

### Laboratory for Elementary Particle Physics (LEPP) **Theory Seminar**

## LHC as an Axion Factory:

# Probing an Axion Explanation for (g-2)\_\mu with Exotic Higgs Decays



We argue that a large region of so far unconstrained parameter space for axion-like particles (ALPs), where their couplings to the Standard Model are of order (0.01-1)/TeV, can be explored by searches for the exotic Higgs decays h—> Z+a and h—> a+a in Run-2 of the LHC. Almost the complete region in which ALPs can explain the anomalous magnetic moment of the muon can be probed by searches for these decays with subsequent decay a—>\gamma\gamma, even if the relevant couplings are loop suppressed and the a—> \gamma\gamma branching ratio is less than 1.

#### Matchias Neubert Johannes Gutenberg University of Mainz

### Wednesday, August 30<sup>th</sup>, 2017 2:00pm *401 Physical Sciences Building*



LEPP, the Cornell University Laboratory for Elementary-Particle Physics, 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