Nilpotent Conjugacy Classes in $p$-adic Lie Algebras: The Odd Orthogonal Case

Jyotsna Mainkar Diwadkar

Abstract. We will study the following question: Are nilpotent conjugacy classes of reductive Lie algebras over $p$-adic fields definable? By definable, we mean definable by a formula in Pas's language. In this language, there are no field extensions and no uniformisers. Using Waldspurger's parametrization, we answer in the affirmative in the case of special orthogonal Lie algebras $\mathfrak{so}(n)$ for $n$ odd, over $p$-adic fields.