

Quasi Parity-Doublet Spectra with Strong Coriolis Mixing

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The model of coherent quadrupole and octupole motion (CQOM) [1–3] is applied in a combination with the reflection asymmetric deformed shell model (DSM) [4] to yrast and non-yrast quasi parity-doublet spectra in odd-mass nuclei by fully taking into account the Coriolis decoupling and K -mixing interactions. In this approach the even-even core is considered within the CQOM model, while the odd nucleon is described within DSM with pairing interaction. The Coriolis decoupling/mixing factors are calculated microscopically through a parity-projection of the single-particle wave function. The $B(E1)$, $B(E2)$ and $B(E3)$ reduced probabilities for transitions within and between different quasi-doublets are calculated by taking into account the K -mixing in the total core plus particle wave function. The model scheme is tested on the yrast and non-yrast quasi parity-doublet spectra in the nuclei ^{221}Fr and ^{223}Ra .

References

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