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Progress towards sub-keV Nuclear Recoil calibration

Thursday, 1 December 2022 09:30 (20 minutes)

We will discuss recent progress in making sub-keV nuclear recoil calibrations practical in a university lab environment. First, we will describe a $^{124}\text{SbBe}$ (γ, n) neutron source in which a novel Fe shielding method suppresses the outgoing gamma flux while allowing the unmoderated escape of the 24keV neutrons. Second, we will describe a method to moderate and then filter neutrons from a pulsed Deuterium-Tritium (DT) generator, enabling a pulsed keV-scale neutron source. And lastly, we will describe work towards large area neutron capture based backing detectors required for such low energy nuclear recoil calibration of dark matter experiment targets.

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