

MCQM PhD Lecture: Angela Capel Cuevas

Wednesday, 8 November 2023 11:30 (1 hour)

Title: Quantum entropy and trace inequalities

Abstract: In this talk, I will give an elementary introduction to the subject of quantum entropies and trace inequalities, with a special focus on results that are relevant to quantum information theory. First, we will discuss various different notions of quantum entropies that extend those of classical entropies, and we will show several of their fundamental properties, in particular under the application of quantum channels. We will put a special focus on those properties that differ from their classical counterparts. Next, we will describe some contexts within quantum Shannon theory in which the use of quantum entropies is fundamental, such as for quantum hypothesis testing or to estimate quantum channel capacities.