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Monte Carlo event generator for double parton interactions in proton nucleus collisions

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We summarize the results of the studies of double parton scattering (DPS) off nuclei in the parton model [1] and pQCD [2]. A Monte Carlo implementation of the DPS processes is developed which includes realistic NN correlation in nuclei [3], transverse geometry of hard and soft NN collisions and distribution over the number of wounded nucleons. This implementation is an extension of the Monte Carlo procedure previously developed for processes with one hard collisions [4, 5] and which was applied within the framework of color fluctuation picture for the centrality dependence of the jet production in the proton fragmentation region in pA and DA collisions[6, 7]. Numerical results are presented for the inclusive rate of DPS as well as for the rate of DPS as a function of centrality. Centrality dependence was calculated using the ATLAS collaboration model of centrality for soft processes based on the \sum E_T distribution at large negative (along the nucleus direction) rapidities.

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