

Nuclear pairing from realistic forces: singlet channels and higher partial waves

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The pairing gaps [1] in isospin-symmetric nuclear matter and neutron matter are investigated using the chiral nucleon-nucleon potential at the N^3LO order in the two-body sector [2] and the N^2LO order in the three-body sector [2,3]. We have developed a numerical code [4], based on the separation method introduced in Ref. [5], in order to study both the singlet channels (1S_0) and higher partial coupled waves (3P_2 - 3F_2 and 3S_1 - 3D_1). The role of three-body forces and other many-body correlations is discussed in comparison with available *ab-initio* and microscopic calculations [1,6] whenever is possible.

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