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Laser spectroscopy of short-lived radioactive nuclei in the accelerator laboratory in Jyväskylä

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The study of the atomic nucleus has occupied nuclear physicists for over a century now. Of the many experimental tools that were over the decades, laser spectroscopy has been pivotal in expanding our knowledge, by bringing to light many new and exciting phenomena. Of all elements, the so-called refractory elements have been studied the least so far. These elements, found mostly in groups IV-VIII of the periodic table, are challenging because short-lived species tend to undergo radioactive decay before they can be delivered to the experimental apparatuses. Furthermore, for laser spectroscopy, and additional challenge arises due the complex atomic structure that these elements possess.

In this poster, I will give an overview of the laser spectroscopy programme at the IGISOL facility, and highlight how it deals with the difficulties listed above. Just in the past year, successful measurements were performed on exotic silver, yttrium, niobium and palladium isotopes. This poster will discuss some of these measurements and results in detail. An outlook to future measurements, in various stages of preparation, will be given.

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