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Heavy-to-light form factors to three loops

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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 the factorization formula of $B \rightarrow X_s \gamma$ to three loops using the tensor coefficients at light-like momentum transfer. Future applications to charged-current semi-leptonic decays are briefly sketched.

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