Contribution ID: **15** Type: **not specified**

An alternative to ABC for likelihood-free inference

Friday, 11 December 2015 16:30 (40 minutes)

The field of particle physics has the luxury of very predictive models of the data based on quantum field theory; however, the simulation of a complicated experimental apparatus makes it impractical to directly evaluate the likelihood for a given observation. A popular approach to this class of problems is Approximate Bayesian Computation (ABC). I will describe an alternative technique for parameter inference in this "likelihood-free" setting that is based on a parametrized family of classifiers and univariate density estimation. I will end with examples where this technique is being applied to problems at the LHC.

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