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

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The desire for additional determinations of the CKM matrix element V_{ub} and a long-standing $2-3\sigma$ discrepancy between results from inclusive $B \rightarrow X_u$ and exclusive $B \rightarrow \pi$ processes motivate the study of $B \rightarrow \pi$ semileptonic form factors on the lattice. The status of our preliminary $B \rightarrow \pi \ell \nu$ 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 $\Gamma(B \rightarrow \pi \tau \nu) / \Gamma(B \rightarrow \pi \ell \nu)$, where ℓ in the denominator is either an electron or muon.

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