



復旦大學

Fudan University



复旦大学物理系物质科学报告

Physics Department Colloquium

New Structures and Novel Superconductivity of Hydrogen-rich Materials under High Pressure

Prof. Tian Cui

Jilin University

Abstract: The lofty goal in the studies of superconductors is to achieve superconductivity at room temperature. Metallic hydrogen is believed to be such a material with room-temperature superconductivity. However, metallization of hydrogen is still debates in laboratory. As an alternative, hydrogen-rich compounds are extensively explored which are expected to become a new member of superconductor family: hydrogen- based superconductor. We have explored extensively the crystal structure and superconductivity of new sulfur hydride H₃S and other hydrogen- rich materials under high pressure by means of the first principle calculation and in situ high pressure experimental measurements. It was predicted at first time that H₃S with Im-3m symmetry theoretically by our group to be a high-temperature superconductor with T_c reaching as high as 200 K at high pressure, which has been confirmed experimentally. Furthermore, other hydrogen-rich materials, such as disilane, were also found to be high-temperature superconductors at high pressures..

Time: 2:00pm, Tuesday, June 6, 2017

Location: Physics Building, Room 221B

(Cookies and coffee are served from 1:30 pm)