

Two-quasiparticle states in some odd-odd heavy deformed nuclei within a microscopic approach

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We study low-lying states of two-quasiparticle character in some well-deformed odd-odd nuclei around ^{178}Hf within the framework of the Skyrme energy-density functional (SEDF) approach, including BCS pairing correlations with selfconsistent blocking. We use the SIII SEDF parametrization with time-odd terms and seniority pairing residual interaction as in a previous study of two-quasiparticle K -isomeric states in actinide and heavier nuclei [to be published in Phys. Rev. C]. The strength of the seniority interaction is determined through an overall fit on the first 2^+ excitation energies [Phys. Rev. C **99**, 064306 (2019)]. Axial and parity symmetries are assumed throughout the Hartree-Fock-BCS calculations but time-reversal symmetry is broken.

After checking the relevance of the SIII single-particle spectrum by comparison with experimental bandhead states of low-lying one-quasiparticle states in odd-mass neighbors of ^{178}Hf , we calculate two-quasiparticle states in doubly-odd neighboring nuclei for the relevant neutron and proton configurations. A special attention is drawn on the Gallagher-Moskowsky splitting and a comparison with experiment and results obtained by Robledo, Bernard and Bertsch [Phys. Rev. C **89**, 021303(R) (2014)] with the Gogny EDF.

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