Contribution ID: **319** Type: **Parallel**

Gluonic structure of spin-1 meson as it becomes unstable using variationally optimized operators

Monday, 23 July 2018 16:10 (20 minutes)

We present a first calculation of the first moments of gluon GPDs for a vector rho meson as it becomes unstable. We construct three-point functions in the forward limit using 'optimized' operators that interpolate a single state as well as a gluonic operator insertion. The two-point correlation functions have been constructed using the 'distillation' method. The correlators are calculated in anisotropic lattices and the two spin-independent and one transversity gluon distributions are extracted. We compare the distributions and the resulting gluon momentum fractions between stable and unstable meson states. We discuss finite volume effects and outline how to apply our methods to probe the gluonic structure of hybrid and exotic states.

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Session Classification: Hadron Spectroscopy and Interactions

Track Classification: Hadron Spectroscopy and Interactions