



LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar

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Perimeter

**New physics in the
Higgs sector**



The exploration of the Higgs sector, via precision Higgs measurements and direct searches for extra scalars, may be used as a powerful strategy to discover new physics.

In this talk, we present two new developments in the search for beyond the Standard Model (SM) physics through the Higgs.

First, we discuss searches for a new singlet scalar mixing with the Higgs, showing that this minimal extension of the SM can explain the significant excess of rare Kaon decays recently measured by the KOTO experiment.

Second, we discuss how extended Higgs sectors may be used to consistently explore novel flavor hierarchies, by using a robust flavor prescription called Spontaneous Flavor Violation (SFV). Within SFV, extra scalars may couple preferentially to first or second-generation quarks while retaining consistency with bounds from flavor-changing neutral currents.

Such theories lead to a wide variety of characteristic phenomenological signatures, which can be tested at both intensity and energy frontier experiments.

Wednesday, March 11, 2020

2:00pm

401 Physical Sciences Building