

Higher Symmetries of Quantum Field Theory from String Theory on Singular (Non-)Compact Special Holonomy Spaces

Mirjam Cvetič

UPenn

By studying string/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 related gluing techniques. In examples of elliptically fibered Calabi-Yau manifolds these results can be confronted to those of dual F-theory where the origin of these symmetries is associated with the arithmetic structure of elliptic curves.