

Representation Growth of Arithmetic Groups

Abstract:

In my talk I will give a brief introduction to the subject of representation growth and representation zeta functions of groups. I will then move on to discuss some recent theorems concerning the representation growth of 'semisimple' arithmetic groups, such as the group $SL_n(\mathbb{Z})$ of integral $n \times n$ matrices of determinant ± 1 .

In particular, I will explain some joint results with N. Avni, U. Onn and C. Voll, addressing a conjecture of Larsen and Lubotzky on the representation growth of irreducible lattices in higher rank semisimple locally compact groups. Roughly speaking Larsen and Lubotzky expect that asymptotically the distribution of irreducible representations of any such lattice is controlled by the ambient locally compact group. A priori this is surprising, because a semisimple locally compact group often contains a host of very different lattices. As I will point out, our current results are at the same time weaker and stronger than what the conjecture asks for.

This fascinating subject is full of open problems and I will highlight several of them.

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