

School of Physical Sciences Seminar

Speaker: **Dr. Graham Kells (School of Physical Sciences, DCU)**

Title: **Weak measurement, quantum trajectories, and topological order.**

Date: Thursday 31st March at 1pm

Location: Room SA217 and on Zoom at:

[https://dcu-
ie.zoom.us/j/99145308425?pwd=WjdLUE5xSDBLS3p5Q216UFd3WHkyUT09](https://dcu-
ie.zoom.us/j/99145308425?pwd=WjdLUE5xSDBLS3p5Q216UFd3WHkyUT09)

Meeting ID: 991 4530 8425

Passcode: 923541

Abstract: The idea of continuous or weak-measurement has been used in recent years to motivate and explore what are called entanglement transitions in quantum trajectory dynamics. Here I will discuss our analysis of a system that employs different types of continuous/weak monitoring together with free-fermion hopping to generate distinct area- and volume-law phases. Crucially, one of the area-law phases has non-trivial topological properties. I will outline how the phase diagram can be understood in terms of a non-Hermitian Hamiltonian derived using the notion of post-selected measurement, and propose a general experimental setup that could be used to support such a system.

Everyone welcome!