



复旦大学物理系物质科学报告

Physics Department Colloquium

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Searching for Novel Compounds in Strongly Correlated Electron Systems

(探索强关联电子系统中的新复合体)

Abstract

I will give a sort of review on strongly correlated electron materials that exhibit interesting properties such as superconductivity and quantum magnetism. It would be an introductory talk to nonspecialists and students.

The remarkable discovery of high- T_c superconductivity in cupric oxides and the following enthusiastic research in the last few decades have clearly exemplified how the finding of new materials could give a great impact on the progress of solid state physics. Now related topics are spreading over not only superconductivity but also unusual metallic behavior and quantum magnetism, which are often observed near the metal-insulator transition in the strongly correlated electron systems. A family of transition-metal oxides is one of the most typical systems where Coulomb interactions play a critical role on the properties. Especially interesting is what is expected when electrons localized due to the strong Coulomb repulsion start moving by changing the bandwidth or the number of electrons. We anticipate there unknown, dramatic phenomena governed by many-body effects and quantum fluctuations.

Time: 2:00pm, Tuesday, 2015.9.29

Location: Physics Building, Room 221B

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