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Lattice determination of the spectral function for $D_s \to \ell\nu_\ell\gamma^*$ decays

Thursday, 16 February 2023 11:50 (30 minutes)

We discuss a novel approach, based on spectral reconstruction techniques, which circumvents the well-known problem of the analytic continuation from Minkowskian to Euclidean time for hadronic processes above kinematical thresholds. The approach is discussed for the specific case of the radiative decays of pseudoscalar mesons $P \to \ell\nu_\ell\gamma$, where γ is a virtual photon.

These processes, which give access to the rare decays $P \to \ell\nu_\ell\bar{\ell}'\ell'$, are notoriously difficult to study on the lattice due to the presence of intermediate states which hinder the analytic continuation to Euclidean time when the photon off-shellness $\sqrt{k^2}$ is larger than the invariant mass of the lightest intermediate state. We apply the new spectral reconstruction method to the decay $D_s \to \ell\nu_\ell\gamma^*$ and present some preliminary results.

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