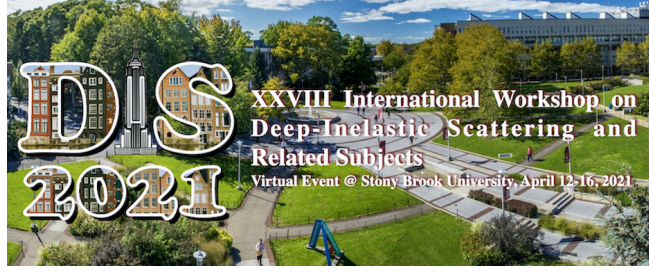


XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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Central exclusive production of η_c and χ_{c0} in the light-front k_T -factorization approach

Thursday, 15 April 2021 09:12 (18 minutes)

We study the exclusive production of $J^{PC} = 0^{++}$ and 0^{-+} charmonium states in proton-proton collisions at the LHC energies. The amplitudes for $gg \rightarrow \chi_{c0}$ as well as for $gg \rightarrow \eta_c$ mechanisms are derived in the k_T -factorization approach. The $pp \rightarrow pp\eta_c$ reaction is discussed for the first time. We have discussed rapidity and transverse momentum distributions as well as such correlation observables as the distribution in relative azimuthal angle and (t_1, t_2) distributions. The latter two observables are very different for the scalar and pseudoscalar meson.

We present the numerical results for the key observables in the framework of potential models for the light-front quarkonia wave functions. We also discuss how different are the absorptive corrections for both considered cases.

We observe a substantial contribution from the nonperturbative domain of gluon virtualities, especially for η_c production. To model the nonperturbative region better, we utilize models of the unintegrated gluon distribution based on parametrizations of the color dipole cross-section.

Based on:

I.Babiarz, R.Pasechnik, W.Schafer and A.Szczurek,

“Central exclusive production of scalar and pseudoscalar charmonia in the light-front k_T -factorization approach”, Phys. Rev. D **102**, 114028 (2020)[arXiv:2008.05462 [hep-ph]].

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