The Mesoscopic Physics Society of Korea

APCTP Asia Pacific Center for Theoretical Physics

ELECTRON CORRELATIONS IN QUANTUM DEVICES

SUMMER SCHOOL

MAY 25-27 2017

POSCO INTERNATIONAL CENTER

With development in nanoscale integration, material quality, and measurement precision, quantum mechanical coherence and correlations are now routinely measured in artificial quantum devices. In this summer school, we suggest to learn, with excellent lecturers, the basic theoretical and experimental aspects of quantum coherent manipulation and correlation measurements in (1) two dimensional electron gas-based semiconductor quantum dots, (ii) defect centers in diamond, and (iii) superconducting devices.

Topics include :

- *Quantum dot* ABC, quantum gates in quantum dots, qubit manipulation
- *Majorana* bound states and fermion qubits
- *Quantum measurements* in nanomechanical systems
- *Quantum optics* experiments using spins in diamond defect centers
- *Quantum information* experiments using superconducting artificial atoms

Location:

POSCO international center, Pohang, Korea, May 25-27 (2017)

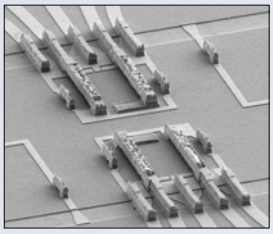
Registration is free for all (meals provided):
https://alice.korea.ac.kr/Mesoscopics/index.php/The_6th_School_of_Mesoscopic_Physics
The deadline for registration is May. 11, 2017.

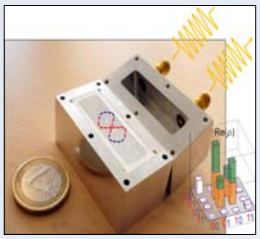
There will be a poster session, which will be informal, and one may "recycle" his/her previous posters that have been presented elsewhere before.
https://alice.korea.ac.kr/Mesoscopics/index.php/Posters

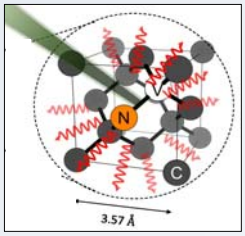
Lectures

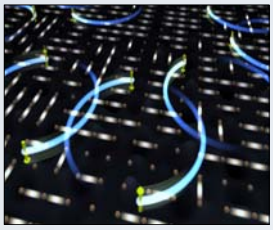
*Official Language : Korean

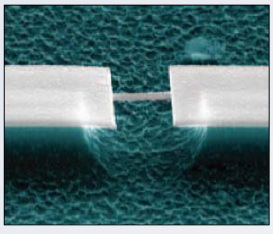
- **Yun-Pil, Shim** (Laboratory for Physical Sciences, USA)
  - Quantum dot basics, quantum manipulation and measurements in semiconductors
- **Yonuk, Chong** (Korea Research Institute of Standards and Science, Korea)
  - Quantum measurements using superconducting devices
- **Donghun, Lee** (Korea University, Korea)
  - Diamond nitrogen vacancy centers and quantum sensing
- **Minchul, Lee** (Kyung Hee University, Korea)
  - Majorana bound states, fermion qubits
- **Seung-Bo, Shim** (Korea Research Institute of Standards and Science, Korea)
  - Quantum measurements using nano-mechanical systems











Organizing Committee

- Heung-Sun Sim (KAIST) - Chair
- Myung-Ho Bae (KRISS)
- Mahn-Soo Choi (Korea Univ.)
- Yunchul Chung (Pusan Nat. Univ.)
- Yong-Joo Doh (GIST)
- Kicheon Kang (Chonnam Nat. Univ.)
- Ju-Jin Kim (Chonbuk Nat. Univ.)
- Dohun Kim (Sseoul Nat. Univ.)
- Hee Chul Park (PCS, IBS)

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