

# Study of three-body charmonium decays at BABAR

*Friday, 29 July 2016 16:50 (30 minutes)*

We study the reaction  $e^+ e^- \rightarrow \gamma_{\text{ISR}} J/\psi$ , where  $J/\psi \rightarrow \pi^+ \pi^- \pi^0$ ,  $J/\psi \rightarrow K^+ K^- \pi^0$ , and  $K_S K^+ \pi^-$  using events obtained from the Initial State Radiation process. We measure the relative  $J/\psi$  branching fraction and perform a Dalitz plot analysis of both  $J/\psi$  decay modes using an isobar and a Veneziano model. We present also an analysis of the process  $\gamma \gamma \rightarrow K \text{ anti-}K \pi$ . We observe the decays  $\eta_c \rightarrow K_S K^+ \pi^-$  and  $\eta_c \rightarrow K^+ K^- \pi^0$  and perform a Dalitz analysis of both  $\eta_c$  decay modes. We also extract the mass dependent  $K \pi$  S-wave amplitude and phase using a model-independent partial wave analysis approach.

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**Session Classification:** Mesons