

## Laser spectroscopy on neutron-rich 48-51K isotopes

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Laser spectroscopy was performed on bunched beams of K ( $Z = 19$ ) isotopes at the COLLAPS beam-line at ISOLDE-CERN. Nuclear spins, magnetic moments and mean square charge radii were deduced for 48,49,50,51K providing information about the nuclear structure beyond  $N = 28$ . In order to be able to measure the most exotic isotope ( $N = 32$ ), a highly-efficient light collection region was developed and installed on the beam line. The ground state spin and magnetic moments are sensitive to the configuration of the wave function, thus being a good probe to study the evolution of the proton single-particle configuration as neutrons are filling the  $\pi p_{3/2}$  orbit. The results will be compared to Shell Model calculations using different effective interactions. The evolution of the  $1/2$  and  $3/2$  energy levels from  $N = 16$  up to  $N = 32$  will be discussed as well. The change in the mean square charge radii along an isotopic chain is a good observable to probe the presence of a closed shell. Charge radii between  $N = 18$  and  $N = 32$  will be presented, covering two major shell closures and one subshell closure.

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