Department of Mathematics, BGU

AGNT

On *Wednesday, November ,6 2024*

At *14:10 − 15:10*

In *101-*

Nadav Gropper (University of Hafia)

will talk about

TQFTs for pro-p Poincare duality groups

Abstract: In the talk, I will discuss the Turner-Turaev formalism for unoriented Topological Quantum Field Theory (TQFT). Building upon this formalism, I will introduce an analogous version for (d+1)-dimensional TQFT for pro-p Poincare duality groups. In the case of d = ,1 this enables us to study cobordisms and TQFTs for both the maximal pro-p quotient of absolute Galois groups of p-adic fields and pi_1(X)^p, the pro-p completions of fundamental groups of surfaces. This generalisation gives a framework for arithmetic TQFTs and strengthens the analogies within arithmetic topology, which relates p-adic fields to surfaces (oriented mod p^r). I will explain the classfiication of TQFTS for the (1+1)-dimensional case, in terms of Frobenius algebras with some extra structure.

If time permits, I will explain how we define a Dijkgraaf Witten like theory, to get formulas for counting G-covers of X, where X is either a surface, or a p adic field, and G is a p-group (these formulas are similar to the ones given by Mednykh for surfaces using TQFTs, and by Masakazu Yamagishi using a more

algebraic approach). I will also try to outline how we plan to also get similar formulas for Hom(\pi_1(X)^p,G), where G=GL_n(k) for k=F_{p^r} or Z/p^rZ.

The talk is based on joint work with Oren Ben-Bassat.