

# Combining $R(D^{(*)})$ measurements at Belle II

*Tuesday 24 September 2024 14:30 (30 minutes)*

The  $R(D^{(*)})$  ratio is an excellent test of Lepton Flavor Universality, that promises to elucidate the nature of potential Beyond the Standard Model physical processes. In this talk, we present the latest  $R(D^{(*)})$  measurements from the Belle II experiment. Additionally, we explore a likelihood based combination of different analyses relying on orthogonal selections, that goes beyond the combination methodology of HFLAV. We discuss a list of joint systematic uncertainties, that should be decomposed in eigenvariations, relevant for such combinations. We demonstrate a combination using different MC mock analyses implementing the procedure. We also highlight a python based tool that can be used for eigendecompositions of non-trivial systematic uncertainties.

**Primary author:** TSAKLIDIS, Ilias (University of Bonn)

**Presenter:** TSAKLIDIS, Ilias (University of Bonn)

**Session Classification:** Heavy to heavy exclusive