Seminar: Mathematical Physics Seminar
When: Wed, March 30, 1:30-2:30 in person in REC 225 and on Zoom

Zoom Link: available at
https://www.math.purdue.edu/~ebkaufma/seminar.html

Speaker: Joshua Wen (Math, Northeastern)

Title: The quantum (deformed) Harish-Chandra isomorphism for GLn

Abstract: The deformed Harish-Chandra isomorphism of Etingof-Ginzburg (and Gan-Ginzburg) identifies the spherical type A rational Cherednik algebra with a quantization of the Hilbert scheme of points on the plane. As a Nakajima quiver variety, the Hilbert scheme can be presented as a Hamiltonian reduction, and likewise its quantization is obtained as a quantum Hamiltonian reduction of the ring of differential operators on a vector space of matrices.

I will present a "multiplicative" analogue of this isomorphism. The rational Cherednik algebra is replaced with the usual Cherednik DAHA while the Hilbert scheme is replaced with a multiplicative quiver variety that also happens to be a character variety for the torus. The quantized character variety has a collection of subalgebras indexed by relatively prime integers (a,b), each generated by quantized Wilson loops supported on the (a,b) torus knot. Under this isomorphism, this (a,b) subalgebra is sent to the slope a/b subalgebra of the spherical DAHA.