



MANHATTAN ALGEBRA DAY

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Equations in Free Lie Algebras

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Abstract:

We will survey results about equations in rings and groups and show that the Diophantine problem in a free Lie algebra L of rank > 2 over a field is undecidable and that the first-order theory of a free Lie algebra over a field of characteristic 0 (even without coefficients) is undecidable. This answers questions by Baudisch (86) and by Bokut' and Kukin (94) (also attributed to Malcev).

The results are joint with A. Miasnikov.