

Abstract Submitted
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The time-reversal invariance violating nucleon-nucleon potential in the large N_C expansion¹ MATTHIAS SCHINDLER, University of South Carolina, DANIEL PHILLIPS, Ohio University, DARIS SAMART, Rajamangala University of Technology Isan and Thailand Center of Excellence in Physics, CARLOS SCHAT, Universidad de Buenos Aires and IFIBA — The violation of time reversal invariance (T) in nuclear systems, such as a non-zero neutron electric dipole moment, can serve as a sensitive probe of beyond the standard model (BSM) physics. While the QCD θ term violates T, its effects are small, thus opening a potential window for the detection of BSM physics. In addition to the neutron electric dipole moment, T violation could also be observed in systems of two and more nucleons. We analyze the T-violating nucleon-nucleon potential in terms of the large N_C expansion of QCD, and identify a hierarchy of terms. This hierarchy can then be mapped onto existing T-violating potentials, such as those derived from meson-exchange models, thereby delineating the terms that should be most important in phenomenological applications.

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