

Contributions of SRC to the Understanding of the Copper Oxide Superconductors

J.C. Campuzano

Argonne National Laboratory and University of Illinois at Chicago

The discovery of the family of copper oxide high temperature superconductors caused a revolution in condensed matter physics, at the beginning, mostly because of the promise of true high temperature superconductivity. However, it soon became evident that the revolution went beyond possible applications, forcing us to consider unfamiliar concepts of the electronic excitations. It is here where ARPES experiments carried out at the SRC played a major role in the development of these new concepts, starting with the work of Cliff Olson and collaborators, showing the unconventional nature of the superconducting gap. I tried to parachute, but rather fell into this bizarre world. I was very fortunate to count with smart graduate students, and even smarter collaborators, who managed to make some sense of the unusual results, and provide an exhilarating ride along for me. I will review some of these concepts, and try to provide a glimpse of why the problem is far from a full understanding.