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Laser Spectroscopy as a Probe of Nuclear Structure in the Vicinity of ^{78}Ni

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Of the many observables that are available to probe the nucleus, the nuclear electromagnetic moments and the charge radius have proven particularly sensitive probes of nuclear structure effects. These observables can readily be extracted from measurements of the atomic hyperfine structure using laser spectroscopic methods. The study of exotic (very short-lived) radioactive isotopes requires ultra-sensitive laser spectroscopy techniques, which are under continuous development at radioactive beam facilities. A particular region of interest for nuclear structure studies is the region around the exotic isotope ^{78}Ni, an isotope that is predicted to have a doubly-magic character. At the ISOLDE facility in CERN, many laser spectroscopy experiments have been working towards the doubly magic ^{78}Ni, and the isotopes in its vicinity. In this contribution, an overview of recent results obtained on neutron-rich Gallium, Zinc, Copper and Nickel will be given. Emphasis will be placed on the most recently obtained radii and electromagnetic moments of neutron-rich Copper ($^{76-78}$Cu), Zinc (up to ^{79}Zn), and Nickel (up to ^{70}Ni). Where possible, the complementarity of these results and other observables will be highlighted. These results were obtained with two complimentary high-resolution laser spectroscopy techniques, namely collinear laser spectroscopy and collinear resonance ionization spectroscopy (CRIS). The principle of these methods will be briefly introduced, emphasizing specifically how the strengths of the two methods enable the measurements on exotic isotopes.