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Auditório Méson Pi – DRCC

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Title: Statistically Learning the Next Standard Model from LHC Data

Despite the large amount of data generated by the LHC so far, searches for new physics have not yet provided any clear evidence of beyond the Standard Model (BSM) physics. Most of these experimental searches focus on exclusive channels, looking for excesses in specific final states. However, new physics could manifest as a dispersed signal over many channels. It therefore becomes increasingly relevant to attempt a more global approach to finding out where BSM physics may hide. To this end, we developed a novel statistical learning algorithm that is capable of identifying potential dispersed signals in the slew of published LHC analyses.

In this talk, we explain the concept as well as technical details of the statistical learning procedure. We also present proof of concept results obtained when running the algorithm over the SModelS database. Finally, we will discuss future developments which can significantly improve the algorithm and the interpretation of its results.