

# A model-independent parameterization of semileptonic B decays with two final-state hadrons

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Semileptonic  $B$  decays involving multiple final-state hadrons play a crucial role as backgrounds to studies of lepton flavour universality or recent anomaly observed in  $B \rightarrow K\nu\nu$ . Furthermore, these poorly understood decays constitute sizeable signal components in measurements of inclusive  $B \rightarrow X_{u/c}\ell\nu$  decays and the subsequent extraction of inclusive  $V_{cb}$ .

Current theoretical models describing decays such as  $B \rightarrow D\pi\ell\nu$  or  $B \rightarrow \pi\pi\ell\nu$  rarely take contributions beyond dominant resonances into account, while neglecting non-resonant components.

In this talk, we present a novel, model-independent parameterization of three-hadron form factors. The challenge is the dependence of the form-factors on two additional variables beyond the usual  $q^2$ -dependence: they can be chosen to correspond to the invariant mass and the helicity angle of the final state hadron system. Using dispersive methods we derive a systematic expansion in all three kinematic variables, generalizing the standard  $z$ -expansion, and bound the expansion coefficients through unitarity. Our method treats the two-hadron lineshapes in a model-independent manner using Omnès functions, thus allowing for a data-driven determination of all expansion parameters.

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