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Low-energy spectra of nobelium isotopes

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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 ($lm=20,22,30,31,32,43$) 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.

[1] P.-G. Reinhard, B. Schuetrumpf, and J. A. Maruhn, Comp. Phys. Commun. 258, 107603 (2021).

[2] A. Repko, J. Kvasil, V.O. Nesterenko and P.-G. Reinhard, arXiv:1510.01248[nucl-th].

[3] R.-D. Herzberg and P.T. Greenlees, Prog. Part. Nucl. Phys. 61, 674 (2008).

[4] R.-D. Herzberg, arXiv:2309.10468[nucl-ex].

[5] F.L. Bello Garrote et al, Phys. Lett. B834, 137479 (2022).

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