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Simulated-based Anomaly Detection for Multileptons at the LHC KATARZYNA KRZYZANSKA, Princeton University, BENJAMIN NACHMAN, LBNL — Decays of Higgs boson-like particles into multileptons is a well-motivated process for investigating physics beyond the Standard Model (SM). A unique feature of this final state is the precision with which the SM is known. As a result, simulations are used directly to estimate the background. Current searches consider specific models and typically focus on those with a single free parameter to simplify the analysis and interpretation. In this presentation, we explore recent proposals for signal model agnostic searches using machine learning in the multilepton final state. These tools can be used to simultaneously search for many models, some of which have no dedicated search at the Large Hadron Collider.

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