

Séminaire

Enabling Searches for New Physics at the Energy Frontier

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For the last few decades, High Energy Physics has been a victim of its own early success. Despite numerous theoretical arguments why it cannot be the final explanation for the interactions of fundamental particles, the Standard Model of particle physics continues to withstand intense scrutiny of the most determined experimental physicists. One promising way to search for signs of new physics is at the energy frontier at the LHC, probing energies comparable to those present very shortly after the Big Bang.

In this talk, I will review some recent experimental results for searches for new physics using data from the ATLAS experiment. Signs of new physics could also first show up as subtle surprises in the behaviour of the known particles, which could indirectly hint at new physics. I will discuss details about the detector performance, with a focus on the ATLAS inner tracker, which are crucial for such searches and precision measurements in particular, and highlight the potential of the future phase-II upgrade of the ATLAS inner tracker. I will conclude with a discussion on recent results on dark matter and new physics with GAMBIT, the Global and Modular Beyond-the-Standard Inference Tool, including first results of recasting early LHC Run-2 electroweak SUSY searches.

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Pavillon Roger Gaudry, S-142
Café-biscuits à 13 :30 au V-221

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