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Unified BCS-like model for pairing and alpha correlations[1] ROMAN SEN'KOV, Central Michigan University, VLADIMIR ZELEVINSKY, NSCL, Michigan State University — Recent studies of nuclei far from stability set a problem of understanding the features of nuclear structure for systems with an unusual neutron-proton composition. Medium and heavy nuclei with N close to Z, such as in the vicinity of ^{100}Sn, give a unique example of a two-component fermionic system with coexisting pairwise and quartic correlations. To describe these collective effects we generalize the variational BCS ground state wave function including $p-p$, $n-n$, $p-n$ and $2p-2n$ components under the assumption of attractive interaction in time-conjugate orbitals. The analytical solution reveals the possibility of different condensates being a nuclear analog of the BCS-BEC crossover in mesoscopic physics.

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