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Hyperon physics at BESIII

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With the large datasets on e+e- annihilation at the J/Psi and Psi(3686) resonances collected at the BESIII experiment, multi-dimensional analyses making use of polarization and entanglement can shed new light on the production and decay properties of hyperon-antihyperon pairs. In a series of recent studies performed at BESIII, significant transverse polarization of the (anti)hyperons has been observed in J/Psi or P(3686) to hyperon anti-hyperon.The decay parameters for the most common hadronic weak decay modes were measured. Due to the non-zero polarization, the parameters of hyperon and antihyperon decays could be determined independently of each other for the first time. Some hyperon rare decays, such as hyperon radiative week decays and semi-leptonic decays, are also investigated at BESIII, which are important to test the weak interaction theories. Furthermore, evidence for two excited Ω hyperons has also been reported recently.

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