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Measurements of the R value at BESIII

The R value, defined as the ratio of the inclusive hadronic cross section and the muon cross section in $e+e-$ collisions, is an important input for the calculation of the Standard Model predictions of the anomalous magnetic moment of the muon a_μ and the running of the QED coupling constant $\alpha_{\text{QED}}(m_Z)$ evaluated at Z pole. The BESIII collaboration has collected data with high statistics to measure the R value at more than 130 scan points between 2.0 and 4.6 GeV. In this presentation, the measurement between 2.2324 and 3.6710 GeV is discussed. On average, a total uncertainty of less than 3% is achieved, which is dominated by the systematic uncertainty.

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Collaboration / Activity

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