Symmetry Theories, Anomalies and η Invariants

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Abstract

We present progress on calculation of anomaly coefficients for higher symmetries in quantum field theories (QFTs) both from the perspective of geometric engineering and quiver approaches. Within geometric engineering this data is governed by η-invariants extracted from the boundary geometry on non-compact Calabi-Yau space X. Quiver approach provides a complementary way to extract this data from the path algebra of branes probing X. We present explicit results for one-form anomaly coefficients in five-dimensional supersymmetric QFTs, engineered in M-theory on classes non-compact Calabi-Yau three-folds X. The quiver approach applies also in situations where the counterpart geometric computation is either combinatorially unwieldy or unknown, such as cones over Einstein-Sasaki spaces.

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