

Abstract Submitted
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Coincident measurements of prompt fission γ rays and fission fragments at DANCE C.L. WALKER, B. BARAMSAI, M. JANDEL, G. RUSEV, C-NR, Los Alamos National Laboratory, A. COUTURE, S. MOSBY, J. ULLMANN, P-27, Los Alamos National Laboratory, T. KAWANO, I. STETCU, P. TALOU, T-2, Los Alamos National Laboratory — Modern statistical approaches to modeling fission involve the calculation of not only average quantities but also fully correlated distributions of all fission products. Applications such as those involving the detection of special nuclear materials also rely on fully correlated data of fission products. Experimental measurements of correlated data are thus critical to the validation of theory and the development of important applications. The goal of this experiment was to measure properties of prompt fission gamma-ray emission as a function of fission fragments' total kinetic energy in the spontaneous fission of ^{252}Cf . The measurement was carried out at the Detector for Advanced Neutron Capture Experiments (DANCE), a 4π γ -ray calorimeter. A prototype design consisting of two silicon detectors was installed in the center of DANCE, allowing simultaneous measurement of fission fragments and γ rays. Effort has been taken to simulate fragment kinetic energy losses as well as γ -ray attenuation in DANCE using such tools as GEANT4 and SRIM. Theoretical predictions generated by the code CGMF were also incorporated as input for these simulations. Results from the experiment and simulations will be presented, along with plans for future measurements.

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