

Abstract Submitted
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Determining neutron-induced fission cross sections of picosecond states R.J. CASPERSON, J.T. BURKE, I.J. THOMPSON, J.E. ESCHER, J.J. RESSLER, N.D. SCIELZO, Lawrence Livermore National Laboratory — The excited state neutron-induced fission cross section of ^{239}Pu is not directly measurable, due to the short lifetime of the 8 keV $3/2^+$ excited state. We will use recent developments in transfer reaction theory to identify the angular momentum 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 angular momentum will be determined from the fission cross section as a function of outgoing proton angle. From this angular momentum information, it should be possible to predict the neutron-induced fission cross section of the low energy excited state in ^{239}Pu . The experimental details for measuring the appropriate proton distributions and fission cross sections from the (d,p) reaction will be discussed, as well as the feasibility of identifying the angular momentum of the excited states in the product nucleus from the proton angular distribution. 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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