

# Spurion Analysis for a Class of Selection Rules Without Group Actions

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Recent advances have uncovered a new class of selection rules in particle physics models arising from non-invertible fusion algebras. We refer to these as non-invertible selection rules (NISRs), distinguishing them from conventional selection rules derived from ordinary group laws. In this talk, we illustrate their implications in perturbation theory using spurion analysis, and connect to aspects of “loop-induced groupification” and particle decoupling in effective field theories. The discussion is based on arXiv 2510.18972, 2508.14970, 2503.19964.

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