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Quantum Cohomology, Shift operators, and Coulomb branches

Friday 10 October 2025 11:30 (1 hour)

Given a complex reductive group G and a G-representation N, there is an associated Coulomb branch algebra defined by Braverman–Finkelberg–Nakajima. In joint work with Chan and Lam, we show that these Coulomb branch algebras can be described as the largest subcomodules of the equivariant BM-homology of the affine Grassmannian on which certain shift operators admit non-equivariant limits. I will outline the main ideas of the proof, and explain how the defining equations of Coulomb branches reflect the properness of the moduli spaces needed to construct shift operators.
As an application, I will also present work in preparation with Chan, Lam, and Chow that gives a geometric construction of a (degenerate) DAHA action on the equivariant quantum cohomology of T^*(G/P) via stable envelopes.

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