

Abstract Submitted
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Gamma Ray Multiplicity Comparison of a 2-Neutron and a 4-Neutron Emission ^{252}Cf Spontaneous Fission¹ D.L. BLEUEL, L.A. BERNSTEIN, J.T. BURKE, M.D. HEFFNER, E.B. NORMAN, N.D. SCIELZO, S.A. SHEETS, N.J. SNYDERMAN, M.A. STOYER, M. WIEDEKING, Lawrence Livermore National Laboratory, J. GIBELIN, L.W. PHAIR, Lawrence Berkeley National Laboratory, J. MINTZ, University of California at Berkeley — The correlation between γ -ray multiplicity and neutron multiplicity in the fission process is not currently well known. Competing theories predict opposite correlations and experiments have measured only average properties. We have measured the γ -ray multiplicity spectrum of ^{252}Cf spontaneous fission using the LiBerACE array, comprised of six high-purity germanium (HPGe) Clover detectors, each surrounded by 16 bismuth-germanate (BGO) detectors. The Clovers were arranged in a cubic pattern around a $1\ \mu\text{Ci}$ ^{252}Cf source. Neutron multiplicity was determined for two cases by identifying known correlated fission products from prompt γ -rays observed in the HPGe detectors. No difference in the γ -ray multiplicity spectrum was observed for fissions that produced $^{106}\text{Mo}/^{144}\text{Ba}$ (2 neutrons) compared to those producing $^{106}\text{Mo}/^{142}\text{Ba}$ (4 neutrons).

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