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Electric dipole moments of light nuclei

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”Electric dipole moments (EDMs) are extremely sensitive probes of physics beyond the Standard Model (SM). A vibrant experimental program is in place, with the goal to improve the existing neutron EDM bound by one/two orders of magnitude, and to test new ideas for the measurement of EDMs of light ions, such as deuteron and helium, at a comparable level. The success of this program, and its implications for physics beyond the SM, relies on the precise calculation of the EDMs in terms of the couplings of CP-violating operators. In light of the non-perturbative nature both of QCD at low energy and of the nuclear interactions, these calculations have proven difficult, and are affected by large theoretical uncertainties. In this talk I will review the progress that in recent years has been achieved on different aspects of the calculation of hadronic and nuclear EDMs. In particular, I will discuss how the interplay between lattice QCD and Chiral Effective Field Theory (EFT) has allowed to reduce a set of hadronic uncertainties. Finally, I will discuss how the measurements of th EDMs of one, two and three nucleon systems can be used to discriminate between various possible mechanisms of time-reversal violation at high energy.”