

## ISOMER SPECTROSCOPY OF EXOTIC NUCLEI AROUND MASS 180

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Isomer spectroscopy is a powerful method to investigate the shape coexistence in different regions of the nuclear chart. A competition between the deformed (K-isomer) and the spherical (seniority isomer) shape is also a phenomenon in these regions. Neutron-deficient lead isotopes close to the neutron mid-shell ( $N \sim 104$ ) have a particular importance and different intrinsic shapes have been predicted[1]. In our present experiment we have investigated new K-isomers in the proton rich 180 mass region to study the shape effects using the fragmentation reactions with a  $^{238}\text{U}$  beam.

A primary beam of  $^{238}\text{U}$ , 900 MeV/u was used to produce the exotic nuclei by bombarding a primary target of 1 g/cm<sup>2</sup> thick Be. The fragments were transported through GSI's FRagment Separator (FRS) and stopped in a plastic catcher at the fourth focus of the FRS. Time-of-flight along with  $B\rho$ - $\Delta E$ - $B\rho$  method was used for identification of different nuclei at the final focus. Six segmented Clover detectors including two GSI super Clovers were placed around the catcher in a close geometry to record the de-exciting  $\gamma$ -rays from the isomeric state of the nuclei of interest. Several well known and newly discovered isomers were observed during online analysis. We will report on the isomers observed in the present experiment at GSI around mass 180 region. A new isomer has been observed in  $^{178}\text{Au}$  nucleus and will be presented in detail during the conference.

[1] W. Nazarewicz, Phys. Lett. **B305**, 195 (1993).