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Polarized ^3He in the Neutron Electric Dipole Moment Experiment JACOB YODER, University of Illinois at Urbana-Champaign, NEDM COLLABORATION — In the neutron electric dipole moment (nEDM) experiment to be performed using the Fundamental Neutron Physics Beamline at the Spallation Neutron Source, ultra-cold neutrons (UCN) are produced by interaction with superfluid ^4He . The precession frequency of polarized UCN in the presence of a strong electric field is measured using a spin-dependent capture reaction on polarized ^3He ; the protons and tritons produced in the reaction are detected via the scintillation light they produce in the superfluid ^4He . In this talk, the production of polarized ^3He , its introduction into the superfluid ^4He , its relaxation in interactions with the materials of the experiment, its transport to the measurement cells and eventual removal from the system will be discussed.

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