

Abstract Submitted  
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**Discovery of the alpha decay of  $^{109}\text{I}$**  C. MAZZOCCHI, R. GRZYWACZ, C.R. BINGHAM, D. SIMPSON, University of Tennessee, C.J. GROSS, K.P. RYKACZEWSKI, ORNL, J.C. BATCHELDER, S.N. LIDDICK, UNIRIB, R.D. PAGE, University of Liverpool, A. KORGUL, Warsaw University, W. KROLAS, Institute of Nuclear Physics Krakow, S. ILYUSHKIN, J.A. WINGER, Mississippi State University, J.H. HAMILTON, J.K. HWANG, K. LI, Vanderbilt University — Alpha emission is a rich source for nuclear-structure information [1]. The alpha-particle energies  $E_\alpha$ , corrected for the recoil effect, yield the difference between the ground-state masses of parent and daughter nuclides ( $Q_\alpha$ ). Far from stability the determination of  $Q_\alpha$  often represents the only way to determine the masses of ground and isomeric states. The evolution of  $Q_\alpha$  values along an alpha-decay chain are also a probe for shell effects. In the region above  $^{100}\text{Sn}$  an alpha-decay island occurs, its presence is related to the strong  $Z=50$ ,  $N=50$  double shell-closure. In an experiment performed at the Recoil Mass Separator of the HRIBF at Oak Ridge National Laboratory, the first evidence for the alpha-decay branch of the proton-emitter  $^{109}\text{I}$  was obtained. The results and the consequences for nuclear masses in this region will be discussed.

[1] E. Roeckl, Alpha decay, in: *Nuclear Decay Modes*, ed. D.N. Poenaru, IoP Publishing, 1996, p. 237.

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