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# Baryon Semileptonic Decays as Probes: Lattice QCD Determination of Transition Form Factors

*Friday, 26 June 2026 11:30 (30 minutes)*

Semileptonic decays of baryons provide a complementary and increasingly powerful avenue for flavor physics beyond meson-based studies. In this talk, I present the current status and future program of lattice QCD calculations of baryon transition form factors, which are essential inputs for interpreting experiments and, in particular, for determining CKM matrix elements through independent cross-checks that may help resolve existing tensions. Beyond CKM phenomenology, baryon decays offer sensitivity to tests of lepton flavor universality, constraints on non-standard interactions, and precision studies of weak currents with distinct hadronic systematics, while also opening connections to neutrino physics. I will review recent lattice results, methodological advances, and ongoing efforts to control systematic uncertainties, and outline planned calculations for key channels of experimental interest, in synergy with measurements at LHCb and BESIII and future opportunities at FAIR (GSI).

## Collaboration

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