

# Algebra and Geometry Seminar

**Speaker:** Emily Cliff (Université de Sherbrooke)

**Title:** Moduli spaces of principal 2-group bundles and a categorification of the Freed-Quinn line bundle

**Abstract:** A 2-group is a higher categorical analogue of a group, while a smooth 2-group is a higher categorical analogue of a Lie group. An important example is the string 2-group in the sense of Schommer-Pries. We study the notion of principal bundles for smooth 2-groups, and investigate the moduli "space" of such objects. In particular in the case of flat principal bundles for a finite 2-group over a Riemann surface, we prove that the moduli space gives a categorification of the Freed-Quinn line bundle. This line bundle has as its global sections the state space of Chern-Simons theory for the underlying finite group. We can also use our results to better understand the notion of geometric string structures (as previously studied by Waldorf and Stolz-Teichner). This is based on joint work with Dan Berwick-Evans, Laura Murray, Apurva Nakade, and Emma Phillips.