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Orbital currents in a three-band spinless fermion lattice model ALEX LIEBMAN-PELÁEZ, DARRELL SCHROETER, Reed College — We investigate the stability of orbital currents in a three-band model of the cuprates. We consider a Hubbard-type model for spinless fermions moving on an array of plaquettes that are coupled by weak hopping. The orbital current, bond density, and charge density present on an individual plaquette are associated with the components of a pseudospin located on that plaquette. An effective pseudospin Hamiltonian is derived at second order in degenerate perturbation theory that can be used to examine the stability of orbital current order in this model. This work extends the one-band model of Pujari and Henley [PRB **80**, 085116] such that it applies to orbital currents in the physically relevant three-band model.

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