I. V. Hubeny: *Holographic Entanglement Entropy & Causal Holographic Information*

II.

Entanglement entropy is an important quantity characterizing quantum systems, employed in diverse areas of research ranging from condensed matter physics to quantum computing. Using holography, an invaluable tool for elucidating certain strongly coupled quantum field theories by using their higher-dimensional classical gravitational dual, entanglement entropy is conjectured to be related to a simple geometrical construct: an area of an extremal surface in asymptotically AdS spacetime. In the first part of the talk, I will review this proposal and discuss some of the recent applications in time-dependent settings. Motivated by the power of holography, in the second part of the talk I will introduce another (more basic) geometrical construct, whose dual is hitherto unknown but provisionally called "causal holographic information". To understand its nature, I will contrast its predicted behaviour with that of the entanglement entropy and discuss its general properties.