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## CP-violation studies of hyperon-hyperonbar pairs with BESIII

CP violation was first observed more than 50 years ago. Although its effect has been studied in meson decays for a long time, we still have no observation of CP violation in weakly decaying baryons. Baryons consisting of one or more heavy quarks, so called hyperons,  $Y$ , can be used to search for CP-violating mechanisms beyond the Standard Model. At the BESIII experiment in Beijing, strange hyperon and anti-hyperon pairs can be produced simultaneously through the process  $e^+e^- \rightarrow J/\psi \rightarrow Y\bar{Y}$ . The BESIII experiment has collected the world's largest  $J/\psi$  data sample and the symmetric, excellent detector conditions and low background contributions allows for a clean environment for CP-tests in the strange sector. This is done by measuring and comparing the CP-odd decay parameters of the hyperon together with the anti-hyperon. The CP-symmetry tests can be performed in processes like e.g.  $J/\psi \rightarrow \Lambda\bar{\Lambda}$ ,  $J/\psi \rightarrow \Sigma\bar{\Sigma}$  and  $J/\psi \rightarrow \Xi\bar{\Xi}$ . Recently it was shown that for the process  $J/\psi \rightarrow \Lambda\bar{\Lambda}$  the CP-odd asymmetry decay parameter for the decay  $\Lambda \rightarrow p\pi^-$  was nearly twenty percent larger compared to the PDG tabulated value. Another example is the  $J/\psi \rightarrow \Xi\bar{\Xi}$  which allows for accessing the  $\Xi$  decay parameters and perform three independent CP tests in a single measurement. In the talk, we will give an outline of the methods, present recent results and give prospects for the future from the BESIII experiment.

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