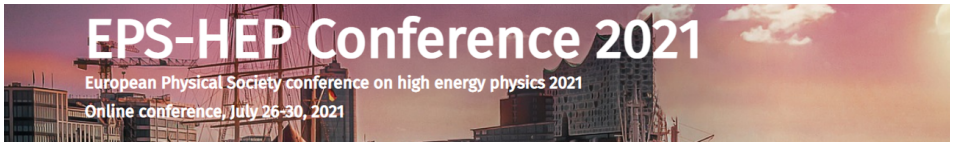

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Form factors for semileptonic B(s) decays

Tuesday 27 July 2021 10:15 (15 minutes)

Determinations of the CKM matrix elements $|V_{ub}|$ and $|V_{cb}|$ or predictions for R-ratios testing lepton flavor universality can be obtained from form factors describing exclusive semileptonic $B_{(s)}$ decays. Using the framework of lattice quantum chromodynamics, we report on our form factor calculations for $B_s \to D_s \ell\nu$, $B_s \to K\ell\nu$, and $B \to \pi\ell\nu$ decays. First scalar and vector form factors with full error budget are presented for the range of momentum transfer directly accessible in our simulations. Next we show z-parameterization fits to extend q^2 over the kinematically allowed range and use the results to extract CKM matrix elements or predict R-ratios.

Our calculations are based on RBC-UKQCD's set of 2+1 flavor domain wall Iwasaki gauge field configurations featuring three lattice spacings of a^{-1} = 1.78, 2.38, and 2.78 GeV. We simulate up/down, strange, and charm quarks using domain-wall fermions and use the relativistic heavy quark action for the bottom quarks.

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Collaboration / Activity

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