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## Measurement of central exclusive $\pi^+\pi^-$ production in $p\text{-}\bar{p}$ collisions at $\sqrt{s} = 0.9$ and $1.96$ TeV at CDF

*Wednesday, 29 April 2015 12:00 (25 minutes)*

We measure exclusive  $\pi^+\pi^-$  production in proton-antiproton collisions at center-of-mass energies  $\sqrt{s} = 0.9$  and  $1.96$  TeV in the Collider Detector at Fermilab. We select events with two oppositely charged particles, assumed to be pions, with pseudorapidity  $|\eta| < 1.3$  and with no other particles detected in  $|\eta| < 5.9$ . We require the  $\pi^+\pi^-$  system to have rapidity  $|y| < 1.0$ . The production mechanism of these events is expected to be dominated by double pomeron exchange, which constrains the quantum numbers of the central state. The data are potentially valuable for isoscalar meson spectroscopy, and for understanding the pomeron in a region of transition between nonperturbative and perturbative quantum chromodynamics. The data extend up to dipion mass  $5000$  MeV/c<sup>2</sup>, and show resonance structures attributed to  $f_0$  and  $f_2(1270)$  mesons. From the  $\pi^+\pi^-$  and  $K^+K^-$  spectra we place upper limits on exclusive  $\chi_{c0}(3415)$  production.

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