

Search for exotic charmonium at BABAR

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One of the most intriguing puzzles in hadron spectroscopy are the numerous charmonium-like states observed in the last decade, including charged states that are manifestly exotic.

Over the years BaBar has extensively studied these states in B meson decays, initial state radiation processes and two photon reactions. We report new and additional studies on some of these states performed using the entire data sample collected by BaBar in e^+e^- collisions at center of mass energies near $10.58 \text{ GeV}/c^2$. Among these, the study of the process $B \rightarrow J/\psi \phi K$ with a search for the $X(4140)$ and $X(4270)$ in their decays to $J/\psi \phi$, and a search for charged charmonium-like state $Z_c(3900)^{++}$ in the decay $Y(4260) \rightarrow J/\psi \pi^+\pi^-$.

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