

# Study of resonant-states production in $e^+e^-$ annihilation in the energy region around 2.2 GeV

Friday 31 July 2020 10:55 (15 minutes)

Two vector resonances with a mass near 2.2 GeV/ $c^2$  are presently known: the  $\phi(2170)$  observed in several production processes, but seen to decay only to  $\phi(2170) \rightarrow \phi(1020)f_0(980)$ , and the not well established  $\rho(2150)$ . Recently the BES-III experiment observed a clear interference pattern in the same energy region in  $e^+e^- \rightarrow K^+K^-$ , interpreted as a resonance with a mass of 2239 GeV and a width of 0.14 GeV. To shed light on the resonant states in this energy region we measure the reaction  $e^+e^- \rightarrow K_S K_L$  with data collected with the *BABAR* detector, and analyse these data in conjunction with published BES-III data on  $e^+e^- \rightarrow K^+K^-$  and *BABAR* data on  $e^+e^- \rightarrow K^+K^-, \pi^+\pi^-, \pi^+\pi^-\eta, \pi^+\pi^-\omega$ . This study supports the existence of an isovector resonance  $\rho(2230)$  with mass  $M = 2232 \pm 8 \pm 9$  MeV/ $c^2$  and width  $\Gamma = 133 \pm 14 \pm 4$  MeV/ $c^2$ , consistent with the resonance observed by BES-III.

## I read the instructions

## Secondary track (number)

**Author:** SOLODOV, Evgeny (BudkerINP)

**Presenter:** SOLODOV, Evgeny (BudkerINP)

**Session Classification:** Strong Interactions and Hadron Physics

**Track Classification:** 06. Strong Interactions and Hadron Physics