

Study of Neutral-Pion Pair Production in Two-Photon Scattering at BESIII

The anomalous magnetic moment of the muon, $a_\mu = (g - 2)_\mu/2$, is one of the most precisely measured observables of the Standard Model. However, its value shows a sizeable discrepancy to the Standard Model prediction. It is still under discussion whether this discrepancy is a hint for New Physics or a proof for the limited understanding of strong interaction at low energies. To get a better understanding of this discrepancy, one needs to reduce the uncertainty of both, the Standard Model prediction and the direct measurement.

Information on the production of pion pairs in two-photon fusion processes plays an important role in the dispersive calculation of the hadronic light-by-light scattering contribution to a_μ , which is one of the two large contributions to the Standard Model predictions uncertainty. The BESIII experiment, located at the institute of high energy physics in Beijing/China, offers a perfect testbed for the investigation of two-photon processes at small momentum transfers. The process $e^+e^- \rightarrow e^+e^-\pi^0\pi^0$ is measured at the BESIII experiment at centre-of-mass energies between 3.68 and 4.7 GeV with a total integrated luminosity of more than 20 fb^{-1} , with more data being available in future. This presentation will discuss the current status of the analysis.

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