Lusztig, George

Singularities, character formulas, and a q-analog of weight multiplicities. (English)

Zbl 0561.22013
Astérisque 101-102, 208-229 (1983).

The author gives an interpretation for the multiplicities of weights in a finite dimensional representations of a simple complex Lie algebra $\mathfrak{g}$ in terms of intersection cohomologies of Schubert varieties of the corresponding adjoint Lie group G. The method, used in the paper, is the study of the Hecke algebra of the corresponding ("affine") Coxeter group.

For the entire collection see [Zbl 0515.00021].

Reviewer: S.Prishchepionok

MSC:

17B10	Representations of Lie algebras and Lie superalgebras, algebraic theory (weights)
17B20	Simple, semisimple, reductive (super)algebras
22E47	Representations of Lie and real algebraic groups: algebraic methods (Verma modules, etc.)
20C08	Hecke algebras and their representations
14M15	Grassmannians, Schubert varieties, flag manifolds
14C17	Intersection theory, characteristic classes, intersection multiplicities in algebraic geometry

Keywords:

Weyl's character formula; multiplicities of weights; simple complex Lie algebra; intersection cohomologies of Schubert varieties