Recoil-isomer tagging studies in the vicinity of Z = 82 and N = 82 shell closures

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Abstract

The recoil-isomer technique has been used to study excited states of the extremely neutron-deficient nucleus ^{175}Hg for the first time. The decay path of a $J^{\pi} = 13/2^{+}$ isomeric state to the ground state has been observed and has permitted the identification of a band exhibiting characteristics consistent with a mildly oblate shape. The observations are interpreted in terms of single-particle configurations and are discussed in the context of the shape-coexistence reported in neighbouring Hg isotopes.