ALGEBRA AND GEOMETRY SEMINAR

The Hong Kong University of Science and Technology
Department of Mathematics

Categorifying quantum affine $\mathfrak{gl}_p$ and its integrable modules

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Cyclotomic q-webs (introduced recently joint with Linliang Song and Yaolong Shen) have produced new algebras sitting in between cyclotomic Hecke algebras and cyclotomic q-Schur algebras. We will explain that a module category over the cyclotomic q-web for q a root of unity categorifies an integrable highest weight module over quantum affine $\mathfrak{gl}_p$, and the projective indecomposable modules categorify the canonical basis. To that end, we connect the affine q-webs to Hall algebra of the cyclic quiver through geometric representation theory. This generalizes the classic works of Lascoux–Leclerc–Thibon, Ariki, and Varagnolo–Vasserot. Based on upcoming joint work with Linliang Song.

Room 1104 (Lift 19) Wed, Mar 25, 2026 04:00 PM