

Abstract Submitted  
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**Spectroscopic approach for an electron EDM measurement using neutral cesium atoms** KUNYAN ZHU, NEAL SOLMEYER, DAVID S. WEISS, Penn State University — Observation of a permanent electric dipole moment of the electron (eEDM) would imply CP violating effects not contained in the Standard Model. We describe the state preparation and spectroscopy that will be used to measure the eEDM. Cesium atoms are guided into a measurement chamber, where they are laser-cooled and trapped in a pair of parallel one-dimensional optical lattices. The lattices thread three specially coated glass electric field plates. The measurement chamber is surrounded by a four layer magnetic shield inside of which eight magnetic field coils control the bias and gradient magnetic fields. A series of microwave and low frequency magnetic field pulses transfer the atoms into a superposition state that is sensitive to the eEDM signal. A measurement of the eEDM using neutral cesium atoms can obtain an ultimate shot noise limit of  $3 \times 10^{-30}$  e-cm.

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