IBS Center for Multidimensional Carbon Materials

Tuesday Colloquium

Prof. Jong Bae HONG

Seoul National University
Invited Researcherof IBS PCS

jbhong890@gmail.com
http://pcs.ibs.re.kr

Entangled state tunneling in a system with strong Coulomb interaction

Tuesday, May 17
2 PM

Bldg. 101
Seminar room on the 1st floor

Recently, study on nanoscopic systems is prevailing. In this talk, I show the facts indicating how much we don't know about quantum transport in nanoscopic systems with strong electron interaction. It is because we have never had a proper approach to handle a system having strong electron interaction and non-equilibrium conditions, simultaneously. I will clarify that low-bias current in this system is formed by entangled state tunneling, by which I can quantitatively fit various experimental results obtained for quantum dot single-electron transistors, single molecule transistors, quantum point contacts, adsorbed magnetized atom on metallic substrate, multilayer graphene, and cuprate and pnictide high-Tc superconductors. For this purpose, I start from many-body coherence in old Kondo system and then extend to new two-reservoir Kondo system under non-equilibrium conditions, and explain the difference between old and new Kondo effects. Then, I go to the correlated samples, multilayer graphene and cuprate and pnictide high-Tc superconductors, if time is allowed.

You are cordially invited to attend!