

Abstract Submitted
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Determining Neutron-Induced Fission Cross Sections of Picosecond States R.J. CASPERSON, J.T. BURKE, I.J. THOMPSON, F.S. DIETRICH, J.E. ESCHER, J.J. RESSLER, N.D. SCIELZO, E. SWANBERG, W. YOUNES, Lawrence Livermore National Laboratory — The first excited state neutron-induced fission cross section of ^{239}Pu is not directly measurable, due to the short lifetime of the 7.86 keV $3/2+$ excited state. We use recent developments in transfer reaction theory to identify the angular momentum distribution of excited states in the pre-fission nucleus $^{240}\text{Pu}^*$. This nucleus will be produced in a (d,p) reaction on ^{239}Pu , and the fission probability as a function of outgoing proton angle and energy will be measured. By combining this measurement with (d,p) reaction theory, the fission probability of individual angular momenta can be determined, and recombined into the excited state fission probability. First experimental results will be presented. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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