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Flavor violating Higgs and Z decays at FCC-ee

Thursday 16 May 2024 16:15 (15 minutes)

In this talk we detail how combining recent developments in flavor-tagging and novel statistical analysis techniques will allow future high energy and high statistics electron-positron colliders, such as the FCC-ee, to place phenomenologically relevant bounds on flavor violating Higgs and Z decays to quarks. As a proof of principle, we assess the FCC-ee reach for Z/h ⟶ bs, cu decays as a function of jet tagging performance and compare this reach against updated SM predictions for the corresponding branching ratios, as well as the indirect constraints on the flavor violating Higgs and Z couplings to quarks. Additionally, we show that the searches for h ⟶ bs, cu decays at FCC-ee can probe new parameter space not excluded by indirect searches using type III two Higgs doublet model as an example of beyond the standard model physics, while we reinterpret the FCC-ee reach for Z ⟶ bs, cu in terms of the constraints on models with vectorlike quarks.

Mini Symposia (Invited Talks Only)

Author: SZEWC, Manuel

Presenter: SZEWC, Manuel

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