

Next-to-leading order QCD corrections to $B_c^* \rightarrow J/\psi$ form factors

Sunday, 30 March 2025 14:00 (20 minutes)

Within the framework of Non-Relativistic Quantum Chromodynamics (NRQCD) factorization, we calculate the next-to-leading order (NLO) perturbative QCD corrections to the form factors for the semileptonic decays of B_c into J/ψ via (axial-)vector and (axial-)tensor currents. We obtain the complete analytical results for the form factors up to NLO, and provide their asymptotic expressions in the hierarchical heavy quark limit. The NLO corrections are found to be both significant and convergent in the relatively small squared transfer momentum (q^2) region, while also reducing the dependence on the renormalization scale μ . Finally, the theoretical predictions for $B_c \rightarrow J/\psi$ form factors over the full q^2 range are provided.

Primary author: Dr 陶, 伟 (河南师范大学)

Presenter: Dr 陶, 伟 (河南师范大学)

Session Classification: Chair: 司宗国