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T-matrix Impurity Effects on Nematicity in Iron-Based Supeconductors NACHUM PLONKA, ALEXANDER KEMPER, THOMAS DEVEREAUX, Stanford University and SLAC National Accelerator Laboratory — In iron-based superconductors, nematicity has been reported in transport measurements and a broad range of spectroscopies, including angle-resolved photoemission, neutron scattering, and scanning tunneling microscopy. These observed anisotropies of broken tetragonal symmetry have been attributed to pure spin physics or unequal occupation of the iron d-electron orbitals, referred to as orbital ordering. To address this issue, we use realistic multi-orbital tight-binding Hamiltonians and T-matrix formalism to explore the effects of non-magnetic impurities. In particular, we present a detailed examination of the local density of states around impurities, and highlight the interplay of magnetic and orbital degrees of freedom.

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