

Abstract

Search for exotic states in e^+e^- annihilations at BESIII

The conventional quark model, classifying hadrons into mesons and baryons, was developed in the 1970s by Gell-Mann. As color-neutrality of such states is the main constraint, the existence of other possible configurations beyond these conventional mesons and baryons was already discussed back then. These hypothetical exotic states include tetraquarks ($qq\bar{q}\bar{q}$), hybrids ($q\bar{q}g$) or glueballs (gg). Electron-positron collider experiments such as **BESIII** are an important tool in the study of (exotic) states especially in the charmonium region. The experiment is located at the **Beijing Electron-Positron Collider II** (BEPCII), a symmetrical double-ring e^+e^- collider. In recent years, with BESIII we have accumulated several high statistics data sets. Besides the worlds largest data set at the J/ψ resonance containing about ten billions of events for precision studies of light hadrons, a large data sample at the $\psi(2S)$ resonance was taken for detailed studies of charmonium transitions and decay studies of non-vector charmonia. Additionally, a large amount of high luminosity data sets at various center-of-mass energies between $\sqrt{s} = 4.0$ GeV and $\sqrt{s} = 5.0$ GeV enable dedicated studies of exotic charmonia. This talk will give an overview about the current analyses performed in Münster in the working group of Prof. Alfons Khoukaz.