

**Program Schedule**  
**ICTS Discussion Meeting on**  
**Frontiers in Light-Matter Interactions**  
**19-22 December 2014**

**C. V. Raman Hall**

**Indian Association for the Cultivation of Science (IACS), Jadavpur, Kolkata**

**Friday, 19 December**

**9:30 – 10:00**            **Registration**  
**10:00 – 10:15**            **Inauguration**

**Session-I : Quantum Optics & Optomechanics**

**Chair: Prasanta K. Mukherjee**

**10:15 – 11:00**            **Lessons from Quantum Optics for Optomechanics**  
*G. S. Agarwal, Oklahoma State University, USA*

**11:00 – 11:40**            **Tea/Coffee**

**Session-II : System-Bath Interactions**

**Chair: Fabien Bretenaker**

**11:40 – 12:25**            **Long-Range Interactions Via the Bath**  
*Gershon Kurizki, Weizmann Institute of Science, Israel*

**12:25 – 13:10**            **Spontaneous Emission from Quantum Dots Beyond Fermi's Golden Rule**  
*Stephen Hughes, Queen's University, Ontario, Canada*

**13:10 – 14:45**            **Lunch**

**Session-III: Circuit Cavity QED**

**Chair: G. S. Agarwal**

**14:45 – 15:30**            **Simulating an Interacting Quantum Gas using Matrix Product States  
generated with Superconducting Circuits**  
*Andreas Wallraff, ETH, Zurich, Switzerland*

**15:30 – 16:15**            **Quantum Measurement & Feedback with Superconducting Circuits**  
*Rajamani Vijayaraghavan, TIFR, Mumbai, India*

**16:15 – 17:45**            **Poster Session-A (with Tea/Coffee)**  
**P.2, P.3, P.4, P.6, P.8, P.12, P.13, P.18, P.20, P.22, P.24, P.25**

**18:00 – 19:00**            **Music & Dance program**

**19:15 – 21:00**            **Dinner**

**Saturday, 20 December**

**Session-IV : Electromechanical Resonators**

**Chair: Shyamal K. Bhadra**

**9:30 – 10:15**            **Nonlinear Phonon Dynamics in Electromechanical Resonators**  
*Hiroshi Yamaguchi, NTT Basic Research Laboratories, Kanagawa, Japan*

**10:15 – 10:55**            **Tea/Coffee**

**Session-V : Quantum Optomechanics**

**Chair: Stephen Hughes**

**11:00 – 11:45**            **Quantum Optomechanics and Quantum Reservoir Engineering**  
*Aashish Clerk, McGill University, Canada*

**11:45 – 12:30**            **Cavity Optomechanics with Ultracold Atoms in Synthetic Gauge Field**  
*Sankalpa Ghosh, IIT Delhi, India*

**12:30 – 13:00**            **Open discussion**

**13:00 – 14:30**            **Lunch**

**Session-VI: Quantum Coherence and Non-Classical Paths**

**Chair: Krishna Rai Dastidar**

**14:30 – 15:15**            **Role of Quantum Coherence in Charge and Energy Transfer  
Dynamics in Photosynthesis**  
*Pulak Kumar Ghosh, Presidency University, Kolkata, India*

**15:15 – 16:00**            **Non-Classical Paths in Interference Experiments**  
*Urbasi Sinha, RRI, Bangalore, India*

**16:00 – 16:40**            **Tea/Coffee**

**16:40 – 19:00**            **Free time for discussion**

**19:00 – 21:00**            **Dinner**

**Sunday, 21 December**

**Session-VII : Synthetic Gauge Fields**

**Chair: Ramesh V. Pai**

**9:30 – 10:15**            **Density-Dependent Synthetic Magnetism for Cold Atoms in Optical Lattices**  
*Luis Santos, Hannover, Germany*

**10:15 – 11:00**            **Interacting Fermions in Synthetic Gauge Fields**  
*Vijay B. Shenoy, IISc Bangalore, India*

**11:00 – 11:40**            **Tea/Coffee**

**Session-VIII : Ultracold Chemistry**

**Chair: Bhanu Pratap Das**

**11:40 – 12:25**            **New approaches for Ultracold Chemical Reactions**  
*N. Balakrishnan, University of Nevada, USA*

**12:25 – 13:10**            **Combining Alkali and Alkaline-Earth-Like Atoms: Towards Paramagnetic Polar Molecules for Ultracold Chemistry and Quantum Simulation**  
*Subhadeep Gupta, University of Washington, Seattle, USA*

**13:10 – 14:40**            **Lunch**

**Session-IX : Trapped Atoms and Ions**

**Chair: Deb Shankar Ray**

**14:40 – 15:25**            **Ultracold Ytterbium Atoms: Towards Novel Fermionic Superfluids and Test of Short-Range Gravity**  
*Yosuke Takasu, Kyoto University, Japan*

**15:25 – 16:10**            **Hybrid Traps for Ions, Atoms and Light for the Study of Interactions**  
*Sadiq Rangwala, RRI, Bangalore, India*

**16:10 – 16:55**            **Quantum Magnetism using Ultra-cold Trapped Ions**  
*Rejish Nath, IISER Pune*

**17:00 – 18:30**            **Poster Session-B (with Tea/Coffee)**  
**P.1, P.5, P.7, P.9, P.10, P.11, P.14, P.15, P.16, P.17, P.19, P.21, P.23, P.26**

**18:30 – 19:00**            **Free Time**

**19:00 – 21:00**            **Dinner**

## Monday, 22 December

### Session-X : PT Symmetry and Spin-Orbit Interaction in Bose-Einstein Condensates

Chair: Subhasish Dutta Gupta

09:30 – 10:15      Possible Realisations of Bose-Einstein Condensates in a PT-Symmetric Double Well  
*Holger Cartarius, Stuttgart University, Germany*

10:15 – 11:00      Spin-Orbit Coupled Bose-Einstein Condensate  
*Li You, Tsinghua University, Beijing, China*

11:00 – 11:30      **Tea/Coffee**

### Session-XI : Correlated Systems

Chair: Sudhansu Sekhar Mandal

11:30 – 12:15      Quantum Correlations in a Quantum Heat Engine with Interacting Spins  
*Ozgur E. Mustecaplioglu, Koc University, Istanbul, Turkey*

12:15 – 13:00      Non-equilibrium Dynamics of Strongly Correlated Trapped Bosons  
*Krishnendu Sengupta, IACS, Kolkata, India*

13:00 – 13:15      Valedictory

13:15 – 14:45      **Lunch**