

Abstract Submitted  
for the APR06 Meeting of  
The American Physical Society

**Studies of the X(3872)** ALEXANDRE RAKITINE, MIT, CDF COLLABORATION — We investigate the puzzling nature of the state  $X(3872)$  using data obtained with the CDF II detector at the Fermilab Tevatron Collider. The shape of the dipion mass spectrum in  $X(3872) \rightarrow J/\psi \pi^+ \pi^-$  decay is compared to theoretical predictions for the dipion spin-parity  $0^{++}$  and  $1^{--}$ . For  $0^{++}$  case, the QCD multipole expansion for charmonium is used, and only  $^3S_1$  state is found to be compatible with data. There is, however, no  $^3S_1$  charmonium state available for assignment to the  $X(3872)$ . For the  $1^{--}$  case the hypothesis  $X(3872) \rightarrow J/\psi \rho^0$  is tested and found to be compatible with the data.

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Date submitted: 13 Jan 2006

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