

## **Higher Form Symmetries, Membranes and Spectral properties**

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I will explore the presence of higher-form symmetries in the eleven-dimensional bosonic membrane, examining both invertible and non-invertible cases. In the invertible scenario, I will show that when the target space is compactified, breaking these symmetries to a discrete subgroup induces a gerbe structure. This, in turn, gives rise to the topological condition required for the consistent quantisation of the D=11 supermembrane spectrum at the regularised level.

Furthermore, I will address the modifications that occur when a non-trivial Wess–Zumino coupling is present, rendering the symmetry non-invertible. In this context, I will generalise previous findings to more intricate backgrounds that exhibit a non-trivial four-form flux associated with the supergravity three-form field in the background.