

Measuring nuclear moments using laser spectroscopy

Tuesday 16 December 2025 14:00 (1 hour)

Laser spectroscopy is used at radioactive ion beam facilities to determine magnetic dipole and electric quadrupole moments, and additionally the change in the nuclear mean-square charge radius. The correct extraction of such quantities requires the correct value of the nuclear spin but in many cases the hyperfine structure allows the spin to be independently determined. A brief introduction to some of the key experimental methods will be given, which are typically applicable to nuclear ground and isomeric states in the millisecond range or longer. A few physics cases will be used to illustrate the need for nuclear moments and issues encountered in determining them or comparing with literature.

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