M2R training, year 2021-2022

Searching for new physics at the LHC using machine learning

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Subject

Our understanding of the infinitely small is based on the Standard Model of particle physics. However, this model has some gaps that different "extensions" aim to fill. Some of them (supersymmetry, extradimensions, ...) predict new particles, such as new Higgs bosons, decaying into top quarks pairs. This internship in the ATLAS-LPC team proposes to use this remarkable signature to train in Machine Learning.

The ATLAS-LPC group has a deep knowledge of top quark physics. In this team, the student will use tools such as TensorFlow to improve the analysis of top-antitop resonance search. The objective of this internship is that the developed methods can be included in the Atlas analysis in preparation.

The possibility of a thesis topic in the continuity of this internship will be discussed with the student.