LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS (LEPP)

Theory Seminar

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Searching for anomalies at the LHC with machine learning

Machine learning at the LHC have been mostly used for supervised tasks, either for classification or regression, while unsupervised learning techniques have been so far overlooked. I will introduce them in the context of anomaly detection, when only samples of "normal" events is available and the goal is to build an algorithm that can tag outliers of unspecified nature. Using QCD jets as background and boosted top jets and RPV gluino jets as signal, I will demonstrate the effectiveness of techniques based on autoencoders and show how they can significantly improve signal over background searches.

Wednesday, Nov. 7, 2018

2:00pm

401 Physical Sciences Building

LEPP, the Cornell University Laboratory for Elementary-Particle Physics, and CHESS resources have merged and a new lab, (CLASSE), has formed. LEPP's primary source of support is the National Science Foundation. Visit us at www.lepp.cornell.edu