

Neutron Electric Dipole Moment: from theory to experiment

Contribution ID: 3

Type: **not specified**

Neutron electric dipole moment using lattice QCD

Monday 1 August 2022 12:00 (1 hour)

We present results on the neutron electric dipole moment $|d_n|$ using an ensemble of $2+1+1$ twisted mass clover-improved fermions with lattice spacing of 0.08 fm and physical pion mass (139 MeV). We compute the 3 -odd electromagnetic form factor $F_3(Q^2 \rightarrow 0)$ by expanding the action to leading order in β . This gives rise to correlation functions that involve the topological charge, for which we employ a fermionic definition by means of spectral projectors. We find a value of $|d_n| = 0.0009(24)$ fm.

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