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## Twist-3 axial GPDs of the proton from lattice QCD

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We present the first lattice calculation of the four twist-3 axial quark GPDs for the proton in the  $N_f = 2+1+1$  twisted-mass formulation with a clover improvement. The ensemble has a volume  $32^3 \times 64$ , lattice spacing 0.0934 fm, and corresponds to a pion mass of 260 MeV. The calculation used the quasi-GPDs approach, which requires matrix elements with momentum-boosted proton states coupled to non-local operators. Here, we use three values of the proton momentum, namely 0.83, 1.25, and 1.67 GeV. The light-cone GPDs are defined in the symmetric frame, which we implement here with a (negative) 4-momentum transfer squared of 0.69, 1.38, and 2.76 GeV<sup>2</sup>, all at zero skewness. We also conduct several consistency checks, including assessing the local limit of the twist-3 GPDs and examining the Burkhardt-Cottingham-type as well as Efremov-Teryaev-Leader-type sum rules.

### Topical area

Structure of Hadrons and Nuclei

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