
ACTINIDE CROSS SECTION EVALUATIONS

David A. Brown, Dennis McNabb, Frank Dietrich

Lawrence Livermore National Laboratory

The Livermore Computational Nuclear Physics group is charged with producing updated evaluations for all the actinides in the coming year, concentrating on fission, capture and (n,2n) cross sections. We attack this daunting task either by adopting other recent evaluations or by performing our own. Owing to the large number of nuclei involved, we seek to automate the evaluation process as much as possible. For this purpose, we have developed a fitting code that takes all relevant EXFOR data for a reaction or set of reactions and performs a generalized least square fit to them, subject to various constraints and other prior information. The constraints include such things as threshold constraints and sum rule constraints. Other prior information includes information gleaned from systematics and other model calculations. We compare our results to some other recent evaluations in this mass region.

This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.