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**Computing the Chromo-Electric Contribution to the Nucleon EDM using the Feynman-Hellmann Method and Lattice QCD** DAVID BRANTLEY, William  Mary Coll and Lawrence Livermore National Laboratory, ANDRE WALKER-LOUD, Lawrence Berkeley National Laboratory, CALLAT COLLABORATION — The universe is observed to be in a matter anti-matter asymmetric state, with an observed baryon dominance on the order of one part per billion. A necessary condition for the generation of this asymmetry is the violation of the combined symmetries of charge conjugation (C) and parity (P). CP violation within the standard model of particle physics is orders of magnitude too small to account for this asymmetry, leading to the search for beyond standard model sources. Beyond standard model sources of CP violation invariably give rise to new interactions between standard model particles that can, in principle, be detected. Lattice QCD is uniquely suited for investigating these contributions in the strong sector, as it allows a non-perturbative solution of the low-energy, strong coupling, region of QCD with fully controllable systematics. In this talk I will present progress towards a Lattice QCD measurement of the leading beyond standard model contribution to the Neutron Electric Dipole moment using a method which has been shown to provide increased control over systematics as compared to previous measurement methods.

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