

Advances in F-theory Constructions of Particle Physics

Friday 28 August 2015 09:30 (30 minutes)

We present developments in F-theory compactifications with an emphasis on the implications for particle physics. We spell out techniques to construct globally consistent F-theory compactifications to four-dimensions that result in particle physics gauge symmetries, such as $SU(5)$ **GUT** and Standard Model, chiral matter families and Yukawa couplings. We highlight the first globally consistent constructions with the Standard Model gauge symmetry, and three families of quarks and leptons. We also spell out technical advances in constructions of F-theory compactifications with higher rank Abelian and discrete symmetries, and highlight explicit constructions for $U(1) \times U(1)$ and Z_3 discrete symmetry.

Author: CVETIC, Mirjam (University of Pennsylvania)

Presenter: CVETIC, Mirjam (University of Pennsylvania)

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