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Isomers measured for a moment

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Electromagnetic moments tell us about the distribution of charges and currents in atomic nuclei. Moments are therefore key nuclear observables for the understanding of both the collective and individual-particle properties. For experimental reasons, moment measurements typically benefit from half-lives of order nanoseconds or longer, in which case the existence of isomeric states becomes necessary for the determination of excited-state moments.

In this presentation, the occurrence of nuclear isomers will be outlined, with reference to spin, spin orientation, and shape [1]; examples of moment measurements will be considered, illustrating the nuclear structure issues that can be addressed; and future opportunities will be discussed.

[1] P.M. Walker and Zs. Podolyák, Nuclear isomers, Chapter 12 in "Handbook of Nuclear Physics", Eds. I. Tanihata, H. Toki and T. Kajino (Springer Nature Singapore 2023) p 487

Author: WALKER, PHILIP (UNIVERSITY OF SURREY)

Orateur: WALKER, PHILIP (UNIVERSITY OF SURREY)

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