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Fermiological interpretation for collective spin and charge orderings in underdoped La-based cuprates by ARPES RUIHUA HE, Physics, Applied Physics, Stanford Univ. & SSRL (Stanford), KIYOHISA TANAKA, Stanford & ALS & Physics, Osaka Univ., SUNG-KWAN MO, Stanford & ALS, HONG YAO, Stanford, MAKOTO HASHIMOTO, Stanford & ALS, EREZ BERG, Stanford, TAKAO SASAGAWA, Stanford & Materials and Structures Lab, TIT, TADASHI ADACHI, Applied Physics, Tohoku Univ., MASAKI FUJITA, Institute of Materials Research, Tohoku Univ., TEPPEI YOSHIDA, Complexity Science and Engineering, Univ. of Tokyo, NORMAN MANNELLA, Stanford & ALS, WORAWAT MEEVASANA, Stanford, YOJI KOIKE, Applied Physics, Tohoku Univ., KAZUYOSHI YAMADA, Institute of Materials Research, Tohoku Univ., ATSUSHI FUJIMORI, Complexity Science and Engineering, Univ. of Tokyo, STEVE KIVELSON, Stanford, ZAHID HUSSAIN, ALS, ZHI-XUN SHEN, Stanford — By using ARPES interpretation for the origin of the collective spin and charge orderings in underdoped La-based cuprate superconductors is carefully examined. A Fermi surface nesting wave vector is identified which closely matches the collective ordering wave vector observed by neutron scattering for doping around 1/8. The pseudogap state is found to be essential for the development of such nesting instability of the electronic system toward density wave formation. A systematic doping dependence study will be presented that allows further insights into this issue.

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