**Title:** Principal 2-group bundles and the Freed--Quinn line bundle

Speakers: Emily Cliff

**Collection/Series:** Mathematical Physics

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## Abstract:

A 2-group is a categorical generalization of a group: it's a category with a multiplication operation which satisfies the usual group axioms only up to coherent isomorphisms. The isomorphism classes of its objects form an ordinary group, G. Given a 2-group G with underlying group G, we can similarly define a categorical generalization of the notion of principal bundles over a manifold (or stack) X, and obtain a bicategory  $Bun_G(X)$ , living over the category  $Bun_G(X)$  of ordinary G-bundles on X. For G finite and X a Riemann surface, we prove that this gives a categorification of the Freed--Quinn line bundle, a mapping-class group equivariant line bundle on  $Bun_G(X)$  which plays an important role in Dijkgraaf--Witten theory (i.e. Chern--Simons theory for the finite group G). This talk is based on joint work with Daniel Berwick-Evans, Laura Murray, Apurva Nakade, and Emma Phillips.

I will not assume previous knowledge of 2-groups: I will provide a quick overview in the main talk, as well as a more detailed discussion during a pre-talk on Tuesday.

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Zoom link



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