



“Prospects for Lattice Calculations of Rare Kaon Decay Amplitudes”

Precision Flavour Physics in general, and processes mediated by Flavour Changing Neutral Currents (FCNC) in particular, offer a particularly promising tool for exploring the limits of the standard model and searching for signatures of new physics in a way which is complementary to the high-energy searches being undertaken at the LHC. The very significant recent progress in lattice simulations is enabling the hadronic effects (non-perturbative QCD effects) to be quantified for many processes, allowing us to extract fundamental information from experimental measurements. In this talk I will discuss the prospects of applying recently developed techniques to an important class of FCNC processes, rare kaon decays $K \rightarrow \pi + \text{leptons}$, where the kaon and the pion have the same electric charge. I will discuss both the phenomenology of such processes and the theoretical framework necessary for the evaluation of the amplitudes. The calculations are feasible but challenging and a dialogue with both the experimental and non-lattice theoretical communities will be helpful to proceed in the most effective way.

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