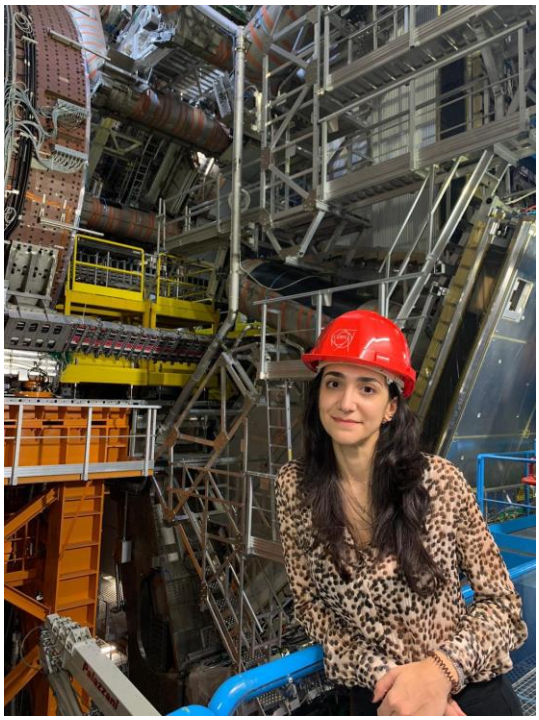
LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS

LEPP Joint Seminar



Caterina Vernieri
CERN

What is the Higgs boson hiding?

The Higgs boson discovery at the LHC marked a historic milestone in the study of fundamental particles and their interactions. Over the last eight years, we have begun measuring its properties, which are essential to build a deep understanding of the Higgs sector of the Standard Model and to potentially uncover new phenomena. The Standard Model is far from being a complete theory of nature and many of its predictions have yet to be tested. In particular, the energy potential of the Higgs boson field, responsible for the electroweak symmetry breaking mechanism, has not yet been measured by any experiment. A measurement of the Higgs boson self-coupling at the LHC would shed light into the actual structure of the potential, whose exact shape can have deep theoretical consequences. This coupling can be accessed directly through the very challenging measurement of Higgs pair production. In this talk the experimental status of the di-Higgs boson production searches and constraints on the self-coupling at the LHC will be presented and the special role played by the decay to b-quark, the largest Higgs branching fraction, and its distinctive signature will be described.

Tuesday, Mar. 3, 2020
12:30pm
401 Physical Sciences Bldg.

SPECIAL DAY!

LEPP and CHESS resources have merged and a new lab, (CLASSE), has formed. LEPP's primary source of support is the National Science Foundation. Visit us at www.lepp.cornell.edu