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Sommario/riassunto	This thesis describes the application of the collinear resonance laser spectroscopy to sensitively measure the electromagnetic nuclear observables of the neutron-rich indium isotopes 115-131In. This entailed a systematic study of the efficiency of resonant ionization schemes to extract the hyperfine structure of the isotopes, the atomic charge exchange process and benchmarking of modern atomic calculations with a laser ablation ion source. This allowed determination of the root-mean-square nuclear charge radii, nuclear magnetic dipole moments, nuclear electric quadrupole moments and nuclear spins of the 113-131In isotopes with high accuracy. With a proton hole in the Z = 50 nuclear shell closure of tin and several nuclear isomer states, these measurements of the indium (Z = 49) isotope chain provided an efficient probe of the evolution of nuclear structure properties towards and at the doubly-magic nuclear shell closure of 132Sn (N = 82) - revealing unpredicted changes.