



Contribution ID: 519

Type: Oral presentation

Nucleon Form Factors in the Continuum Limit from Clover-on-HISQ Formulation

Tuesday 27 July 2021 13:45 (15 minutes)

The tension between the lattice calculation, the experimental data and the PCAC relation of the nucleon axial form factors - axial and (induced)-pseudoscalar - has been understood as a systematic resulting from missing multihadron (nucleon and pions) excited states in the analysis. These low-lying excited states are hard to resolve in the conventional analysis. Fits to the temporal component of axial current (A_4), with a large excited-state contamination, demonstrate the need for the low-lying excited state, and the resulting axial form factor satisfy the PCAC relation. We will present a full reanalysis of the axial form factors that incorporates the low-energy states. Extensions of this data-driven approach successful for the axial form factor analysis is also applied to the electromagnetic form factors. Continuum results for the nucleon charges and electromagnetic form factors will also be presented. These lattice calculations are performed with Clover valence quarks on the MILC 2+1+1-flavor HISQ ensembles.

Primary authors: Dr JANG, Yong-Chull (Columbia University); GUPTA, Rajan (Los Alamos National Lab); BHAT-TACHARYA, Tanmoy (T-2); YOON, Boram

Presenter: Dr JANG, Yong-Chull (Columbia University)

Session Classification: Hadron Structure

Track Classification: Hadron Structure