

# Fast LHC Signal Prediction using Machine Learning

*Monday, September 12, 2016 3:00 PM (20 minutes)*

Expensive detector simulations are in general required to assess the implications of LHC data on extensions of the Standard Model of particle physics, as they allow to directly compare the predicted phenomenology for a given point in (an often high-dimensional) theory parameter space, with actual data. We show here that a suitable application of advanced machine learning methods that can bypass the need of expensive simulations. Using natural SUSY as a test case, we discuss the substantial benefits and potential pitfalls of this method.

## Summary

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**Session Classification:** Dark Matter & colliders

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