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*Arithmetic Groups and the Lehmer conjecture*

The Lehmer problem (1933), also referred to as the 'Lehmer conjecture', asks whether there is a uniform lower bound on the Mahler measure of algebraic integers which are not roots of unity. Although rooted in number theory, many interesting connections between the Lehmer problem and other fields, including combinatorics in finite fields and geometric group theory. Following his celebrated Arithmeticity Theorem, Margulis conjectured in his book (1991) the uniform discreteness of cocompact lattices in higher rank semisimple Lie groups and observed that it would follow from a weak form of the Lehmer conjecture. We will discuss the equivalence of these conjectures and some refinements. This is based on joint work with François Thilmany.