Nuclear Data Measurements with the Oak Ridge Electron Linear Accelerator (ORELA) for Supporting Nuclear Fuel Cycle Applications

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For more than 30 years, the Oak Ridge National Laboratory (ORNL) has performed research and development to provide more-accurate nuclear cross-section data in the resonance region. Overall, the Nuclear Data (ND) Program is tightly coupled with nuclear fuel cycle analyses and radiation transport methods development efforts at ORNL. As a result, resonance region measurements and evaluations are performed in concert with nuclear science and technology needs and requirements. At the heart of the ND program is the Oak Ridge Electron Linear Accelerator (ORELA), which is used to perform high-resolution neutron cross-section measurements in the resonance region. Recently, an accelerator refurbishment effort has been initiated at ORELA to improve operation reliability. As a result, new cross-section measurements have been performed at ORELA, and new measurements are in progress. The full paper will describe current measurement activities and show how ORELA provides basic nuclear data to support nuclear fuel cycle research and development.