

Abstract Submitted
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Reaction Rate Measurement at the Californium User Facility (CUF) for unfolding the neutron spectrum¹ MOHAMMAD HANNAN, RUBEN ORTEGA, The University of Texas- Pan American — Neutron Activation Analysis was used to determine Reaction Rate measurement of several activation detectors at the ORNL Californium User Facility (CUF). The irradiations were performed with 34 mg Cf²⁵² neutron source strength.. Ten source capsules > 34 mg were positioned concentrically around a sample cavity. We have determined absolute activity per atom of 9 detectors: Au¹⁹⁷ (n, γ) Au¹⁹⁸, Al²⁷(n, α)Na²⁴, Al²⁷(n,p) Mg²⁷, Fe⁵⁶(n,p) Mn⁵, Fe⁵⁴(n,p) Mn⁵⁴, In¹¹⁵ (n, γ)In¹¹⁶, Ti⁴⁶(n,p)Sc⁴⁶, Ni⁶⁰ (n,p) Co⁶⁰, Fe⁵⁸(n, γ) Fe⁵⁹. The errors are within 1.5-8% except Ni⁶⁰ and Fe⁵⁸ have errors of 46% and 32 %. These high errors may be attributed to the counting statistics. These reaction rate values will be used to unfold the neutron spectrum of the CUF using the MAXED 2000, a computer code for the de convolution of multi sphere neutron spectrometer data and the results are discussed.

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