

Abstract Submitted
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Proposed Measurement of the $^{242m}\text{Am}(n,g)$ cross section using DANCE/LANSCE R.A. MACRI, U. AGVAANLUVSAN, J.A. BECKER, R.R.C. CLEMENT, D. DASHDORJ, K. MOODY, W. PARKER, P. WILK, C. WU, (LLNL), T.A. BREDEWEG, M.B. CHADWICK, J. O'DONNELL, R. REIFARTH, R.S. RUNDBERG, J. SCHWANTES, J. ULLMANN, D.J. VIEIRA, J. WILHELMY, J.M. WOUTERS, (LANL), M. FOWLER, McFarland Instrumentation Services — Radiochemists at LLNL have produced a 98% enriched sample of ^{242m}Am ($t_{1/2} = 141$ y) via $^{241}\text{Am}(n,g)$ in the Hi-Flux reactor at ORNL and subsequent calutron enrichment. The availability of such a rare sample provides a unique opportunity to study properties of ^{242m}Am . A proposal has been submitted to use the DANCE array at the LANSCE to measure the (n,g) cross section on the ^{242m}Am isomer. At DANCE, capture cross sections can be measured for neutron energies ranging from thermal to about 100 keV on milligram-size radioactive targets. LLNL and LANL collaborators are currently working to build and install a fission-tagging detector in DANCE. With this extended capability, fission and capture events can be discriminated, leading to a better signal-to-noise ratio for the (n, g) measurement and enabling a simultaneous measurement of the (n,f) cross section. Progress on the implementation of the fission-tagging detector at DANCE and details of the proposed $^{242m}\text{Am}(n,g)$ experiment will be presented. *Work performed under the auspices of the U.S.DOE. by the University of California, LLNL, and LANL under contracts W-7405-ENG-48 and W-7405-ENG-36.

Robert Macri
Lawrence Livermore National Laboratory

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