

February 14: Pavel Etingof (MIT), “Equivariant D -modules on the nil cone and representations of the rational Cherednik algebra in type A .”

Irreducible equivariant D -modules on a simple complex Lie algebra supported on its nilcone are parametrized by pairs, consisting of a nilpotent orbit and an irreducible local system on it. Such a D -module splits into a direct sum of irreducible representations of the Lie algebra, and the multiplicity spaces are graded by the eigenvalues of the Euler operator, so that the homogeneous pieces are finite-dimensional. The generating function of these dimensions may be called the character of this D -module, and it is an interesting problem to calculate it. I will explain how this problem can be addressed in type A by utilizing the representation theory of the rational Cherednik algebra.