

Speaker: Mark Mezei (Princeton)

Title: Spread of entanglement and chaos

Abstract: A global quench is an interesting setting where we can study thermalization of subsystems in a pure state. We investigate the spread of entanglement following a global quench in holography, toy models, and free field theory. In particular, we focus on two speeds: the tsunami velocity determining the linear growth of entanglement entropy at early times, and the saturation velocity for spherical regions. Informed by recent progress on chaos, we bound these speeds by the butterfly velocity controlling the growth of operators. We find that holographic theories saturate entanglement entropy as fast as allowed by this bound.