

ALGEBRA AND NUMBER THEORY
SEMINAR

MAD world and world of torsors

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Abstract: One of the central theorems of classical Lie theory is that all split Cartan subalgebras of a finite dimensional simple Lie algebra over an algebraically closed field are conjugate, a theorem of Chevalley. This result yields the most elegant proof that the type of the root system of a simple Lie algebra is its invariant. In infinite dimensional Lie theory maximal abelian diagonalizable subalgebras (MADs) plays the role which Cartan subalgebras plays in the classical theory. In the talk we address the problem of conjugacy of MADs in a big class of Lie algebras which are called in the literature by extended affine Lie algebras (EALA). To attack this problem we develop a bridge which connects the world of MADs in infinite dimensional Lie algebras and world of torsors over the Laurent polynomial rings.

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