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Calculation of neutron electric dipole moment due to the QCD topological term, Weinberg three-gluon operator and the quark chromoelectric moment

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We present results for the neutron electric dipole moment due to the to dimension 4 and dimension 6 gluonic CP violation, and the isovector quark chromoelectric dipole moment using clover valence quarks on HISQ dynamical ensembles. For the gluonic operators, we use the gradient flow scheme to obtain divergence-free continuum results. For the chromoelectric dipole moment operator, we use the unflowed local operator but discuss how the quadratically divergent mixing with the pseudoscalar operator can be controlled non-perturbatively. The connection to the continuum is done using horizontal matching at tadpole-improved tree-level and leading-log running.

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