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## Three-loop QCD corrections to heavy-to-light form factors and applications to inclusive $B$ decays

*Thursday 25 September 2025 15:45 (15 minutes)*

In this talk, we discuss the computation of form factors for decays of heavy into light quarks at third order in QCD for various currents. We describe the different steps of the calculation and use the results to compute the hard matching coefficients in Soft-Collinear Effective Theory for all currents. Further, we extract the hard function in  $\bar{B} \rightarrow X_s \gamma$  to three loops and study the impact of three-loop QCD corrections on partial decay rates in charged-current semi-leptonic  $\bar{B} \rightarrow X_u l \bar{\nu}$  decays.

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