

Indelible Rules of Josephson Coupling Energy and Zero-Point Energy in High- T_c Cuprates

LIU Fu-Sui^{1,2} and CHEN Wan-Fang^{3,4}

¹ Department of Physics, Peking University, Beijing 100871, China

² Department of Physics, Yunnan University, Kunming 650091, China

³ CCAST (World Laboratory), P.O. Box 8730, Beijing 100080, China

⁴ University of Sciences and Technology for Staffs and Workers of the Chinese Academy of Sciences, Beijing 100080, China

(Received: 2003-6-24; Revised:)

Abstract: This paper shows that the Josephson coupling energy and the zero-point energy have indelible rules on the superfluid density and the superconductivity in the high- T_c cuprates. This paper also shows that the values of T_c at underdoped and overdoped regions are determined by the damage conditions of the phase coherence in the classical and the quantum XY-models, respectively.

PACS: 74.72.-h, 74.20.Fg

Key words: high- T_c cuprates, superfluid density, Josephson coupling, zero-point energy

[\[Full text: PDF\]](#)

Close