

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

A Voltage Multiplier for the nEDM Experiment NATHANIEL BOUMAN, Valparaiso University, SHIRANTHA STANISLAUS, Seton Hall University, VALPO NEDM TEAM — The nEDM experiment at Oak Ridge National Laboratory aims to search for the electric dipole moment of the neutron (nEDM) at the 10^{-28} level. The experiment is currently at the research and development phase. One of the variables proportional to the sensitivity of the measurement is the strength of the electric field in the measurement cell where the effect of an nEDM is to be generated. The design of the experiment calls for an electric field of 75 kV/cm in this cell. A unique voltage multiplier involving a variable capacitor has been proposed to achieve this large required electric field. Electrostatic calculations using two independent software packages, COMSOL and Field Precision, were carried out to study the feasibility of the proposed voltage multiplier. A prototype of the electrodes and the voltage multiplier whose size was 25% of full size was also built to verify the predictions of the electrostatic calculations. Results of the tests with the prototype and the electrostatic calculations, will be presented.

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Date submitted: 31 Jul 2015

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