Towards Exact matter spectra of F-theory MSSMs

Friday 16 July 2021 10:00 (30 minutes)

Within the largest, currently known, class of one Quadrillion globally consistent F-theory StandardModels with gauge coupling unification and no chiral exotics, we present advances in the determination of the full matter spectra, which are governed by

fractional powers of line bundles, also known as root bundles on matter curves. We systematically determine root bundle constraints that result in the matter spectra without vector-like chiral exotics. On a technical level, we employ a diagrammatic description of root bundles on nodal matter curves and subsequently a deformation theory to smooth matter curves.

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