



LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar



Nima Afkhami-Jeddi
Cornell

Causality and Universality of Einstein Gravity

We explore the implications of causality in quantum field theory both in AdS and flat spacetimes. To this end, we develop a formalism to translate causality constraints in conformal field theories into bounds on the CFT data. We then demonstrate how these bounds govern the low energy dynamics of gravity in AdS. In addition we show how similar bounds on graviton dynamics in flat spacetimes can be obtained by imposing consistency conditions on scattering amplitudes in the Eikonal limit. As a result we find that in a theory where the low energy dynamics of the gravitons are governed by the Einstein-Hilbert action, any finite number of massive elementary particles with spin more than two cannot interact with gravitons in a way that preserves causality

Friday, Jan. 18, 2019

12:30pm

401 Physical Sciences Building