

# Identification of Isomeric States 'South' of $^{208}\text{Pb}$ via Projectile Fragmentation

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We present the results of an investigation of decays from isomeric states in exotic, neutron-rich nuclei near the doubly-magic nucleus  $^{208}\text{Pb}$ . This study forms part of the Rare Isotope Investigations at GSI (RISING) collaboration with a particular emphasis on isomeric decays in heavy, exotic nuclei. Previously, experimental information was available on the internal structure of  $N = 126$  isotones for proton numbers less than 82 (i.e. proton holes in the magic closed shell) only down to  $Z = 80$ ; excited states have been reported in  $^{207}\text{Tl}$  and  $^{206}\text{Hg}$  [1]. The nuclei of interest were synthesised in the projectile fragmentation of a 1 GeV/u  $^{208}\text{Pb}$  beam on a thick Be target (2.5 g/cm<sup>2</sup>). The fragments of interest produced in these reactions were separated and identified in-flight with the GSI FRagment Separator (FRS). The selected reaction products were implanted in a plastic stopper placed at the final focal plane of the FRS and viewed by the 105 germanium crystals of the high-efficiency, high granularity RISING  $\gamma$ -ray spectrometer. Previously unidentified isomeric decays in a number of nuclei in this region will be reported, including excited states in the  $N = 126$ , four-proton-hole nucleus,  $^{204}\text{Pt}$ . The results will be compared with the results of measurements on the previously observed two-proton-hole nucleus  $^{206}\text{Hg}$  [1] and presented together with assignments for structure based on simple shell-model assumptions and systematics of the region.