Flavor Structure from the Electroweak Scale

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The origin of the observed hierarchies in fermion masses and mixings remains one of the puzzles not addressed by the Standard Model of particle physics. This talk will summarize the different mechanisms which could explain this hierarchy. In general, the scale at which this flavor structure emerges is unknown and could be out of reach of the LHC. This changes, if the flavor scale is related to the only high energy scale we know for certain, the electroweak symmetry breaking scale. I will introduce a model in which the Higgs sector generates the flavor hierarchy from structureless Yukawa couplings. This model predicts additional Higgs fields as well as new TeV scale fermions. It features distinctive signals in flavor observables and collider searches for new particles, and the focus of my talk will be on how to search for these signals or exclude the model.