# Representations of the affine BMW algebra

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**Abstract:**

The BMW algebra is a deformation of the Brauer algebra, and has the Hecke algebra of type A as a quotient. Its specializations play a role in types B, C, D akin to that of the symmetric group in Schur-Weyl duality.

One can enlarge these algebras by a commutative subalgebra $X$ to an affine, or annular, version. Unlike the affine Hecke algebra, the affine BMW algebra is not of finite rank as a right $X$-module, so induction functors are ill-behaved, and many of the classical Hecke-theoretic constructions of simple modules fail. However, the affine BMW algebra still has a nice class of $X$-semisimple, or calibrated, representations, that don't necessarily factor through the affine Hecke algebra.

I will discuss Walker's TQFT-motivated 1-handle construction of the $X$-semisimple, or calibrated, representations of the affine BMW algebra. While the construction is topological, the resulting representation has a straightforward combinatorial description in terms of Young diagrams. This is joint work with Kevin Walker.