

Abstract

High precision electroweak tests, such as deviations from the Standard Model expectations of the Lepton Flavor Universality breaking in $K^- \rightarrow l\nu$ (with $l = e$ or μ), represent a powerful tool to test the Standard Model and, hence, to constrain or obtain indirect hints of New Physics beyond it. We explore such a possibility within Supersymmetric theories. Interestingly enough, a process that in itself does not need lepton flavor violation to occur, i.e. the violation of mu-e non-universality in K_{12} , proves to be quite effective in constraining not only relevant regions of SUSY models where lepton flavor is conserved, but even those where specific lepton flavor violating contributions arise. Indeed, a comparison with analogous bounds coming from tau lepton flavor violating decays shows the relevance of the measurement of R_K to probe Lepton Flavor Violation in SUSY. We outline the role and the interplay of the direct New Physics searches at the LHC with the indirect searches performed by LFU tests.