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## Charmed Hadron Physics at Babar

Friday 23 July 2010 16:30 (13 minutes)

- Study of the inclusive production of the  $D\pi$  and  $D\pi$  final states  
*We present a study of the mass spectra of the  $D^+\pi^-$ ,  $D^+\pi^+$ , and  $D^0\pi^+$  final states in search for unobserved excited states of the D mesons. We use a dataset corresponding to  $\sim 454 \text{ fb}^{-1}$  of  $e^+e^-$  collisions collected by the BABAR detector at center-of-mass energies near 10.58 GeV. The final states are reconstructed inclusively in reactions of the kind  $e^+e^- \rightarrow c\bar{c} \rightarrow D^*(\pi) X$  where X is any additional system. The  $c\bar{c}$  events are selected through a cut on the center-of-mass momentum of the  $D^*(\pi)$  system.*
- Precision Measurements of the Angular Momentum Excited Charmed Baryon  $\Lambda_c(2880)^+$  decaying to the  $\Lambda_c^+ \pi^+ \pi^-$  state  
 We report results on the measurements of the charmed baryon  $\Lambda_c(2880)^+$  decaying to the  $\Lambda_c^+ \pi^+ \pi^-$  state using approximately  $354 \text{ fb}^{-1}$  of BaBar data. We reconstruct the  $\Lambda_c^+$  candidates in the decay mode  $p K \pi$  with a goal of measuring the mass, intrinsic width, cross section and momentum spectra of the resonances decaying into  $\Lambda_c^+ \pi^+ \pi^-$  final states. We also report the first measurements on the relative branching fractions of the  $\Lambda_c(2880)^+$  decaying to the states  $\Sigma_c^+(2455) \pi^+$ ,  $\Sigma_c^{++}(2455) \pi^-$ ,  $\Sigma_c^{++}(2520) \pi^-$ ,  $\Sigma_c^+(2520) \pi^+$  and the non resonant  $\Lambda_c^+ \pi^+ \pi^-$  mode.

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**Session Classification:** 04 - Hadronic Structure, Parton Distributions, soft QCD, Spectroscopy

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