

“凝聚态物理-北京大学论坛”

2008-10

时间： 2008年5月16日（星期五）下午 15:00 - 16:40

地点： 北京大学物理大楼中 212 教室

报告题目： Newly Discovered FeAs-Superconductors: Opportunity and Challenge

报告摘要： First discovered about one century ago, superconductors can conduct electricity without resistance. In 1986, Bednorz and Muller discovered a complex oxide of barium, lanthanum, and copper became superconducting at 35 K in a great breakthrough that led to the discovery a class of copper oxides with high superconducting transition temperatures up to a record of 138K, while before 1986, most superconductors were metals and alloys superconducting below 23K. Most interestingly, history seems to be repeating itself with the recent discovery of a new family of FeAs-superconductors: the transition temperature has been raised from 26K to 55 K for the past four months with various rare-earth-metal-FeAsO compounds upon doping more carriers. This is once again another great breakthrough that has been sparking an orgy of research both experimentally and theoretically, providing great opportunities and challenges for researchers like you and me who can occasionally meet in the whole academic careers. Indeed, superconductors redux, just as entitled in a piece of Nature News. In this talk, you will first be guided to go through the historical milestones of superconductivity. Then the past and latest progress of research on FeAs superconductors, in which Chinese researchers have gone ahead of the rest of the world since this discovery by Japan scientists, will be introduced. In addition, I will present a microscopic model proposed by us to understand and analyze the origin and nature of superconductivity in this family of FeAs compounds as well as the observed experimental results, with several predictions being already seen in experiments and some to be verified in future. Finally, a pleasant outlook of the research in this field is outlined.

报告人： 汪子丹教授（香港大学物理系）

报告人简介： Received BSc degree from Univ. of Science and Technology of China in Jan. 1982 and PhD degree from Nanjing Univ. in Jan. 1988. Then did postdoctoral research in the Texas Center for Superconductivity at Univ. of Houston (USA) until Aug. 1992. Joined Phys. Dept. at Univ. of Hong Kong as an assistant professor in Sept. 1992, promoted to associated professor in 1997 and to professor in 2000.

For his notable research contributions to superconductivity and quantum computing, received several honors and awards in the last 10 years, mainly including “Outstanding Researcher Award” (HKU in 2001), “China Outstanding Young Researcher Fund” [overseas] (NSFC in 2004), “Chang Jiang Scholar-Chair Professorship [overseas]” (China Ministry of Education and Li Ka Shing Foundation in 2004), “Croucher Senior Research Fellowship” (The Croucher Foundation in 2007), and “Universitas 21 Fellowship” (Universitas 21 Association in 2007). As a main or corresponding author, published over 150 journal articles including over 120 papers in Physical Reviews and Physical Review Letters.

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