

# Non-yrast structure of neutron-rich Zr nuclei

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Neutron-rich zirconium ( $Z=40$ ) nuclei lie in the midst of a shape-changing region with many models predicting a transition from spherical to prolate/oblate coexistence at  $N=60$ . Measurements of the mean-square charge radii in the zirconium chain [Ca02] indicate a shape transition at  $N=59$ . In order to further investigate the low-lying structure of more-exotic systems, an experiment was undertaken at the GSI facility to study  $^{104,106}\text{Zr}$  populated following the beta decay of  $^{104,106}\text{Y}$  produced in the projectile fission of a 750 MeV  $^{238}\text{U}$  beam. The beam impinged on a Be target and the recoiling fission fragments were analysed, separated and slowed in the GSI FRagment Separator and stopped in an array of position-sensitive silicon detectors. Gamma rays emitted following the beta decay of the yttrium ions were measured using the RISING array in its stopped-beam configuration and correlated with the implanted ions. Details of the measurements on the exotic zirconium nuclei will be presented and discussed along with future plans to measure more-exotic systems.

[Ca02] P.Campbell et al., Phys. Rev. Letts. 89 (2002) 082501.

**Primary author:** BRUCE, Alison (University of Brighton)

**Co-authors:** GADEA, Andres (University of Valencia); BENZONI, Giovanna (University of Milano); VALIENTE-DOBON, Jose Javier (LNL); PIETRI, Stephane (GSI); PODOLYAK, Zsolt (University of Surrey)

**Presenter:** BRUCE, Alison (University of Brighton)

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