

Cohomology of non-commutative Hilbert schemes

Markus Reineke

Non-commutative Hilbert schemes parametrize left ideals of finite codimension in free algebras. More generally, parameter spaces of finite codimensional submodules of free modules over free algebras will be considered. Their construction will be reviewed, and their relation to Hilbert schemes of points in affine spaces will be discussed. Cell decompositions of these varieties will be constructed, whose cells are parametrized by certain types of forests. Asymptotics for the corresponding Poincaré polynomials and properties of their generating functions will be discussed.