

## Neutron Cross-Section Measurements at ORELA

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Over the last three decades ORELA has produced many neutron-induced cross-section data. It is the only high-power white neutron source with excellent time resolution still operating in the United States, and is ideally suited for experiments to measure neutron fission, total,  $(n,\alpha)$ , and capture cross sections in the energy range from 1 eV to as high as several MeV. Recent measurements include neutron capture measurements on  $^{39,41}\text{K}$ ,  $^{35,37}\text{Cl}$ , F, Mn and  $^{95}\text{Mo}$ , and total cross section measurements on  $^{95}\text{Mo}$  and Mn, and  $^{64}\text{Zn}(n,\alpha)$  measurements.

Many of these measurements were carried out to support the Nuclear Criticality Safety Program (NCSP). Concerns have been raised about many of the nuclear data used in this program. For example, the time-of-flight resolution and accuracy of some of the existing data are too poor for current applications. Several of these data are also important input parameter for the ongoing nuclear astrophysics program, which investigates the s-process nucleosynthesis in Asymptotic Giant Branch stars. Here the Maxwellian averaged neutron capture cross sections at  $kT = 8$  and 30 keV are of importance.

This paper provides an overview of the ORELA facility and the refurbishment effort and describes the current measurement activities.

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