

Coulomb Excitation of $^{94,96}\text{Kr}$ at ISOLDE: Shape changes and deformation of neutron-rich Krypton Isotopes

Wednesday 18 November 2009 12:00 (20 minutes)

Recently the energy of the first $2+$ state in the $N=60$ ^{96}Kr nucleus was determined to be 241 keV. This was the first experimental observation of an excited state in this highly exotic nucleus. The $2+1$ state in ^{94}Kr is located at 665.5 keV, i.e. $E(2+1)$ drops by more than 400 keV at $N=60$. This lowering of the $2+1$ energy indicates a sharp shape transition behavior which is somewhat similar to that discovered in the Sr and Zr isotopic chains at $N=60$. The sudden decrease of $E(2+1)$ from $N=58$ to $N=60$ does not fully agree with the more gradual change of deformation deduced from laser spectroscopy measurements of mean square charge radii. It is thus of considerable interest to characterize the nuclear shape evolution in the most neutron-rich Kr isotopes looking at transition matrix elements. We therefore have performed Coulomb Excitation experiments in inverse kinematics on $^{94,96}\text{Kr}$ at ISOLDE (IS 485) using the MINIBALL gamma-ray spectrometer. We will show first results of this challenging experiment.

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Session Classification: Session 2