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# Scissors mode in 254No

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The low-energy multipole spectrum in isotopes $^{250-260}No$ is investigated in the framework of fully self-consistent Quasiparticle-Random-Phase-Approximation (QRPA) method [1, 2] with Skyrme forces. The main attention is paid to nuclei $^{250,252,254}No$, where we have most of the experimental spectroscopic information [3, 4]. In general, a good agreement with the experimental data is obtained. It is shown that, in the chain $^{250-260}No$, features of $^{252}No$ and $^{254}No$ 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 $K = 0^+$ state is predicted in $^{254}No$. In addition to low-energy one-phonon collective states (lm=20,22,30,31,32,43) and K-isomers ($K = 2^-, 8^-, 3^+$) will be shown [5].
Isotopes of No are attracting attention, as there are new experimental data on M1 excitation for $^{254}No$ [6]. The main attention is paid to orbital and spin M1 excitations. Lowest $K = 1^+$ states in $^{254}No$ have a spin-scissor character and seen as collective excitation of orbital mode. In particular, the interference of spin and orbital degrees of freedom is investigated.

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