



Condensed Matter Theory Center Seminar

Edwin Barnes
(University of Virginia)
Friday, January 29
11:00 AM-12:30 PM
2202 Physics Building

“Introduction to AdS/CFT and its applications”

The anti-de-Sitter space/conformal field theory (AdS/CFT) correspondence is a powerful tool in the study of conformal field theories, which are ubiquitous in High Energy and in the study of phase transitions in Condensed Matter (CM) and cold atomic systems. AdS/CFT is a conjectured duality that maps a CFT without gravity to a string theory on a curved space. In regimes where the CFT is most difficult to solve, the string theory tends to be simple, effectively reducing to Einstein’s gravity theory. I will begin with an extensive introduction to the basic features of AdS/CFT. I will describe some of my own research using it in the context of scattering amplitudes and time-dependent thermal processes. I will also discuss some of the exciting new applications to CM and cold atomic systems and conclude with possible future directions along these lines.