The University of Chicago

Departments of Computer Science,
Mathematics, and Statistics

Scientific and Statistical Computing Seminar

KYLE CRANMER

New York University

Statistical Aspects of the Search for the Higgs Boson at the Large Hadron Collider

FRIDAY, April 20, 2012, at 3:30 PM

133 Eckhart Hall, 5734 S. University Avenue.

ABSTRACT

The standard model of particle physics is a wildly successful theory of fundamental particles and their interactions. The Higgs boson is a particle that was predicted nearly 50 years ago to address a serious theoretical consistency issue in the Standard Model of particle physics, but it has never been observed. The Large Hadron Collider is a multi-national, multi-billion dollar experiment to search for the Higgs boson and other new phenomena. I will discuss the statistical aspects of the search for the Higgs boson, including the collaborative statistical modeling of the data and the statistical procedures we employ. With multi-petabyte datasets and complex statistical models, we are arguably pushing a frontier of statistical analysis and quickly outstripping our most advanced tools.

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