Abstract Submitted
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nEDM@SNS Systematics Studies/ Operational test-bed Apparatus at PULSTAR[1] EKATERINA KOROBKINA, ROBERT GOLUB, PAUL HUFFMAN, KENT LEUNG, CHRISTIAN WHITE, AUSTIN REID, ADAM LIPMAN, MONIQUE MARTONE, CHAD BARROW, North Carolina State Univ, BRAD FILLIPPONE, CHRISTOPHER SWANK, California Institute of Technology, RICARDO ALACRON, ROBERT DIPERT, Arizona State University, WOLFGANG KORSH, CHRIS CRAWFORD, University of Kentucky, VINCE CIANCIOLO, Oak Ridge National Lab, NEDM @SNS COLLABORATION — The neutron electric dipole moment (nEDM) experiment at the Spallation Neutron Source will probe the existence of a nEDM down to $\sim 5 \times 10^{-28}$ e·cm. The technique uses a < 0.5K liquid-^{4}He-filled cryogenic environment containing both polarized ^{3}He and trapped ultracold neutrons (UCN). Due to the technical and operational challenges in the experiment, a smaller-scale apparatus is needed to minimize both risk and commissioning/operational time. The design mirrors that of the larger-scale apparatus, but without an electric field and a turn-around time of order a week as compared to several months. Using the small-scale device, we will develop operational techniques for UCN -^{3}He spin manipulations and quantify the systematic effect related to magnetic field gradients. The apparatus will use neutrons from the NC State UCN source and polarized ^{3}He from a MEOP system. At present we have completed commissioning of the new non-magnetic dewar and are assembling and testing cryogenic essentials of the apparatus

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Ekaterina Korobkina
North Carolina State Univ

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