

Abstract Submitted  
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**Modeling neutron reactions on actinides** MARK CHADWICK, PHILIP YOUNG, ROBERT MACFARLANE, TOSHIHIKO KAWANO, PATRICK TALOU, LOS ALAMOS NATIONAL LABORATORY TEAM — I will describe statistical model calculations of neutron reactions on isotopes of uranium, plutonium, and americium. This work uses Hauser-Feshbach, direct, preequilibrium, and fission theories to calculate neutron cross sections from 1 keV to 20 MeV. A particular challenge is the prediction of cross sections such as fission, capture, and (n,2n) for unstable target nuclei few measurements have been made. I will describe how systematical properties of reactions on isotope chains helps constrain predictions for such nuclei. I will also describe integral simulation comparisons to measurements made at LANL critical assembly facility, that provide an important validation of these results. The new cross sections are the basis of a new ENDF/B-VII cross section library that will be released by the US nuclear data community at the end of 2005. These data are valuable for use in radiation transport simulations in a number of applications, including stockpile stewardship, advanced fuel cycles, and nonproliferation.

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