Contribution ID: **7** Type: **not specified**

Neutron Electric Dipole Moment from the Theta Term with Overlap Fermions

Thursday 4 August 2022 12:00 (1 hour)

We report our calculation of the neutron electric dipole moment (EDM) induced by the theta term. We use overlap fermions on three 2+1-flavor RBC/UKQCD domain wall lattices with pion mass ranging from ~300 to ~500 MeV. The use of lattice chiral fermions guarantees a correct chiral limit even at finite lattice spacings and enables us to reliably extrapolate our result from heavy pion masses to the physical point. Furthermore, by utilizing the partially-quenched chiral extrapolation formula, several valence pion points are added to better constrain the chiral extrapolation. With the help of the cluster decomposition error reduction (CDER) technique and a large amount of statistics accumulated, the statistical uncertainty is effectively controlled. We also carefully check the systematic uncertainties from the two-state fits, the momentum extrapolation, the chiral extrapolation and the CDER technique.

Presenter: Dr LIU, Keh-Fei (University of Kentucky)