

New Neutron Cross-Section Measurements at ORELA for Improved Nuclear Data

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Most of the older neutron-induced cross-section data used in nuclear data libraries show deficiencies or do not cover the neutron energy range that is currently important for a wide variety of applications. This finding impacts not only the resolved cross-section region but also the unresolved region. It could lead to problems in the correct processing output of the data from the libraries and eventually also to erroneous Maxwellian average cross sections. The Oak Ridge Electron Linear Accelerator (ORELA) has been used to measure the total, fission, and capture cross neutron sections of several elements in the energy range from 100 eV to ~600 keV. More-accurate nuclear data are needed not only for benchmark calculations but also as input parameters for *s*-process stellar models. In this paper the facility and experimental setup at ORELA will be described and the impact of the new data will be discussed.

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