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Spin triplet superconductivity in a weak-coupling Hubbard model for the quasi-one-dimensional compound Li0.9Mo6O17 CHRISTIAN PLATT, WEEJEE CHO, Department of Physics, Stanford University, ROSS H. MCKENZIE, School of Mathematics and Physics, University of Queensland, SRI RAGHU, Department of Physics, Stanford University — The purple bronze Li0.9Mo6O17 is of interest due to its quasi-one-dimensional electronic structure and the possible Luttinger liquid behavior resulting from it. For sufficiently low temperatures, it is a superconductor with a pairing symmetry that is still to be determined. To shed light on this issue, we analyze a minimal Hubbard model for this material involving four Molybdenum orbitals per unit cell near quarter filling, using asymptotically exact perturbative renormalization group methods. We find that spin triplet odd-parity superconductivity is the dominant instability. Approximate nesting properties of the two quasi-one-dimensional Fermi surfaces enhance certain second-order processes, which play crucial roles in determining the structure of the pairing gap. Notably, we find that the gap has accidental nodes, i.e. it has more sign changes than required by the point-group symmetry.

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