

Abstract Submitted  
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**Measuring Neutron Response using Data and Monte Carlo Simulation in Xenon100**<sup>1</sup> PAUL SCOVELL, UCLA, XENON COLLABORATION — A relative scintillation yield ( $L_{eff}$ ) above 5.5 keV<sub>r</sub> (nuclear recoil energy) is determined using data from an exposure of XENON100 to neutrons from an Americium-Beryllium (AmBe) source. The technique requires a signal in the XENON100 Time Projection Chamber (TPC) to be in coincidence with a signal in the active liquid xenon (LXe) veto such that efficiency to low energy nuclear recoils is not compromised by the requirement of a signal in 2 or more photomultiplier tubes (PMTs). The  $L_{eff}$  is then deduced (independently of any Monte Carlo simulation) through the comparison of the scintillation and ionization signals recorded. The calculated  $L_{eff}$  is in excellent agreement with recent direct and indirect measurements. Comparison of the detector response to AmBe neutrons with an equivalent Monte Carlo generated spectrum is also performed. With the measured detector efficiency and a global fit to all measured values of  $L_{eff}$ , agreement between data and Monte Carlo down to a low photoelectron level is obtained.

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