



Contribution ID: 401

Type: Oral presentation

Nucleon form factors from $N_f=2+1+1$ twisted mass QCD at the physical point

Tuesday 27 July 2021 07:30 (15 minutes)

We present the nucleon axial and electromagnetic form factors using $N_f = 2 + 1 + 1$ twisted mass lattice QCD with clover improvement and with quarks with masses tuned to their physical values. Excited state effects are studied using several sink-source separations in the range 0.8 fm - 1.6 fm, exponentially increasing statistics with the separation such that statistical errors remain approximately constant. In addition, quark disconnected diagrams are included in order to extract the isovector and isoscalar axial form factors and the isospin symmetric proton and neutron electromagnetic form factors, as well as their strange-quark contributions. The radii and moments are extracted by modelling the Q^2 dependence, including using the so-called z -expansion method. A preliminary assessment of lattice cut-off effects is presented using two lattice spacings directly at the physical point.

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Session Classification: Hadron Structure

Track Classification: Hadron Structure