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The $^{124}\text{Xe}(n,\gamma)^{125}\text{Xe}$ and $^{124}\text{Xe}(n,2n)^{123}\text{Xe}$ Reactions and NIF
MEGHA BHIKE, WERNER TORNOW, Triangle Universities Nuclear Laboratory and Duke University, NURIN LUDIN, REU student, University of Denver — Measurements of the neutron capture reaction $^{124}\text{Xe}(n,\gamma)^{125}\text{Xe}$ have been performed at TUNL in the 0.4 to 14.8 MeV energy range. In addition, the $^{124}\text{Xe}(n,2n)^{123}\text{Xe}$ reaction has been studied between threshold and 14.8 MeV. The results of these measurements provide sensitive diagnostic tools for investigating properties of the inertial confinement fusion plasmas at the National Ignition Facility. Being a p-process nucleus, the neutron capture cross section of ^{124}Xe is also of interest for nuclear astrophysics. Preliminary results for both reactions are given.

Megha Bhike
Triangle Universities Nuclear Laboratory and Duke University

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