



Contribution ID: 49

Type: Talk

High-K isomeric states in the A~250 region: new isomers in $^{249,251}\text{Md}$ and stability inversion in ^{250}No .

Wednesday, 4 May 2022 11:30 (15 minutes)

A century after its discovery, isomerism has proven to be a very fertile tool for the study of nuclear structure, with an important impact on models development. As early as 1973, isomeric states were observed in the A 250 mass region in ^{250}Fm and ^{254}No by Ghiorso et al [1]. This region around $Z = 100$, $N = 152$ is characterized by prolate-deformed nuclei with the presence of several high-K orbitals, resulting in an accumulation of high-K isomeric states such as in the even-even $^{250,256}\text{Fm}$, $^{250,252,254}\text{No}$, ^{256}Rf , with $^{249,251}\text{Md}$ and ^{255}Lr being the only case in the odd-Z nuclei. These isomers together with other measurements feed and influence the interpretation of heavy nuclei in terms of shell structure.

Indeed, the presence of the isomeric state provides the opportunity to select experimentally a de-excitation path and therefore to access orbitals that would be hardly accessible otherwise. Moreover, the excitation energy of such states is a good test of nuclear models since it strongly depends on the details of single-particle spectra and on generic properties such as pairing correlations and the presence or not of a shell gap.

In this presentation, we will report on recent investigations performed at the University of Jyväskylä. High-K isomers were observed for the first time in $^{249,251}\text{Md}$ [2]. They are interpreted as 3-qp excitations. ^{250}No has long been an enigmatic case with fission having two lifetimes components. This puzzle was solved thanks to digital electronics and has demonstrated that ^{250}No is one of the rare cases with a stability inversion, i.e. an isomeric state whose lifetimes is longer than the ground state [3].

Comparisons with theoretical calculations will be presented. The systematics of high-K isomer half-lives around $N=150$ will also be discussed.

[1] A. Ghiorso et al., Phys. Rev. C 7 (1973) 2032
[2] T. Goigoux, Ch. Theisen, B. Sulignano et al., Eur. Phys. J. A 57 (2021) 57
[3] J. Kallunkathariyil, B. Sulignano et al., Phys. Rev. C 101 (2020) 011301(R)

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Session Classification: Isomers in Heavy and Superheavy Nuclei