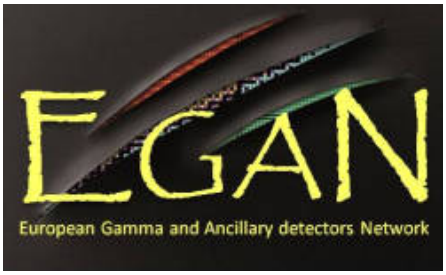

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Evolution of nuclear deformation in the neutron-rich Kr isotopes

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Nuclei in the neutron-rich Aasymp100; mass region are well suited for the understanding of the development of collectivity. By adding only a few neutrons to the N=50 shell closure, collective effects can quickly occur. For the Z=40 (Zr) isotopes, N=56 becomes an effective shell closure, so that 96Zr is quoted as a doubly-magic nucleus. Adding only a few neutrons more, the Zr-isotopes get strongly deformed. This behaviour indicates a shape phase transition at N=60 from spherical to deformed shapes. For the Z=38 (Sr) and Z=42 (Mo) isotopes the systematics show a similar behavior, whereas for the Z=44 (Ru) isotopes, this rapid change of the shape seems to be attenuated. The aim of our work was to investigate the behaviour of the Z=36 (Kr) isotopes in this phase transition region by determining the energies of the 2+1 states and their E2 decay transition strengths to the ground state in 94Kr (N=58) and 96Kr (N=60). Therefore, we performed two experiments at REX-ISOLDE at CERN in 2009 and 2010. We utilized the high-efficiency MINIBALL gamma-ray spectrometer to analyse the emitted gamma-rays and scattered particles after Coulomb-excitation. We will show and discuss the preliminary results. This work was supported by BMBF under Grant 06KY205I and 06KY9136I.

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