

Abstract Submitted
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Charge ordering in a parent compound of iron-based superconductors WEI-GUO YIN, Brookhaven National Laboratory — Charge order in a parent undoped magnetic metal is rare, in contrast with many other well-known charge-ordered systems such as doped cuprates, doped manganites, intrinsically mixed-valent magnetite, nonmagnetic transition-metal dichalcogenides, insulating RNiO₃, etc. Here we present a unique bi-stripy charge order in metallic FeTe, based on the spin-fermion model that provides a unified picture for magnetic correlations in iron-based superconductors (FeSCs) and its extension to include intersite Coulomb interaction V_{ij} . The charge order has unusually the same—usually half—period as the spin order, in agreement with recent STM/STS measurements on stoichiometric FeTe films [1]. The results suggest that FeSCs belong to the intermediate regime of J_H (Hunds rule coupling) versus U (Hubbard interaction) where V_{ij} -driven charge fluctuations, so far much neglected, are essential. [1] W. Li et al., Phys. Rev. B 93, 041101(R) (2016).

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