
NICOLE LEMIRE, Western Ontario

Equivariant Birational Aspects of Algebraic Tori

We examine the equivariant birational linearisation problem for algebraic tori equipped with a finite group action and the stable rationality problem for algebraic tori. In particular, we look at the case of algebraic tori of dimension 4. We connect these problems to the question of determining when an algebraic group is (stably) Cayley - that is (stably) equivariantly birationally isomorphic to its Lie algebra. We discuss joint work with Popov and Reichstein on the classification of the simple algebraic groups which are Cayley and on determining bounds on the Cayley degree of an algebraic group, a measure of the obstruction for an algebraic group to be Cayley. We also relate this to recent work with Borovoi, Kunyavskii and Reichstein extending the classification of stably Cayley simple groups from the algebraically closed characteristic zero case to arbitrary fields of characteristic zero.