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**<sup>3</sup>He comagnetometer readout for the neutron electric dipole moment (nEDM) experiment at SNS** STEVEN CLAYTON, Los Alamos National Laboratory, NEDM COLLABORATION — The nEDM collaboration is developing a new experiment to measure the neutron's electric dipole moment to  $\sim 10^{-28}$  e-cm. A non-zero neutron EDM would be the first observation of CP violation in a baryon containing only light quarks, while a null result would be inconsistent with predictions from most variants of supersymmetry. The experiment will measure the difference in spin precession, of polarized ultracold neutrons (UCN) produced and stored in a superfluid-helium-filled cell, when the magnetic and electric fields are parallel and antiparallel. A key feature of the experimental method is the use of polarized <sup>3</sup>He atoms within the cell acting as both spin analyzer and comagnetometer to the UCN. In one mode of running, the <sup>3</sup>He precession signal is detected by SQUID gradiometers adjacent to the cell. This talk will cover the efforts of the nEDM collaboration towards practical implementation of SQUIDs for the <sup>3</sup>He comagnetometer readout, with a goal of  $\leq 1$  fT/ $\sqrt{\text{Hz}}$  noise level (referred to one gradiometer loop), low enough to be a small contribution to the overall uncertainty of the final nEDM result.

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