Electrons are strange and naughty particles with intelligent spirit. Electrons in solids are the footing stone of modern microelectronics, information technology, etc. In this talk, the discovery, history, and wave-Particle duality of electrons will be reviewed briefly. The electronic motion in solids, impurity electrons, chaotic electrons, and chaotic motion of electron in solids will be discussed and emphasized.

Professor Xuechu Shen

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Date: 26 February 2019 (Tuesday)
Time: 4:30pm – 6:00pm (Light refreshments will be served from 4:00pm to 4:30pm)
Venue: Connie Fan Multi-media Conference Room, 4/F, Cheng Yick-chi Building
City University of Hong Kong

Abstract

Electrons are strange and naughty particles with intelligent spirit. Electrons in solids are the footing stone of modern microelectronics, information technology, etc. In this talk, the discovery, history, and wave-Particle duality of electrons will be reviewed briefly. The electronic motion in solids, impurity electrons, chaotic electrons, and chaotic motion of electron in solids will be discussed and emphasized.

Biography

Prof. Xuechu Shen, Physicist, 1978-1980 as one of the very first scholars studied as a research fellow in the Max Planck Institute for Solid State Research, Germany. He was promoted to full Professor in 1986, appointed as the first director of National Laboratory of Infrared Physics (CAS) in 1985. He used to be visiting or visiting chair Professor of Humboldt university Germany, Tohoku university and Osaka university Japan, McGill university Canada, Taiwan university Taiwan and HKUST, HKU and HKCU. Currently he is Professor of Shanghai Institute of Technical Physics CAS, and Fudan University, Honor Dean of the School of Science in University of Shanghai. He is the member of editorial boards of several international journals. He is a syndic of the International society of infrared, millimeter wave and THz, & committee member of international Button Prize. His review article on comparison and competition between HgCdTe and Quantum structure for IR detection was collected in SPIE “20 century milestone volume”.

Prof. Xuechu Shen’s main research field is spectroscopy of solid states, he invented quite a few kind of new spectroscopic technology; discovered a new localized phonon mode in semiconductors, hybridization of p and d electron states in semimagnetic semiconductors; measured for the first time the wavefunction mixing and hybridization of the Zeeman splitting levels of hydrogen-like atoms in semiconductors. And He was also the first who discovered the quantized levels in modulation doped GaAs multiple layer structures. In recent year, his contribution in the studies of quantum states and their coupling of quasi-particles in small quantum system is also enormous. Prof. Xuechu Shen won National Natural Science Award in 1987, 1995 and 2014, respectively. In 2002 and 2006, he was awarded the HLHL Science and Technology Progress prize and the Button Prize, an international and prestigious prize in the field of electromagnetic wave spectroscopy.

He was awarded the title of “young and middle aged outstanding expert of state” in 1988. He was elected as an Academician of CAS (Mathematics and physics division) in 1995.

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