

Semileptonic Charm Decay at N3LO in perturbative QCD

Monday, 12 May 2025 16:55 (20 minutes)

Semileptonic decays of charm-flavored hadrons, particularly D mesons, offer important avenues to address key questions in heavy-flavor physics, such as the long-standing discrepancy between inclusive and exclusive determinations of CKM matrix elements involving charm quarks. Precision measurements of semileptonic D-meson decays demand equally accurate theoretical predictions, for which QCD corrections, especially at the charm mass scale, are essential. In this talk, we present recently computed third-order perturbative QCD corrections (in the strong coupling) to semileptonic charm decays, covering both the inclusive decay width and several moments.

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Session Classification: Parallel I: A