



LABORATORY FOR ELEMENTARY-PARTICLE  
PHYSICS (LEPP)

# Theory Seminar

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## Looking for new physics in real data: from LHC to GAIA



Multiple detection strategies are required in the quest for experimental evidence of physics beyond the SM. In this talk, I will discuss how precision measurements of kinematic distributions at LHC constitute a powerful probe of new physics, providing a complementary approach to traditional bump hunt searches. In particular, I will show how current top pair production measurements are sensitive to new heavy states that preferentially couple to the third generation quarks, and whose contribution can be parametrized in terms of higher-dimensional four fermion operators.

Time permitting, I will describe a detection technique to search for collapsed dark matter structures inside the Milky Way halo through their weak gravitational lensing signatures on background luminous objects. In particular, I will present one signal observable that can be looked for in data from current astrometric surveys, like GAIA.

**Wednesday, April 10, 2019**

**2:00pm**

**401 Physical Sciences Building**