



复旦大学物理系物质科学报告

Physics Department Colloquium

Possible role of magnetism in the superconductivity and structural transition of Mo_3Sb_7

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Abstract: Despite a relatively low superconducting transition temperature $T_c = 2.08$ K, the Zintl compound Mo_3Sb_7 has attracted much interest due to the possible involvement of magnetism in superconducting pairing, and promising thermoelectric performance with proper doping. Mo_3Sb_7 crystallizes in Ir_3Ge_7 -type cubic structure with space group $\text{Im}\bar{3}\text{m}$ at room temperature. A structure transition from cubic to tetragonal ($\text{I}4/\text{mmm}$) was observed at $T_{\text{str}} = 53$ K and this symmetry lowering is accompanied by the opening of a 120 K spin gap. So Mo_3Sb_7 provides an interesting platform to study the interplay between structural anomaly, magnetism, and superconductivity. In this seminar, I will present the crystal growth, intrinsic physical properties of Mo_3Sb_7 , and how chemical and hydrostatic pressures disturb the complex interplay between structure, magnetism, and superconductivity. The role of magnetism will be discussed based on thermal conductivity change across T_c and the pressure dependence of T_c and T_{str} .

Time: 2:00 pm, Tuesday, 2014.6.24

Location: Physics Building, Room 221B

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