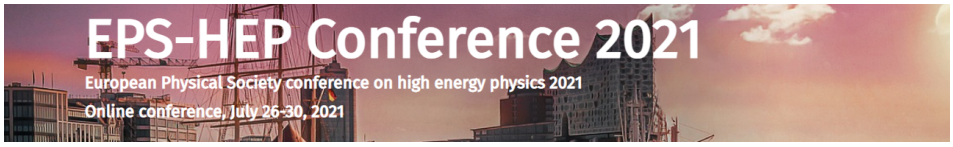

Contribution ID: **547** Type: **Parallel session talk**

A new determination of $|V_{cb}|$ using inclusive q^2 moments of $B \to X_c \ell \bar{\nu}_\ell$ decays

Tuesday 27 July 2021 11:00 (15 minutes)

Precision determination of the CKM matrix element $|V_{cb}|$ are important to test the unitarity of the CKM matrix and to search for loop-level new physics effects. In this talk, we present a new determination of $|V_{cb}|$ using measured q^2 moments from $B \to X_c \ell \bar{\nu}_\ell$ decays provided by the Belle and Belle II collaborations. This new experimental input is the key ingredient to determine the non-perturbative hadronic matrix elements entering the total semileptonic $B \to X_c \ell \bar{\nu}_\ell$ rate in the heavy-quark expansion. Exploiting reparametrization invariance, the number of these non-perturbative parameters can be reduced to 8 at $\mathcal{O}(1/m_b^4)$. The value of these parameters and $|V_{cb}|$ is simultaneously determined, taking into account also the theoretical uncertainties from missing higher order contributions in the heavy quark expansion and corrections from the strong interaction.

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Collaboration / Activity

Collaborative Research

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Session Classification: T08: Flavour Physics and CP Violation

Track Classification: Flavour Physics and CP Violation