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Higher-Form Symmetries in (Non-) Compact F-/M-Theory Constructions

Friday 21 July 2023 10:00 (30 minutes)

By studying M-theory on singular non-compact special holonomy spaces X we demonstrate, via a process of cutting and gluing of singularities that extend to the boundary of X , the appearance of 0-form, 1-form and 2-group symmetries in the resulting supersymmetric quantum field theory. We study the fate of these symmetries when these spaces become compact by employing sophisticated gluing techniques. We focus on prototype examples with spaces X being elliptically fibered Calabi-Yau manifolds, which describe constructions dual to (non-) compact F-theory, including Standard Model constructions. We can compare obtained results to previous ones, encoded in the arithmetic structure of elliptic curves.

Primary author: CVETIC, Mirjam (University of Pennsylvania)**Presenter:** CVETIC, Mirjam (University of Pennsylvania)**Session Classification:** Plenary Session**Track Classification:** Plenary