



LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS
(LEPP)

Theory Seminar



Thesis Defense

Advisor:

Maxim Perelstein

Ph.D. Candidate:

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New Models, Terrestrial, and Multi-Messenger Probes of New Physics: Dark Matter

Dark matter (DM) that implodes neutron stars (NSs) may explain the paucity of pulsars in the Milky Way galactic center, the source of r-process elements, and the origin of fast-radio bursts. We identify new astrophysical signatures of NS-imploding DM, which could decisively test these hypotheses in the next few years. The use of distribution of NS mergers in the galaxies, in particular, will allow us to probe DM-nucleon interaction cross-sections 4 to 10 orders of magnitude better than the direct detection experiments in a few year timescale. We also discuss other direct and indirect phenomena including "Quiet Kilonovae" and "Black Mergers" from the implosions.

Tuesday, May 22, 2018

1:00 pm

120 Physical Sciences Building