



北京大学量子材料科学中心

International Center for Quantum Materials, PKU

Weekly Seminar

Modulation of Transport Properties at Oxide Heterostructures

Ji-Yan Dai

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Time: 4:00pm, Dec. 27, 2017 (Wednesday)

2017 12 27

4:00

**Venue: Room W563, Physics building, Peking University
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Abstract

The discovery of the two dimensional electron gas (2DEG) at the interface between two band insulators LaAlO_3 (LAO) and SrTiO_3 (STO) triggered intensive researches on this system, and intriguing electronic properties have been found in this heterointerface. In this interfacial 2DEG system, the transport properties of the LAO/STO interfacial conducting states are extremely sensitive to the interfacial structure and LAO surface state, and the modulation of surface state has been shown to have a great influence on the transport properties of the interfaces. In this seminar, the LAO/STO surface modulation by means of polar liquids, metal nanoparticles, gas and strain will be reported. Our results promise the potential application of these oxide heterostructures in electronic devices.

About the speaker

Dai Jiyan is currently a Professor of the Department of Applied Physics at The Hong Kong Polytechnic University. Prof. Dai's main research interests include nanomaterials fabrication and application, especially functional oxide thin films and devices. He received his B.Sc. degree in physics from Fudan University in 1988, his M.S. degree in Electronic Engineering from Tsinghua University in 1991, and his Ph.D. degree in Materials Physics from the Chinese Academy of Sciences in 1994. He has three years postdoctoral research experience at Northwestern University, and after one year working in the Institute of Materials Research and Engineering Singapore, he joined Chartered Semiconductor Manufacturing Ltd. of Singapore. Since 2001, Prof. Dai has been working at