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Accidental nodes in the order parameter of the iron superconductors due to Coulomb repulsion[1] ALASKA SUBEDI, University of Tennessee, Knoxville, DAVID SINGH, Oak Ridge National Laboratory — The nature of the order parameter in the iron superconductors is not fully elucidated. There is a general agreement that the order parameter is a spin singlet state. There is evidence for a fully gapped sign changing $s_{\pm}$ order parameter in some iron superconductors. However, there is also evidence for line nodes in some samples that might indicate a different symmetry. In this paper, we present a model that shows accidental nodes can appear within the $s_{\pm}$ order parameter scenario due to a competition between the pairing interaction and Coulomb repulsion.

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