

## Weekly Seminar

### The Kondo Effect – from Spin to Orbital Degrees of Freedom

Juhn-Jong Lin



**Time: 4:00pm, June 15, 2016 (Wednesday)**

**: 2016 6 15**

**4:00**

**Venue: w563, Physics building, Peking University**

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#### Abstract

The Kondo effect is a long-standing paradigmatic many-body problem in condensed matter physics. The recent progresses in nanoscience and technology has further made possible new realizations of exotic Kondo physics. In this talk, I will discuss some experimental aspects of (1) the standard Kondo effect due to the existence of isolated localized spin-half magnetic moments, and (2) the two-impurity Kondo effect featured quantum critical behaviors of the transport properties. (3) I will briefly discuss our observation of nonmagnetic Kondo effect due to two-level tunneling systems. In this case, the Kondo physics originates from the coupling of the electronic orbital wavefunctions with dynamical structural defects.

References:

- [1] A. M. Chang and J. C. Chen, Rep. Prog. Phys. 72, 096501 (2009). (A review)
- [2] S. S. Yeh and J. J. Lin, Phys. Rev. B 79, 012411 (2009); and to be published.

#### About the Speaker

Professor Juhn-Jong Lin ( ) received his BS degree from National Chiao Tung University (NCTU, ) in 1979, and his PhD degree from Purdue University (USA) in 1986. He was an associate professor and a professor in the Department of Physics at National Taiwan University from 1988 to 1997. He joined the Institute of Physics of NCTU in 1997. His research efforts focus on low temperature physics, mesoscopic physics, nanoscale physics, and disordered electronic systems. Website: <http://web.it.nctu.edu.tw/~jjlin/>