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Disentangling SMEFT operators with future low-energy PVES experiments

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We study the potential of future Parity-Violating Electron Scattering (PVES) data to probe the parameter space of the Standard Model Effective Field Theory (SMEFT). We contrast the constraints derived from Drell-Yan data taken at the Large Hadron Collider (LHC) with projections of the planned PVES experiments SoLID and P2. We show that the PVES data can complement the bounds set by the LHC data in the dimension-6 operator space since it probes different combinations of operators than Drell-Yan. The lower characteristic energy of P2 and SoLID also helps disentangle effects of dimension-6 and dimension-8 operators that are difficult to resolve with LHC Drell-Yan data alone.

Summary

Author: WIEGAND, Daniel (Northwestern University/ANL)

Presenter: WIEGAND, Daniel (Northwestern University/ANL)

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