



## Analysis Seminar

**Title:** Non-commutative graph parameters and quantum channel capacities

**Speaker:** R. Levine

**Date:** Tue 10th October 2017 at 3:00PM

**Location:** UCD Science North 125

**Abstract:** We generalise some graph parameters to non-commutative graphs (a.k.a. operator systems of matrices) and quantum channels. In particular, we introduce the quantum complexity of a non-commutative graph, generalising the minimum semidefinite rank. These parameters give upper bounds on the Shannon zero-error capacity of a quantum channel which can beat the best general upper bound in the literature, namely the quantum Lovász theta number. This is joint work with Vern Paulsen (Waterloo) and Ivan Todorov (Belfast).