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## CP symmetry tests of baryon weak decays with LHCb and BESIII

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There exists an imbalance between matter and antimatter in the Universe. Charge parity violating (CP) mechanisms are necessary to generate such an asymmetry.

CP violation has only been observed in weak decays of mesons. Baryon weak decays offer unique and complementary ways of testing the validity of the Standard Model. Notably, spin polarization can significantly enhance the sensitivity of CP-violating precision tests. The two particle physics experiments LHCb and BESIII can be used for such tests. The LHCb experiment at CERN, a single-arm spectrometer optimized for the study of beauty and charm-flavoured hadrons, is the only experiment to observe CP-violation in charmed hadron decays.

The BESIII experiment at the electron-positron collider BEPCII in Beijing, operational since 2008, has collected the world's largest data samples of J/Psi and Psi(2S). Recent observations of hyperon polarisation at BESIII open new avenues for probing CP violation, by enabling simultaneous detection of spin-correlated hyperon and anti-hyperon weak decays. In this presentation, a brief overview of the two experiments will be provided, the physics case for baryon CP violation and prospects for the future.

### Summary

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