

Math Physics Seminar

When: Sept 16, 1.30-2.30pm

Where: Zoom at <https://purdue-edu.zoom.us/j/95258969453?pwd=6rdaO1j5vjwPovfHSBbnaHHldEcuQP.1>

Meeting ID: 952 5896 9453; Passcode: 565894

Speaker: Shon Ngo, ISTA Austria

Title: Hausel's big algebras, commuting differential operators and Bethe subalgebras of the Yangian

Abstract: Recently, Hausel introduced the notion of big algebra associated to a representation

of a reductive Lie algebra. These algebras are commutative and capture a lot of representation-theoretic information, and also related to the equivariant cohomology of certain singular varieties. In our work, we consider a specific GL_n -module, namely the coordinate ring of the affine space $\operatorname{Mat}(n, r)$ and calculate its big algebra generators in terms of differential operators with polynomial coefficients.

This construction allows to prove the commutativity of type A big algebras and relate them to the Bethe subalgebra in the Yangian $\operatorname{Y}(\mathfrak{gl}_n)$.

Time permitting, we might discuss an analogue of this construction for the ring of odd differential operators. (This talk is based on preprint [url{https://arxiv.org/abs/2501.04605}](https://arxiv.org/abs/2501.04605).)