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Isospin amplitudes in b-baryon decays[1] ARAVINDHAN VENKATESWARAN, Syracuse University, LHCB COLLABORATION — Ratios of isospin amplitudes in hadron decays are a useful probe of the interplay between weak and strong interactions, and allow searches for physics beyond the Standard Model. We present the first results on isospin amplitudes in b-baryon decays, using data corresponding to an integrated luminosity of 8.5fb^{-1}, collected with the LHCb detector in pp collisions at center of mass energies of 7, 8 and 13 TeV. The isospin amplitude ratio $|A_1(\Lambda_b \to J/\psi\Sigma^0)/A_0(\Lambda_b \to J/\psi\Lambda)|$, where the subscript on A indicates the final-state isospin, is measured to be less than 1/21.8 at 95% confidence level. This upper limit provides support for the light diquark structure in the Λ_b, and further confirms its SM status as an isosinglet. The Cabibbo suppressed $\Xi_b^0 \to J/\psi\Lambda$ decay is observed for the first time, allowing for the measurement $|A_0(\Xi_b^0 \to J/\psi\Lambda)/A_{1/2}(\Xi_b^0 \to J/\psi\Xi^0)| = 0.37 \pm 0.06 \pm 0.02$, where the uncertainties are statistical and systematic, respectively. This measurement is consistent with the preservation of both isospin and SU(3) flavor symmetries.

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