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Bayesian inference for form-factor fits regulated by unitarity and analyticity

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I discuss a model-independent framework for fitting hadronic form-factor data, which is often only available at discrete kinematical points, using parameterisations based on unitarity and analyticity. The accompanying dispersive bound on the form factors (unitarity constraint) is used to regulate the ill-posed fitting problem and allow model-independent predictions over the entire physical range. Kinematical constraints, for example for the vector and scalar form factors in semileptonic meson decays, can be imposed exactly. The core formulae are straight-forward to implement with standard math libraries. I demonstrate the method for the exclusive semileptonic decay $B_s \to K\ell\nu$, an example requiring one to use a generalisation of the original Boyd~Grinstein~Lebed (BGL) unitarity constraint.

Topical area

Quark and Lepton Flavor Physics

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