

Abstract Submitted
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New Nubar Results for Fissionable Materials¹ T.D. JOHNSON, A.A. SONZOGNI, E.A. MCCUTCHAN, NNDC, Brookhaven National Lab — A crucial feature of reactor operation and control is the emission of β -delayed neutrons from the fuel. For example, uncertainties in the number of delayed neutrons can lead to excessive margins for safety in the operation of fission reactors. The relevant measurable quantity is the beta-delayed neutron emission probability (P_n), which is the probability that the beta-decay proceeds to states above the neutron separation energy and a neutron is emitted following the beta decay. A parameter called “Delayed Nu-bar” defines the mean number of delayed neutrons per fission event. Nu-bars have been measured for a number of fuels and provide a benchmark quantity from which databases can be tested. The latest ENDF-B/VII.1 library was benchmarked and sensitivity studies were carried out to understand the contribution of the uncertainties and where improvements could be achieved for P_n values. Nu-bar calculations were then performed for several of the minor actinides.

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