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Lattice calculation of leading isospin breaking effects in $\Gamma(K_{\ell 2})/\Gamma(\pi_{\ell 2})$ with close-to-physical chiral fermions

Wednesday, August 10, 2022 2:00 PM (20 minutes)

In this talk we present the first RBC-UKQCD lattice calculation of the leading isospin-breaking corrections to the ratio of leptonic decay rates of kaons and pions into muon and neutrino, $\Gamma(K_{\ell 2})/\Gamma(\pi_{\ell 2})$. This computation is performed using domain wall fermions with close-to-physical (light and strange) quark masses. The QED effects are implemented using a perturbative approach and infrared divergences are regulated according to the $\mathrm{QED_L}$ prescription. We describe the strategy to extract the relevant hadronic matrix elements from Euclidean correlation functions and we discuss the important role of finite volume effects in this calculation.

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