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Modular Flavor Symmetry in Heterotic E_6 GUT

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We discuss a common origin of four-dimensional flavor and CP symmetries in the context of heterotic string theory with standard embedding. We find that the flavor symmetries of fundamental and anti-fundamental representations of E_6 gauge group are governed by geometric symmetries of Calabi-Yau threefolds, i.e., the symplectic modular symmetry. Furthermore, the CP symmetry is identified with an outer automorphism of the symplectic modular group of Calabi-Yau threefolds.

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