Oklahoma State University

Colloquium

Title

Quantized Gieseker varieties, Catalan combinatorics and homology of torus knots

Speaker: José Simental Rodríguez, Max Planck Institute for Mathematics, Bonn
Date: Feb 1, 2022
Time: 9:30 AM
Room: Via Zoom

Abstract: In the past decade the aims and techniques of classical representation theory have been greatly generalized to study representations of quantizations of Poisson varieties. In this talk, I will focus on one example that already exhibits many of the interesting parts of the theory, these are the quantized Gieseker varieties from the title. I will tie their finite-dimensional representation theory to classical Catalan combinatorics and elaborate on how these finite-dimensional representations conjecturally give the Khovanov-Rozansky homology of torus knots, a powerful invariant that is notoriously difficult to compute. Time permitting I will also give connections to the geometry of Hilbert schemes on singular curves, and give some directions of future research.

Special morning time due to time difference.