The 38th International Symposium on Lattice Field Theory

LATTICE 21

JULY 26-30 2021, ZOOM/GATHER@MIT

Contribution ID: **238** Type: **Oral presentation**

Semileptonic form factors for $B \to \pi\ell\nu$ decays

Thursday 29 July 2021 13:45 (15 minutes)

The desire for additional determinations of the CKM matrix element V_{ub} and a long-standing 2-3σ discrepancy between results from inclusive $B \to X_u$ and exclusive $B \to \pi$ processes motivate the study of $B \to \pi$ semileptonic form factors on the lattice. The status of our preliminary $B \to \pi\ell\nu$ results will be discussed by highlighting updates to our analysis. The analysis is carried out on a subset of the RBC/UKQCD 2+1f Iwasaki gauge action ensembles, with b quarks simulated using the Columbia formulation of the relativistic heavy quark action, and the light valence-quarks simulated with domain wall fermions. We predict scalar and vector form factors over the entire range of allowed q^2 and use our results to test lepton universality *via* the R-ratio $\Gamma(B \to \pi\tau\nu)/\Gamma(B \to \pi\ell\nu)$, where ℓ in the denominator is either an electron or muon.

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Session Classification: Standard Model Parameters

Track Classification: Standard Model Parameters