N92-21652

PHENOMENOLOGICAL THEORY OF THE NORMAL AND SUPERCONDUCTIVE STATES OF Cu-O AND Bi-O METALS

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ABSTRACT

The universal normal state anomalies in the Cu-O metals follow from a marginal Fermi-liquid hypothesis: there exists a contribution to the polarizability over most of momentum space proportional to ϖ/T for $\varpi/T \ll 1$ and constant thereafter up to a cutoff ϖ_c. Using the same excitation spectrum, the properties of the superconductive state have been calculated. We can obtain the right order of T_c, the zero-temperature gap, $2\Delta(o)/T_c$ and the nuclear relaxation rate near T_c.

I will discuss the possible microscopic physics leading to the marginal Fermi-liquid hypothesis.

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