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Electric dipole moments of trinucleon systems in pionless effective field theory ZICHAO YANG, University of Tennessee, Knoxville, EMANUELE MEREGHETTI, Theoretical Division, Los Alamos National Laboratory, LUCAS PLATTER, University of Tennessee, Knoxville, MATTHIAS SCHINDLER, University of South Carolina, JARED VANASSE, Stetson University — A permanent electric dipole moment (EDM) is evidence of parity and time-reversal violations (PVTV), and thus, of charge conjugation and parity violation(CPV). The measurement of EDMs of few-nucleon systems could help to impose constraints on the TV sources and could provide access to neutron and proton EDMs. Three-nucleon systems, such as the triton and helium-3 have binding momenta much smaller than the mass of pion and are therefore not sensitive to details of pion-exchange. For these, we can use the so-called pionless effective field theory for the calculation of observables which is well tested EFT approach with a well-understood power counting. We calculated the EDM of the triton and helium-3 at leading order without Coulomb interaction in pionless EFT. We used a minimal set of five low energy constants (LECs) for PVTV nucleon-nucleon interactions to express the EDM of triton and helium-3 and compare our results with the previously known chiral EFT results by matching the coupling constants.

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