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Non-resonant Anomaly Detection with Background Extrapolation

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Searching for non-resonant signals at the LHC is a relatively underexplored, yet challenging approach to discover new physics. These signals could arise from off-shell effects or final states with significant missing energy. This talk explores the potential of using weakly supervised anomaly detection to identify new non-resonant phenomena at the LHC. Our approach extends existing resonant anomaly detection methods from background interpolation to extrapolation. We use semi-visible jets, a type of signature predicted by dark QCD models, as a benchmark to test the sensitivity of the proposed methods.

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