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Low-energy spectra of nobelium isotopes

The low-energy multipole spectrum in isotopes 250-260No is investigated in the framework of fully self-consistent Quasiparticle-Random-Phase-Approximation (QRPA) method with Skyrme forces (SLy6, SkM* and SVbas) is applied. The main attention is paid to nuclei 252No and 254No, where we have most of the experimental spectroscopic information [3,4]. In addition to low-energy one-phonon collective states ($l\pi=20,22,30,31,32,43$) and K-isomers ($K^\pi = 2^-,8^-,3^+$). In general, a good agreement with the experimental data is obtained. It is shown that, in the chain 250–260No, features of 252No and 254No exhibit essential irregularities caused by a shell gap in the neutron single-particle spectra and corresponding break of the neutron pairing. The low-energy pairing-vibrational $K^\pi = 0^+$ state is predicted in 254No.

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Notes

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