

Shedding light on the $X(3930)$ and $X(3960)$ states with the $B^- \rightarrow K^- J/\psi \omega$ reaction

Tuesday, 6 June 2023 17:10 (20 minutes)

We have studied the contribution of the state $X(3930)$, coming from the interaction of the $D\bar{D}$ and $D_s^+ D_s^-$ channels, to the $B^- \rightarrow K^- J/\psi \omega$ decay. The purpose of this work is to offer a complementary tool to see if the $X(3930)$ state observed in the $D^+ D^-$ channel is the same or not as the $X(3960)$ resonance claimed by the LHCb collaboration from a peak in the $D_s^+ D_s^-$ mass distribution around threshold. We present results for what we expect in the $J/\psi \omega$ mass distribution in the $B^- \rightarrow K^- J/\psi \omega$ decay and conclude that a clear signal should be seen around 3930 MeV . At the same time, finding no extra resonance signal at 3960 MeV would be a clear indication that there is not a new state at 3960 MeV , supporting the hypothesis that the near-threshold peaking structure peak in the $D_s^+ D_s^-$ mass distribution is only a manifestation of a resonance below threshold.

Primary authors: FEIJOO, Albert (IFIC (CSIC-UV)); OSET, Eulogio (IFIC, CSIC University of valencia); NIEVES, Juan (IFIC (CSIC-UV)); ABREU, Luciano; BAYAR, Melahat (Kocaeli University); ALBALADEJO, Miguel (IFIC)

Presenter: FEIJOO, Albert (IFIC (CSIC-UV))

Session Classification: Heavy meson spectroscopy

Track Classification: Heavy meson spectroscopy