



Weekly Seminar

Pressuring Fe-based superconductors: Finding and Phenomena



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Time: 4:00pm, Nov. 13, 2013 (Wednesday)

时间: 2013年11月13日 (周三) 下午4:00

Venue: Room 607, Science Building 5

地点: 理科五号楼607会议室

Abstract

Superconducting state has been thought to be determined by the factors of lattice, charge, orbital and spin degrees of freedom in materials. These factors can be manipulated by control parameters including pressure, magnetic field and chemical composition. Among these parameters, pressure is a 'clean' way for tuning the crystal and electronic structures. In this talk, I will present the role of high pressure playing in studies of superconductivity of iron pnictide and alkaline iron selenide superconductors, which includes the pressure effects on superconducting transition in the pnictides with different kinds of intercalated layers (single element, oxide layer and complex layer) between the neighboring FeAs layers, iron-selenide superconductors with a unique 245 superlattice structure. Some findings and phenomena such as pressure-induced reemergence of superconductivity, quantum criticality, and valence change etc. are included. Furthermore, I will present our recent progress of high pressure studies on Mn-based compound which is considered to bridge the gap between cuprate and Fe-based superconductors.

About the Speaker

中国科学院物理研究所研究员，博士生导师。主要从事高压下新型高温超导体的探索和机理研究。曾在美国康奈尔大学和日本科技厅无机材料研究所长期从事高压物理研究工作并于国际上多个优秀研究小组合作开展研究。在发展高压技术方面完成了一些具有特色的工作，如主持研制了综合极端条件联合测量系统，发展了高压低温霍尔测量和交流磁化率测量系统。在铁基超导体的超导电性的压力调控和量子相变及其他新材料的超导电性体研究中，取得了一些成果。在国内外学术刊物上发表被SCI收录的论文近80篇，包括Nature, PRL, PNAS等，在国际学术会议上做邀请报告20余次。2011年获中国物理学会胡刚复实验技术奖。作为主要完成人获2012年中国科学院杰出成就集体奖。曾获国家科技进步二等奖（第二完成人）和国家科技发明二等奖（第三完成人）。