Weak low-energy couplings from topological zero-mode wavefunctions

Presenter: Pilar Hernandez — IFIC-Universidad de Valencia
P. Hernandez, M. Laine, C. Pena, E. Torro, J. Wennekers, H. Wittig

We discuss a new method to determine the low-energy couplings of the $\Delta S=1$ weak Hamiltonian in the $\epsilon$-regime. The method relies on the matching of the topological poles in $1/m^2$ of three-point functions of two pseudoscalar densities and a four-fermion operator, computed in lattice QCD, to the same observables computed in the Chiral Effective Theory. We present and compare the results for these observables at NLO in chiral perturbation theory and the numerical results from simulations in a 2 fm box.