

# GRADUATE SEMINAR

Kyler Johnson

## Investigation of Mean Zero Quantum Random Variables

*MSc Student supervised by Michael Kozdron*

**Thursday November 28th**

**13:05**

**Math Lounge (CW307.20)**

**Abstract:** The generalization of classical random variables to operator valued random variables, or quantum random variables, has applications to mathematical models of quantum experiments. It also provides an interesting generalization of classical probability since one loses commutativity when working with operators. In order to establish probabilistic results in the quantum setting the notion of an operator valued integral, a positive operator valued probability measure, and the principal Radon Nikodym derivative will be introduced. These results will allow a discussion of the space of mean zero quantum random variables. This space is of particular interest since it exhibits behaviour not seen with classical random variables.