Non-invertible symmetries, axions, and the imaginary wormholes

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Abstract

In a broad class of models – including axiverse models and several extended supergravities as special cases – the equations of motion are classically invariant under continuous symplectic transformations acting on the gauge sector. I will discuss how these symmetries survive at the quantum level as non-invertible ones. In particular, I will focus on the non-invertible axion shift symmetries of axiverse models and discuss how, in minimally supersymmetric models, wormholes and the recently proposed Imaginary Distance Bound can provide important information on the expected symmetry breaking in quantum gravity UV completions.

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