

# 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.

**Primary authors:** Dr CHEN, Long (Shandong University); Dr CHEN, Xiang (Peking University); Dr GUAN, Xin (Peking University); Prof. MA, Yan-Qing (Peking University)

**Presenter:** Dr CHEN, Long (Shandong University)

**Session Classification:** Parallel I: A