DETERMINING THE FERMI SURFACE FROM ANGLE RESOLVED PHOTOEMISSION SPECTROSCOPY (ARPES)

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A point $\mathbf{k_F}$ on the Fermi surface is the locus of a steplike feature in the momentum distribution $\mathbf{n_k}$. Energy integrated ARPES spectra give experimental access to $\mathbf{n_k}(T)$ for strongly correlated electrons. Various modified criteria for $\mathbf{k_F}$ have been proposed, taking into account that $\mathbf{n_k}$ is discontinuous only in the zero temperature limit. In the absence of particle hole symmetry around the chemical potential, I find, that $\mathbf{k_F}$ is best characterized by the stability of $\mathbf{n_k}(T) \approx \mathbf{n_k}(O)$. The actual value may be $\neq 1/2$. The "inflexion-point"-criterion is less stable. Acknowledging the help of several poles (in the complex plane), I am happy to present my conclusions at a conference in their homeland.

9.7 cm

13.4 cm

Subject category :

1. Correlated Electrons and High Temperature Superconductors

Presentation mode :
oral

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