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[Poster] Using $\Xi(1820)$ baryons to test for parity doubling at ALICE

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We report the first measurement of the $\Xi(1820)$ baryon at LHC energies by reconstructing its decay to Λ -K in pp collisions at 13 TeV. Recent lattice calculations on parity doubling indicate that the masses of negative-parity particles, such as $\Xi(1820)$, may decrease at the critical temperature, while the masses of positive-parity partners, i.e. the $\Xi(1530)$, do not. Furthermore, the lifetime of the $\Xi(1820)$ is short enough that it may be suppressed in high-multiplicity collisions, as has been observed for $K^*(892)$ and $\rho(770)$. Studying $\Xi(1820)$ also allows us to gain a better understanding of the spectrum of excited hyperon states, with implications for our understanding of the hadron resonance gas. We have successfully reconstructed the $\Xi(1820)$ using ALICE data from 2015-2018 and measured its mass, width, and yield as a function of the transverse momentum and collision multiplicity. These studies performed in small collision systems will serve as a baseline for future measurements of the $\Xi(1820)$ in p-Pb and Pb-Pb collisions.

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