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Title:	Exotic superconducting states in the extended attractive Hubbard model
Authors:	Nayak, Swagatam (/jspui/browse?type=author&value=Nayak%2C+Swagatam) Kumar, Sanjeev (/jspui/browse?type=author&value=Kumar%2C+Sanjeev)
Keywords:	Attractive Hubbard model Chiral p-wave Unconventional superconductivity
Issue Date:	2018
Publisher:	Institute of Physics Publishing
Citation:	Journal of Physics Condensed Matter, 30(13).
Abstract:	We show that the extended attractive Hubbard model on a square lattice allows for a variety of superconducting phases, including exotic mixed-symmetry phases with $dx_2-y_2 + i[s + s]$ and $d x_2-y_2 + px$ symmetries, and a novel $px + ipy$ state. The calculations are performed within the Hartree-Fock Bardeen-Cooper-Schrieffer framework. The ground states of the mean-field Hamiltonian are obtained via a minimization scheme that relaxes the symmetry constraints on the superconducting solutions, hence allowing for a mixing of s-, p- and d-wave order parameters. The results are obtained within the assumption of uniform-density states. Our results show that extended attractive Hubbard model can serve as an effective model for investigating properties of exotic superconductors
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