Contribution ID: **92** Type: **not specified**

Combining resonant and tail-based anomaly detection

Wednesday 8 November 2023 17:15 (15 minutes)

In many well-motivated models of the electroweak scale, cascade decays of new particles can result in highly boosted hadronic resonances (e.g. $Z/W/h$). This can make these models rich and promising targets for recently developed resonant anomaly detection methods powered by modern machine learning. We demonstrate this using the state-of-the-art CATHODE method applied to supersymmetry scenarios with gluino pair production. We show that CATHODE, despite being model-agnostic, is nevertheless competitive with dedicated cut-based searches, while simultaneously covering a much wider region of parameter space. The gluino events also populate the tails of the missing energy and H_T distributions, making this a novel combination of resonant and tail-based anomaly detection.

Authors: Dr KRAUSE, Claudius (Rutgers University); SHIH, David; BICKENDORF, Gerrit (Universität Bonn); KASIECZKA, Gregor (Hamburg University (DE)); Prof. DREES, Manuel (Universität Bonn)

Presenter: BICKENDORF, Gerrit (Universität Bonn)

Session Classification: Anomalies