



LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar



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Non-perturbative Potentials in the Real Time

Non-perturbatively generated potentials are an extremely useful, and often necessary, ingredient in string and inflationary model building. In field theory, these potentials are determined through Euclidean methods which assume the system is in a state of equilibrium. For systems out of equilibrium---for instance, an axion rolling down its potential---we expect that the semi-classical evolution predicted by this effective potential receives corrections due to transient phenomena. How do we determine these corrections? When do they become large? I will answer these questions in a toy quantum field-theoretic model that shares many similarities with axion inflation, yet whose dynamics are exactly solvable. Depending on the initial conditions, corrections to the trajectory can be significant, invalidating the predictions of standard Euclidean methods.

Friday, Oct. 5, 2018

12:30pm

401 Physical Sciences Building