

Radiative corrections to decay amplitudes in lattice QCD

Wednesday, 25 July 2018 14:40 (20 minutes)

The precision of lattice QCD computations of many quantities have reached such a precision that isospin breaking corrections, including electromagnetism, must be included if further progress is to be made in extracting fundamental information, such as the values of Cabibbo-Kobayashi-Maskawa matrix elements, from experimental measurements. I discuss the framework for including radiative corrections in leptonic and semileptonic decays of hadrons, including the treatment of infrared divergences. I start by briefly reviewing isospin breaking in leptonic decays and presenting the first numerical results for the ratio $\Gamma(K_{\mu 2})/\Gamma(\pi_{\mu 2})$ in which these corrections have been included. I will also discuss the additional theoretical issues which arise when including electromagnetic corrections to semileptonic decays, such as $K_{\ell 3}$ decays.

Primary author: Prof. SACHRAJDA, Chris (University of Southampton)

Co-authors: Dr TARANTINO, Cecilia (Universita Roma Tre); Mr GIUSTI, Davide (Universita Roma Tre); Dr SANFILIPPO, Francesco (INFN, Sezione di Roma Tre); Prof. MARTINELLI, Guido (Universita di Roma, La Sapienza); Prof. TANTALO, Nazario (Universita di Roma Tor Vergata); Dr SIMULA, Silvano (INFN, Sezione di Roma Tre); Prof. LUBICZ, Vittorio (Universita Roma Tre)

Presenter: Prof. SACHRAJDA, Chris (University of Southampton)

Session Classification: Weak Decays and Matrix Elements

Track Classification: Weak Decays and Matrix Elements