

Landscape of F-theory Standard Models

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We present key steps in explicit construction of a globally consistent F-theory compactifications with the exact chiral spectrum of the Standard Model with gauge coupling unification. All global consistency conditions can be reduced to a single geometric criterion on the base of the underlying elliptically fibered Calabi Yau fourfolds. For toric bases, this criterion only depends on an associated polytope and is satisfied for at least $O(10^{15})$ distinct bases. Further particle physics implications of these models are addressed.

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