

On sheets of conjugacy classes in reductive algebraic groups

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The representation theory of $U_e(\mathfrak{g})$, the non-restricted quantized enveloping algebra of a semisimple Lie algebra \mathfrak{g} at the roots of 1, is strictly related to the conjugacy classes in the (adjoint) algebraic group G whose Lie algebra is \mathfrak{g} . De Concini, Kac and Procesi constructed a map associating a conjugacy class C of G to each simple $U_e(\mathfrak{g})$ -module V and conjectured in the early 90's a relation between the dimensions of V and C . Motivated by this connection, we classify certain families of conjugacy classes in G , called "sheets", and we describe sheets explicitly. After reporting on the state of the art of the subject, we show how our results can be used in order to refine the conjecture. This talk is based on joint work with Francesco Esposito (Padova).