

Hsin - Automorphism is All You Need: Transversal Non-Clifford Gates in 2+1D and Higher Symmetries from Automorphism

Monday, 9 March 2026 12:00 (1 hour)

We study automorphism in twisted gauge theories and discover they can give rise to generalized symmetries such as higher group and/or non-invertible symmetries. Using the automorphism symmetry, we discover transversal non-Clifford logical gates such as T gate in Clifford stabilizer models in 2+1D as well as CCZ gate in 5+1D self correcting non-Abelian quantum memory. The talk is based on arXiv:2511.02900 with Ryohei Kobayashi (Institute for Advanced Study) and Guanyu Zhu (IBM)