*

**9:45 - 10:30 T. Dittrich**, Universidad Nacional de Columbia, Bogota

*Semiclassical phase-space propagation: A versatile analysis tool for complex quantum dynamics*

**10:30 - 11:00 TEA**

**11:00 - 11:45 S. Takahashi**, University of Tokyo, Tokyo

*To higher semiclassical theory for dynamics of wavepackets*

**11:45 - 12:30 V. Subrahmanyam**, Indian Inst. of Technology Kanpur

*Macroscopic multi-species entanglement near quantum phase transitions*

**12:30 - 14:00 LUNCH**

***Session Chairperson: Sudhir Jain***

**14:00 - 14:45 K. Srihari**, Indian Inst. of Technology Kanpur

*Decoding the dynamical information embedded in highly excited quantum states*

**14:45 - 15:30 B. Georgeot**, Université Paul Sabatier, Toulouse

*Applications of quantum chaos techniques, from qubits to stars and networks*

**15:30 - 16:00 TEA**

**16:00 - 16:45 S. Löck**, Technische Universität, Dresden

*Dynamical tunneling in systems with a mixed phase space*

**CLOSING**