



Contribution ID: 17

Type: Oral presentation using Zoom

High-dimensional Anomaly Detection with Radiative Return in e^+e^- Collisions

Thursday, 28 October 2021 19:00 (20 minutes)

Experiments at a future e^+e^- collider will be able to search for new particles with masses below the nominal centre-of-mass energy by analyzing collisions with initial-state radiation (radiative return). We show that machine learning methods based on semisupervised and weakly supervised learning can achieve model-independent sensitivity to the production of new particles in radiative return events. In addition to a first application of these methods in e^+e^- collisions, our study is the first to combine weak supervision with high-dimensional information by deploying a deep sets neural network architecture. We have also investigated some of the experimental aspects of anomaly detection in radiative return events and discuss these in the context of future detector design.

1st preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

2nd preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

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Session Classification: H-3: BSM particle production

Track Classification: Parallel sessions: Topical Groups: Session H: BSM particle production