

Rotation of invariant tensors and geometric representation theory

Joel Kamnitzer, University of Toronto

The space of invariant vectors in tensor products of irreducible representations is a classic object of study in representation theory. We consider the linear operator of rotation of tensor factors acting on this vector space. The space of invariant tensors has two incarnations in geometric representation theory; one using affine Grassmannians and the other using quiver varieties. Using these two geometric models, we first find a basis which is permuted by rotation and second we diagonalize the rotation operator. As a consequence we are able to derive an important combinatorial consequence: new and more precise versions of the cyclic sieving phenomenon.