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Pair density wave superconducting state in a Nematic Liquid Crystal Phase[1] RODRIGO SOTO GARRIDO, EDUARDO FRADKIN, University of Illinois at Urbana-Champaign — We consider the problem of the superconducting states that arise in a fermionic system in a nematic-like $l = 2$ state in the spin-triplet channel. This nematic state is invariant under a $\pi/2$ rotation followed by a spin flip. Under these circumstances the only infinitesimal superconducting instability is in the p-wave channel. However, close enough to the nematic transition both a uniform d-wave superconducting state and a pair density wave (PDW) state (also with d-wave symmetry) can arise. We compute the phase diagram and study the competition between an uniform (BCS type) superconducting state, the PDW state and the non-superconducting state.

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