

Fundamental properties of heavy nuclei studied with laser spectroscopy

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High-resolution optical measurements of unstable atoms provides some of the most fundamental nuclear properties: spin, nuclear moments, mean-square charge radii. The simple fact that an observation of an optical resonance has been made, confirms the existence of a new nuclide or long-lived nuclear state. By performing systematic measurements across isotope chains it is possible to elucidate structural changes and the onset of new phenomena. These measurements are compelling since they do not rely on the assumptions of any particular nuclear model and rather provide a rigorous test of existing models. There has been considerable attention focused onto the heaviest nuclei in the last 10 years, with many exciting new measurements made at the very limits of stability. This talk will present a summary of the latest achievements and future developments in this region of the chart.

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