

1 Study of the central exclusive production of $\pi^+\pi^-$, K^+K^- and
2 $p\bar{p}$ pairs in proton-proton collisions at $\sqrt{s} = 510$ GeV with the
3 STAR detector at RHIC

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8 We shall report the measurement of the central exclusive production pro-
9 cess $pp \rightarrow pXp$ in proton-proton collisions at RHIC with the STAR detector
10 at $\sqrt{s} = 510$ GeV. At this energy, this process is dominated by a Double
11 Pomeron Exchange mechanism. The tracks of centrally produced system X
12 were reconstructed in the central detector of STAR, the Time Projection
13 Chamber and the Time of Flight systems, and identified using the ioniza-
14 tion energy loss and the time of flight method. The diffractively scattered
15 protons, moving intact inside the RHIC beam pipe after the collision, were
16 measured in the Roman Pots system allowing full control of the interaction's
17 kinematics and verification of its exclusivity. The preliminary results on the
18 invariant mass distributions of centrally produced $\pi^+\pi^-$, K^+K^- and $p\bar{p}$ pairs
19 measured within the STAR acceptance will be presented.