Abstract: The flavor puzzle remains a big mystery of the standard model. Eclectic flavor groups combine the power of modular and traditional flavor symmetries to address this problem. In this talk, I will discuss their origin from compactifications of extra dimensions. Furthermore, we will see that a step-wise breakdown is able to generate hierarchical mass patterns. Finally, I will present the flavor phenomenology of an explicit example model based on an orbifold compactification of the heterotic string. A fit to experimental data reveals that this model can successfully reproduce observed masses and mixings as well as deliver predictions for yet unmeasured neutrino observables.