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Nuclear structure studies by measurements of nuclear spins, moments and charge radii via collinear laser spectroscopy at ISOLDE

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High-resolution laser spectroscopy at ISOLDE gives access to properties of nuclear ground states and longlived (> 10 ms) isomeric states of radioactive nuclei far from stability, such as nuclear spins, nuclear magnetic and quadrupole moments and charge radii [1]. These fundamental properties of exotic nuclei provide important information for the investigation of the nuclear structure in different regions of the nuclear chart. Two complementary collinear laser spectroscopy set-ups are available at ISOLDE: one for optically detected Collinear Laser Spectroscopy (COLLAPS) [2] and one for Collinear Resonant Ionization Spectroscopy (CRIS) [3].

By combining these two techniques, the nuclear structure in several key regions of the nuclear chart is been studied, from the very neutron-deficient to the very neutron-rich side of the nuclear landscape. Recent results from studies in the Ca and Sn regions will be presented and an outlook to future opportunities will be presented.

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