

Chiral anomalies and their implications in 10d non-supersymmetric $sp(16)$ gauge theories

We revisit the Green-Schwarz (GS) mechanism in the 10d Sugimoto model and explicitly show the consistency with anomaly-inflow onto the branes involved in the GS-mechanism. The branes' degrees of freedom establishes $Sp(16)$ as the global gauge group of the 10d non-supersymmetric theory. We then interpret and generalize the computation with a bottom-up perspective, to study the consistency of non-supersymmetric $sp(16)$ gauge theories with different chiral spectra coupled to gravity. Our findings suggest that it is surprisingly challenging to have a consistent theory with $Sp(16)/\mathbb{Z}_2$ gauge group.

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