TORA VIII - POSTER SESSION

Presenter: **Gordon Brown** (University of Oklahoma)

Title: Web categories for type Q Lie superalgebras

Abstract: In 2014, Cautis-Kamnitzer-Morrison completed a program begun by Kuperberg in the 1990s by obtaining a diagrammatic presentation for the category of $U_q(sl_n)$-modules tensor-generated by exterior powers of the natural module. Their key insight was that a type of Howe duality for $U_q(sl_n)$, properly translated, identifies the generators and most of the relations for the morphisms between such modules. This poster describes joint work with Jonathan Kujawa, in which we apply a Howe duality for the type Q Lie superalgebra q(n) to obtain diagrammatics for the category of q(n)-modules tensor-generated by supersymmetric powers of its natural module.

Presenter: **Connor O'Dell** (University of North Texas)

Title: Non-resonant uniserial representations of the Lie algebra of polynomial vector fields on the real line

Abstract: In this poster, we introduce the problem of classifying non-resonant uniserial extensions composed of tensor density modules. We use Lie algebra cohomology as a tool to solve some small examples and discuss the general case.

Presenter: **Long Tran** (University of Oklahoma)

Title: Zeta Integrals via Bessel Models

Abstract: I will give a revised treatment of Piatetski-Shapiro's theory of zeta integrals and L-factors for irreducible, admissible representations of GSp(4) via Bessel models over local fields which explicitly calculates the local L-factors. This is a joint work with Ralf Schmidt.

Presenter: **Jordan Wiebe** (University of Oklahoma)

Title: Arithmetic in Quaternion Algebras

Abstract: Quaternion algebras occupy a unique mathematical space, knitting together a variety of algebraic and number theoretic objects within a framework where computation is viable. I'll introduce the fundamentals of quaternions, discuss local and global results, develop orders in the local case, and construct a global order. I'll also outline connections to modular forms.