ALEXIS LEROUX LAPIERRE, McGill

An algebraic equivariant multiplicity using limits of characters

The seemingly elementary question of writing down perfect bases for the irreducible representations of semisimple Lie algebras is a problem which finds its source in surprisingly involved mathematical tools. Two such sources are a version of the geometric Satake equivalence (giving rise to the so-called Mirkovic-Vilonen bases) and a categorification of U_q^- using KLR algebras (giving rise to the so-called dual canonical bases). It has been shown that these two families of bases do not coincide, raising the question of understanding the change of basis matrix. To bridge these two different constructions, we introduce a new notion of an algebraic equivariant multiplicity for modules over truncated shifted Yangians through limits of characters. We relate it to some well-studied functions on modules over KLR algebras and to the usual notion of equivariant multiplicity of MV cycles. This is joint work with Anne Dranowski and Joel Kamnitzer.