THERMAL NEUTRON CALIBRATION OF A TRITIUM EXTRACTION FACILITY USING THE $^{6}Li(n,t)^{4}He/^{197}Au(n,\gamma)^{198}Au$ CROSS SECTION RATIO FOR STANDARDIZATION

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ABSTRACT

Absolute tritium activities in neutron-activated metallic lithium samples have been measured by liquid scintillation methods to provide data needed for the determination of capture-to-fission ratios in fast breeder reactor spectra and for recent measurements of the $^{7}Li(n,n't)^{4}He$ cross section. The tritium extraction facility used for all these experiments has now been calibrated by measuring the $^{6}Li(n,t)^{4}He/^{197}Au(n,\gamma)^{198}Au$ activity ratio for thermal neutrons and comparing the result with the well-known cross sections. The calculated-to-measured activity ratio was found to be 1.033 ± 0.018.