

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

4 Tomas Truhlar  
5 (for the STAR collaboration)

6  
7 Czech Technical University in Prague

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