

## High-K isomers: some of the questions

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There are many examples of high-K isomeric states in deformed nuclei, with half-lives ranging from nanoseconds to years, and excitation energies up to almost ten MeV. Nevertheless, significant questions remain about their properties, and the extent to which they might be exploited (i) to reach the most exotic nuclei, and (ii) to explore physics at the atomic-nuclear interface. Specific issues include:

- What is the spin limit to K isomerism?
- How can the evolution of K isomerism with excitation energy be understood, from discrete states to the quasi-continuum?
- To what extent can K isomers confer extra stability compared to their corresponding ground states?
- Do K isomers have anti-fission configurations?
- How can the energy of K isomers be released by interactions with their atomic-electron environment?
- Can the production and survival of  $^{180\text{m}}\text{Ta}$  in astrophysical environments be understood?

After a brief review of the occurrence of K isomerism, attempts to address questions such as these will be discussed.