Study on the Two-Photon Transition from $\psi(2S)$ to $J/\psi$ at BESIII

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The two-photon spectroscopy has been always a very fundamental but powerful tool for the study of the excitation level of different size-scale systems, such as molecules, atoms and positronium [1]. Its direct analog to study the process among the quarkonia has yet not well studied in the experiment, especially for the charmonia.

With the high luminosity of electron-positron storage ring at BEPCII and excellent performance of the BESIII spectrometer [2], BESIII accumulated about 100 million $\psi(2S)$ data [3]. With the help of these high statistics and high quality data, the two-photon transition from $\psi(2S)$ to $J/\psi$ was studied at BESIII. The progress will be reported in the conference.


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