ALPHA-DECAY OF DEFORMED NUCLEI HAVING NONZERO ORBITAL MOMENTUM GROUND STATE

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The production of α-particles with nonzero orbital momentum in the decays of deformed nuclei is considered in the framework of a cluster model using the WKB approximation. The model is based on the α-nucleus potential with parameters derived by using the data for both the α-decay half-lives and the fusion cross sections around the barrier. The α-decay half-lives for a set of deformed nuclei having nonzero orbital momentum ground state are evaluated and compared with the experimental data. New expression for the formation probability of α-particle with nonzero orbital momentum is proposed.