

## Dalitz plot analysis of three-body charmonium decays in BaBar.

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We study the reaction  $e^+ e^- \rightarrow \gamma_{ISR} J/\psi$ , where  $J/\psi \rightarrow \pi^+ \pi^- \pi^0$  and  $J/\psi \rightarrow K^+ K^- \pi^0$ , 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 the isobar and Veneziano model.

We study 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  $K\pi$  amplitude and phase using the model-independent partial wave analysis approach.

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