Two-Quasiparticle K-Isomers in Heavy Nuclei within Self-Consistent Skyrme Hartree-Fock plus BCS Approach

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We explore the two-quasiparticle (2qp) structure of K-isomeric states in heavy even-even nuclei within a self-consistent Skyrme Hartree-Fock plus BCS approach. Our calculations show that the Skyrme-SIII parametrization provides a reasonable overall description of the 2qp isomeric energies observed in the region of heavy actinide and some superheavy nuclei. In the rare-earth region it describes the $K^\pi = 6^+$ and 8^- isomers in the very near vicinity of ^{178}Hf and provides a test for the contribution of alternative neutron and proton 2qp configurations in the formation and energy characteristics of these isomeric states along the corresponding isotopic and isotonic chains. The calculations provide predictions for the electric and magnetic moments in the K-isomeric states and allow one to examine the possible effects of quadrupole-octupole deformation.