

Special TEP Seminar

UCLA

Wednesday, April 5 @ 11:00 AM

Physics & Astronomy Building (PAB) 4-330

Causality and Universality at Strong Coupling

Tom Hartman (Cornell University)

Causality imposes constraints on perturbative effective field theory, which have played a role in understanding scattering amplitudes, the a-theorem for renormalization group flows, and higher curvature corrections in quantum gravity. I will describe similar constraints on strongly interacting theories. In one limit, these constraints imply the averaged null energy condition, which links causality to the inequalities obeyed by quantum information. Then, in large-N conformal field theory, I'll describe how causality tightly constrains the stress tensor correlation functions, and points directly toward the emergence of Einstein gravity in the holographic dual.