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Canonical bases for quantized general linear and orthosymplectic Lie superalgebras

One of the most remarkable features of quantized enveloping algebras is the Kashiwara-Lusztig basis, which has fundamental connections to combinatorics, geometry, and categorified representation theory. In recent years, some progress has been made in constructing analogues of these bases in quantized enveloping superalgebras. However, this setting has significant complications over the non-super case, which have so far prevented a general approach to constructing such bases.

In this talk, I will discuss an ad-hoc strategy, using braid isomorphisms lifting the Weyl groupoid, for the construction of canonical bases in the half-quantum groups associated basic type Lie superalgebras, in the case of positive root systems whose simple roots satisfy $(\alpha_i, \alpha_j) \leq 0$ for $i \neq j$ (a condition which does not hold for all choices of simple roots of Lie superalgebras). I will discuss how this strategy works for types A and D , and is conjectured to work for such root systems in all types. Time permitting, I will discuss the obstructions to generalizing this strategy.