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Scalar particle production at the STAR experiment in the Double Pomeron Exchange process

Content :

We shall describe the physics program with tagged forward protons, focusing on scalar particle production in the Central Exclusive Production (CEP) Process in polarized proton-proton collisions at the Relativistic Heavy Ion Collider, with the STAR detector at \sqrt{s} = 200 GeV. Preliminary results in CEP of two oppositely charged pions and kaons produced in the processes $pp\to pp \pi^+\pi^-$ and $pp\to pp \K^+\K^-$ shall be presented. Becasue of the quantum numbers of the Pomeron exchange these Double Pomeron Exchange processes favour scalar 0++ particle production. Hence the final states are dominated by gluonic exchanges. Silicon strip detectors placed in Roman Pots were used for measuring forward protons. The preliminary results are based on the measurement of the recoil system of charged particles in the STAR experiment's Time Projection Chamber. Ionization energy loss of charged particles was used for particle identification. In addition to those preliminary results, the present status and future plans of diffractive physics at STAR shall be described.

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