

Isospin-breaking corrections to tau to pi pi nu decays and the muon g-2

Content

In LEP times, hadronic tau decays were the most precise input for the (leading-order) hadronic vacuum polarization piece (HVP,LO) of the muon anomalous magnetic moment (a_μ). With the advent of Φ - and B-factories, e^+e^- hadronic cross-section surpassed them, giving the most accurate input for this piece. However, since both data-driven determinations are subject to theoretical uncertainties (isospin-breaking for taus and radiator function for dealing with initial-state radiation at the Monte Carlo level for e^+e^-) it is nevertheless needed to keep on improving the systematic theory uncertainties for using both data sets, as unprecedented precision is requested by the forthcoming measurement of a_μ at FNAL (that should be released before the end of this year). In this context, we have revisited the computations by Cirigliano et al. [Phys.Lett. B513 (2001) 361-370 and JHEP 0208 (2002) 002] to improve the SM theoretical uncertainty associated to the use of (the dominant) tau to pi pi nu decays for $a_\mu^{HVP,LO}$.

Summary

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