Eva Silverstein  
Stanford University  

“Horizon Dynamics and String Theory”  

Monday, October 17, 2016  
3:30 PM  
57 SPL  

Abstract: Black hole and cosmological horizons play a crucial role in physics. They are central to our understanding of the origin of structure in the universe, while continuing to provide vexing theoretical puzzles. They have become accessible observationally to a remarkable degree, albeit indirectly. I will review how horizons appear in general relativity and quantum field theory. Then I will move to a systematic study of their breakdown and its relevance -- or more precisely, `dangerous irrelevance' -- to thought experiments and real observations in specific situations. After describing the sensitivity of primordial cosmological perturbations to heavy degrees of freedom and large field values, I will share some new results on the non-Gaussian probability distribution of primordial perturbations induced by heavy fields. Finally, I will describe new results on the breakdown of effective quantum field theory for string-theoretic probes of black hole horizons.

Host: David Poland  

Tea in SPL 3rd Floor Lounge at 4:30 PM