

# Nonperturbative calculations of form factors for exclusive semileptonic B(s) decays

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A key ingredient to searches for new physics in the flavor sector are precise theoretical predictions derived from the Standard Model. Due to its large mass and long lifetime processes involving  $b$  quarks are of particular interest. Focusing at the nonperturbative QCD contributions, we carry out lattice QCD simulations with the focus on semileptonic  $B_{(s)}$  decays. We present results on our determinations of  $B_s \rightarrow D_s \ell \nu$  and  $B_s \rightarrow K \ell \nu$  semileptonic form factors with full  $q^2$  dependence, discuss the extraction of CKM matrix elements  $|V_{cb}|$  and  $|V_{ub}|$ , as well the determination of  $R$ -ratios testing the universality of lepton flavors.

Our calculations are based on the set of 2+1 flavor domain wall Iwasaki gauge field configurations generated by the RBC-UKQCD collaboration featuring three lattice spacings of  $1/a = 1.78, 2.38$ , and  $2.78$ . Heavy  $b$ -quarks are simulated using the relativistic heavy quark action.

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## Secondary track (number)

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