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Demonstration Cold Atom Fountain Electron Electric Dipole Moment (EDM) Experiment[1] HARVEY GOULD, JASON M. AMINI[2], CHARLES T. MUNGER[3], LBNL — A demonstration cold-atom-fountain electron EDM experiment has been operated at LBNL. The apparatus is free of static magnetic fields (B ¡ 1 nT) which reduces sensitivity to motional magnetic field effects. Electric-field quantization, state preparation and detection in field-free regions, fractional-cycle pulses, active motional magnetic field nulling, multiple-quantum transitions, and web based, unattended operation of the experiment will be discussed. Our results support the premise that a fountain experiment can detect (or rule out) an electron EDM far smaller than the present experimental limits.

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