

Abstract Submitted  
for the DNP11 Meeting of  
The American Physical Society

**2-gamma decay of the 662-keV isomer in  $^{137}\text{Ba}$** <sup>1</sup> D.J. MILLENER, R.J. SUTTER, D.E. ALBURGER, Brookhaven National Laboratory — 2-gamma decay of the 662-keV  $^{137}\text{Ba}$  isomer following  $^{137}\text{Cs}$  beta decay has been observed using two 3"x3" NaI detectors, a 20.5- $\mu\text{Ci}$  source, and a Pb shielding geometry designed to minimize direct and sequential Compton scattering backgrounds. In runs totaling 144 days, a 662-keV peak has been observed in the profile across the diagonal connecting 662-keV axis points in a 2-dimensional coincidence pulse-height spectrum. A preliminary value of  $2.0(6) \times 10^{-6}$  is derived for the 2-gamma/1-gamma intensity ratio. The distribution of 662-keV events along the 2D diagonal is a continuum centered at 331-331 keV with a shape favoring a double quadrupole E2-M2 or M2-E2 decay sequence. Our result compares with upper limits of  $< 10^{-5}$ , our assessment of the Beusch experiment [1], and  $< 2.2 \times 10^{-6}$  by Basenko et al. [2]. It will be compared with theoretical estimates.

[1] W. Beusch, *Helv Phys. Acta* 33, 363 (1960)

[2] V.K. Basenko, A.N. Berlizov, and G.A. Prokopets, *Bull. Russ. Acad. Sci.* 56, 94 (1992)

<sup>1</sup>Work supported by U.S. D.O.E. contract DE-AC02-98-CH10886

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Date submitted: 28 Jun 2011

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