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Flavor Symmetry from String Theory

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Content

Flavor symmetry might play a crucial role in the standard model of particle physics, but its origin is still unknown. We consider a string theory-based scenario, in which the flavor symmetry arises from the compactification of extra dimensions. We observe that compactifications on toroidal orbifolds yield naturally discrete flavor symmetries that consist of traditional flavor symmetries as well as modular symmetries, combined in a so-called “eclectic flavor group”. Consequently, a remarkable feature arises: the unified flavor symmetry depends on the position in moduli-space.

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