

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Innovative High-Pressure Helium Neutron Detector G.A. CHANDLER, M.S. DERZON, Sandia National Laboratories — Neutron detection systems are required to provide critical data for inertial confinement fusion experiments at Sandia National Laboratories. Critical measurements include Neutron spectroscopy, Neutron bang-time and Neutron Imaging. Present detector systems including scintillators coupled to photomultipliers, scintillating fiber arrays, diamond photoconductive detectors, and other systems, have been developed for these measurements. These detectors all have their limitations with regards to sensitivity, time response, energy resolution, spatial resolution and background rejection. An innovative high-pressure Helium detector is proposed that appears to have many beneficial performance characteristics with regards to making these neutron measurements in the high bremsstrahlung environments found in high energy density physics experiments on the fast pulsed power facilities at Sandia. Calculations of the performance characteristics of these detectors will be presented. Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the U.S. Dept. of Energy under contract No. DE-AC04-94AL85000.

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Date submitted: 20 Jul 2007

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