Pairing–plus–Quadrupole Model in Two Shells

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An extended pairing-plus-quadrupole model is introduced. The pairing part of the Hamiltonian consists of pp-, nn- and pn-pairing terms and terms describing the pair-scattering between two shells. Energy spectra for nuclei from different shells are calculated and the role of the two parts in the interaction depending on the parameter strengths is discussed in detail. This investigation is the initial step towards creating an extended two-shell version of the microscopic (pseudo) SU(3) shell model.