

Abstract Submitted  
for the DPP12 Meeting of  
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**Neutron-induced reactions relevant for Inertial-Confinement Fusion Experiments** MELISSA BOSWELL, FRANK MERRILL, R. RUNDBERG, GARY GRIM, CARL WILDE, ANNA HAYES, MALCOM FOWLER, JERRY WILHELMY, Los Alamos National Laboratory — Measuring the fluencies of both the low- & high-energy neutrons is a powerful mechanism for studying the implosion process, and the various parameters that drive inertial confinement fusion. We have developed a number of tools to measure the spectral characteristics of the NIF neutron spectrum. Most of these methods rely on exploiting the energy dependence of  $(n,\gamma)$ ,  $(n,2n)$ ,  $(n,3n)$  and  $(n,p)$  reactions on a variety of materials either implicitly present in the NIF implosion or through doping the target capsule or holraum. I will be discussing both prompt activation measurements, and debris activation measurements of these materials currently under development at LANL. Focusing specifically on the development of an *in-situ* detector to measure short-lived activation products, as well as a low-background counting facility we are developing at the Waste Isolation Pilot Plant (WIPP) to study longer-lived activation products. Furthermore, I will also be discussing several cross section measurements that are important for the interpretation of the data collected from these activation products.

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