Contribution ID: **720** Type: **Parallel session talk**

# Taming second order power corrections and updated predictions for $R(D/D^*)$ and $R(\Lambda_c)$ within and beyond the Standard Model

*Friday 19 July 2024 11:45 (15 minutes)*

In arxiv:2312.07758 and arxiv:2206.11281 we applied the recently-developed Residual Chiral Expansion (RCE) to significantly reduce the set of unknown subsubleading hadronic functions to a set of highly-constrained functions at second order in Heavy Quark Effective Theory (HQET). In this talk, we present updated predictions for $R(D/D*)$ using the RCE and the recent new experimental inputs from Belle and Belle II. We further discuss the compatibility with new lattice information for $B \to D^* \ell \nu$. We explore the applicability of the RCE using $\Lambda_b \to \Lambda_c \ell \bar{\nu}_\ell$ decays: intriguingly, in this decay the RCE reduces the set of six unknown subsubleading hadronic functions to a single function. We fit a form factor parametrization based on these results to all available Lattice QCD (LQCD) predictions and experimental data and find excellent agreement with the pure HQET prediction.

## Alternate track

## I read the instructions above

Yes

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