

XYZ states at BESIII

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The BESIII Experiment at the Beijing Electron Positron Collider (BEPC2) has accumulated the world's largest samples of e^+e^- collisions in the tau-charm region. Cross sections of $e^+e^- \rightarrow \pi^+\pi^- \psi(2S)$ above 4.0 GeV, and a charged structure has been observed in the $\pi \psi(2S)$ mass spectrum. Cross sections of $e^+e^- \rightarrow \text{KKbar } J/\psi$ between 4189 and 4600 MeV. Compared with $\pi^+ \pi^- J/\psi$, more complex structure in the line shape is observed. Quantum number J^P of $Z_c(3900)$ is determined to be 1^+ by partial wave analysis of $e^+ e^- \rightarrow \pi^+ \pi^- J/\psi$ at 4.23 and 4.26 GeV. Observation of $e^+e^- \rightarrow \eta' J/\psi$ at center-of-mass energies between 4.190 and 4.600 GeV. Measurement of the $e^+e^- \rightarrow \pi^+ \pi^- h_c$ cross section at BESIII, in addition to previous $Y(4230)$, a new wider Y state has been observed. Precise measurement of the $e^+ e^- \rightarrow \pi^+ \pi^- J/\psi$ cross section at center-of-mass energies from 3.77 to 4.60 GeV, in addition to the previously found $Y(4230)$, a new wider Y state has been observed.

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