



Department of
Theoretical Physics

Tata-Infosys Lectures

Horizon Thermodynamics and Local Energy Conditions

Lecture 1 **Date:** Feb 20, 2017
 Time: 3:00 pm

Lecture 2 **Date:** Feb 23, 2017
 Time: 11.30 am

Lecture 3 **Date:** Feb 24, 2017
 Time: 10:00 am



Aron Wall
(IAS, Princeton)

Venue: A-304, TIFR

(Duration and Location are subject to irreducible jitter)

Black holes, and other causal horizons e.g. de Sitter horizons in cosmology, obey laws of thermodynamics reminiscent of ordinary thermal systems. I will explain the definition and proof of the Generalized Second Law for causal horizons, and discuss its relationship to lower bounds on the stress-energy tensor in classical and quantum field theories.

Lecture 1: Why do black holes obey a second law?

Lecture 2: What prevents negative energy from violating causality?

Lecture 3: a) Entropy in higher curvature gravity b) An argument for energy conditions