

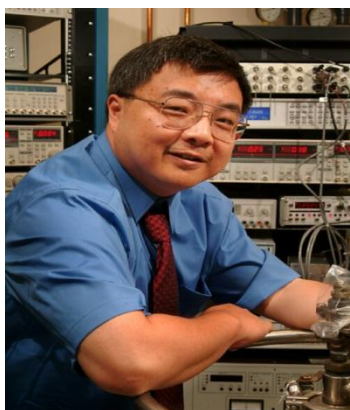


Seminar

Semiconductor Quantum Dots for Quantum Computing

HongWen Jiang (姜弘文)

University of California, Los Angeles



Time: 10: 00 am, May. 7, 2019 (Tuesday)

时间: 2019年5月7日 (周二) 上午10:00

Venue: Room W563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

Abstract

One of the grand challenges in science and technology today is to build a quantum computer that can perform computation tasks that are unsolvable by classical computers. Semiconductor quantum dots are a leading approach for the implementation of solid-state based quantum computing, as the coherence time of the qubits can be extremely long and various interactions, inherent to semiconductors, can be harvested to precisely control superposition and entanglement. In this talk, I will describe world-wide experimental activities to use charge and spin degree of freedom of individual electrons to encode and process quantum information. I will also present our recent results at UCLA to coherently manipulate and to perform projective read-out of a novel qubit that is based on valley states of single electrons, as valley represents another quantum degree of freedom, complementary to that of charge and spin.

About the speaker

Professor HongWen Jiang (姜弘文) received his Ph.D. in physics from Case Western Reserve University in US. He was a postdoc at Princeton, where he worked with Dan Tsui and Horst Stormer. He joined UCLA as an Assistant Professor in 1991 and was promoted to Full Professor in 1998. Prof. Jiang was an Alfred Sloan fellow and he was the recipient of the William McMillan Award for outstanding contributions in condensed matter physics. He also received the Macronix Prize from the Overseas Chinese Physics Association. He is a fellow of the American Physical Society.