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### **Angle-Resolved Photoemission Study of High Temperature Superconductors<sup>1</sup>**

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As a hybrid of spectroscopy and scattering experiments, angle-resolved photoemission spectroscopy reveals the direction, the speed, and the scattering mechanism of valence electrons. In the past two decades, enormously improved resolution and carefully matched experiments have elevated this technique to an important many-body spectroscopy. Today, ARPES experiments help setting the intellectual agenda by testing new ideas, discovering surprises, and challenging orthodoxies. This technique is at the focal point of the necessary debates leading to new paradigms of physics represented by the high temperature superconductors. In this talk, we will survey the progress of this field over the last two decades and the information we gained about the high temperature superconductors. However, the focus will be the latest ARPES data on the following subjects: i) New temperature and doping dependent data that provide insights on the relationship between pseudogap and superconducting gap; ii) New data on the Fermi surface dependent pairing and many-body interactions in self-doped multilayer cuprates. If time permits, we will also present new time resolved photoemission data from charge density wave systems.

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