Contribution ID: **35** Type: **not specified**

Shell structure and shape changes in neutron rich krypton isotopes

Tuesday, 18 December 2007 09:40 (15 minutes)

The krypton isotopes are located roughly in the middle of the Z=28 and Z=50 shell closures, where competition of various structures and shapes at low-excitation energy occurs. For example, this can be seen in the case of Z=40 Zirconium Isotopes. In 96Zr (N=56) a strong shell closure was found, interpreted to be reinforced by the Z=40 shell gap. Such a shell gap should quickly disappear moving away from Z=40. Indeed, no influence of this gap was found for isotopes Z>40. Adding more neutrons to the Zirconium Isotopes leads to a unique increase of B(E2) values from 8 W.u. to about 100 W.u. by adding only a few neutrons. This abrupt phase transition from sperical to deformed nuclei may demonstrate the complexity of this region of the nuclear chart.
In the case of Krypton isotopes (Z=36) the energy of the first excited state peaks at 92Kr (N=56) like in the case of Zirconium isotopes. In the past it was extensivly discussed whether the N=56 shell gap is active or deformation starts to set in. Up to now, only information about energies and masses were available for the neutron rich krypton isotopes to discuss this topic. We were able to meassure B(E2) values for 88Kr (N=52) and 92Kr (N=56) for the first time by Coulomb excitation in inverse kinematics at REX-ISOLDE using the MINIBALL array. The analysis was done using the newly developed Coulex Code Gosia2, that can handle target and projectile excitations simultaneously. We present our results and discuss the consequences for the understanding of the structure of neutron-rich krypton isotopes.

Primary author: Mr MÜCHER, Dennis (Institut for Nuclear Physics, University of Cologne)

Co-author: Dr IWANICKI, Jedrzej (Heavy Ion Laboratory, Warsaw)

Presenter: Mr MÜCHER, Dennis (Institut for Nuclear Physics, University of Cologne)

Session Classification: Nuclear Physics I