

Ξ to Λ form factor

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We present a first-principles lattice QCD calculation of $\Xi^- \rightarrow \Lambda$ form factors using $2+1$ flavor gauge ensembles with lattice spacings ranging from 0.06 to 0.1 fm and pion masses between 230 and 340 MeV. This decay provides an independent avenue for determining the Cabibbo–Kobayashi–Maskawa matrix element $|V_{us}|$ in the baryon sector. We determine the full set of vector and axial-vector transition form factors and their q^2 dependence, followed by a combined chiral and continuum extrapolation to the physical point. Our preliminary prediction for the electron-channel branching fraction is consistent with the recent BESIII measurement, which lies 3.9 standard deviations below the previous world average.

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