Differential operators on algebraic varieties

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Abstract

Lie algebras of polynomial vector fields on algebraic varieties play an important role in different areas of Mathematics and Physics. Classical examples include Virasoro and Witt algebras which correspond to the case of the torus and whose representation theory is well understood. Recently the case of arbitrary varieties was developed in the cooperation with Y.Billig, J.Nilsen and A.Zaidan. After discussing these results we will consider algebras of invariant differential operators on algebraic varieties. In particular, the relation between the Noncommutative Noether's Problem and the classical Noether's Problem will be explained based on joint results with J.Schwarz.

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