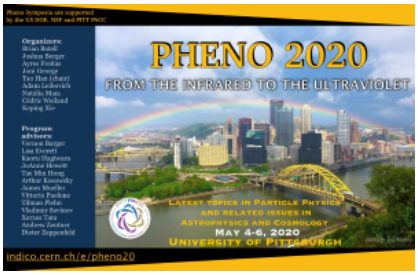

Contribution ID: **1040** Type: **Parallel Talk**

Strange parton distribution function (PDF) from lattice QCD

Monday 4 May 2020 17:00 (15 minutes)

Strange PDF is important for us to understand the nucleon structure and the test of electroweak interactions, but is not significantly constrained by experimental data. We present the first preliminary results of the unpolarized strange PDF from lattice calculation in the large momentum effective theory (LaMET) approach. The calculation is done on a lattice with lattice spacing $a \approx 0.12$ fm and $M_\pi \approx 310$ MeV. The nucleon is boosted with momentum up to $P_z = 2.18$ GeV to obtain the spatial correlations that can be matched to the light-cone PDF with a perturbative kernel. The non-perturbative renormalization factors in the regularization independent momentum subtractions scheme are applied to renormalized the bare matrix elements. It's difficult to directly match the results to light-cone PDF in this case, thus we compared our results with the matrix elements obtained from matching the CT18NNLO and NNPDF3.1NNLO global fitting PDF. Our data support a symmetric $s - \bar{s}$ distribution, but the distribution in coordinate space from our results are flatter than the global fitting results, indicating a smaller first moment.

Summary

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Session Classification: QCD & EW II

Track Classification: QCD & Electroweak