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Machine Learning for LHC Theory

Monday 29 November 2021 15:50 (30 minutes)

Over the next years, measurements at the LHC and the HL-LHC will provide us with a wealth of data. The best hope of answering fundamental questions like the nature of dark matter, is to adopt big data techniques in simulations and analyses to extract all relevant information.

On the theory side, LHC physics crucially relies on our ability to simulate events efficiently from first principles. In the coming LHC runs, these simulations will face unprecedented precision requirements to match the experimental accuracy. Innovative ML techniques like generative models can help us overcome limitations from the high dimensionality of the parameter space. Such networks can be employed within established simulation tools or as part of a new framework. Since neural networks can be inverted, they open new avenues in LHC analyses.

Speaker time zone

References

Significance

Presenter: BUTTER, Anja

Session Classification: Plenary