



量子材料科学中心 International Center for Quantum Materials Informal Seminar

Progress of the pulsed high magnetic field facility at Wuhan National High magnetic Field Center

李亮

the director of National High Magnetic Field Center
at Wuhan

Time: 4:30 pm, Oct. 26 2012 (Friday)

时间: 2012年10月26日 (周五) 下午 4:30

Venue: Conference Room A (607), No. 5 Science Building

地点: 理科五号楼607会议室

Abstract

Since April 2008 the Pulsed High Magnetic Field facility funded by the Chinese National Development and Reformation Committee has been under development at the Wuhan National High Magnetic Field Center at Huazhong University of Science and Technology (HUST). Magnets with bore sizes from 12 to 34 mm and the peak fields up to 83 tesla have been developed and are in operation. The power supplies for these magnets are a capacitor bank with 13 modules of 1MJ/25 kV each, a 100 MVA/100 MJ flywheel pulse generator and a 100 kAh battery bank. The objective of the facility is to accommodate external users for extensive experiments in pulsed high magnetic fields. 8 measurement stations including transport, magnetization, magneto-optics, Electron Spin Resonance (ESR), NMR and so on have been developed and are operational at temperatures in the range from 50 mK to 400 K. Experiments have been carried out with extensive materials such as HTS, topologic insulators, semiconductors, molecular magnets and so on. Quantum oscillations and phase transitions have been observed in both the transport and the magnetization measurements. Magneto-optic Kerr Effect (MOKE), Faraday Rotations, magneto-optical photoluminescence, magneto-optical absorption and reflection have been measured at the magneto-optics measurement station. The designing and the construction of the facility and the experimental results from each measurement station are presented.

About the Speaker

李亮, 1985年毕业于原华中工学院电力系, 1988年在中科院等离子体物理研究所获聚变工程硕士学位, 1998年获比利时鲁汶大学物理系博士学位。1997年至2000年在美国佛罗里达国家强磁场实验室任脉冲强磁场工程组负责人。2000年10月受聘于美国GE公司全球研发中心电磁与超导实验室任高级电气工程师。主要研究领域包括: 脉冲强磁场科学与技术、大型永磁设备的整体充磁技术、高温超导电机技术、磁共振成像(MRI)和新型特种电机技术等。2007年10月回国主持国家重大科技基础设施脉冲强磁场实验装置的建设工作, 任项目总经理兼总工程师。2011年任武汉国家强磁场中心主任。是长江学者特聘教授, 国家杰出青年基金获得者, 国家千人计划特聘专家, 973首席科学家。