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Studies on finite-volume effects in the inclusive semi-leptonic decays of charmed mesons

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We report on the progress in the analysis of the inclusive semi-leptonic decay of the D_s meson. This analysis is based on a pilot simulation conducted for the $D_s \to X_s \ell \nu$ process where we employed Möbius domain-wall charm and strange quarks whose masses were tuned to be approximately physical and where we covered the whole kinematical region.
The focus of this talk is to present our progress in how the systematic error due to the presence of finite-volume effects can be estimated. Due to limitations in the available data, we construct a modelling strategy which is then used to fit to our lattice data to investigate the extrapolation to the infinite-volume limit. This procedure also includes a discussion of cut-off effects for higher energies which we encounter during the modelling stage of our data.

Topical area

Quark and Lepton Flavor Physics

Primary author: KELLERMANN, Ryan

Co-authors: JUETTNER, Andreas (University of Southampton); HASHIMOTO, Shoji (KEK); KANEKO, Takashi (KEK); BARONE, Alessandro (University of Southampton)

Presenter: KELLERMANN, Ryan

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