Discriminant of Quantum Groups at Roots of Unity

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Abstract

The notion of discriminant is an important tool in number theory, algebraic geometry and noncommutative algebra. However, discriminants are difficult to compute in concrete situations. This has been done for few noncommutative algebras, relying on direct calculations. We will present a formula for the discriminants of all quantized coordinate rings of simple algebraic groups at roots of unity. It is derived from a general method for computing noncommutative discriminants that relies on representation theory and Poisson geometry.