

Program för Svenska Matematikersamfundets årsmöte den 1 juni 2018

Hörsal Euler, Matematiska Vetenskaper, Chalmers.

- 13.00-13.40 Michael Björklund: *Central limit theorems in the geometry of numbers*
A popular problem in number theory asks for the asymptotics of the number of points in the intersections of a (random) lattice with a sequence of growing bodies in Euclidean space. One knows that in great generality, these counts are proportional to the volumes of the bodies, with error terms of sizes roughly the square roots of the volumes. Therefore is not unreasonable to expect (at least under some additional assumptions) that some form of central limit theorems also hold. In this talk, I will discuss a dynamical system approach to this question, based on a series of recent preprints with A. Gorodnik (Bristol)
- 13.45-14.25 Olof Sisak *Rough structure: additive number theory and the interplay between algebra, analysis and combinatorics*
Suppose one weakens the notion of a subgroup to one where closure does not hold for all pairs of elements in the set, but only some constant fraction. Does this notion bear any resemblance to that of subgroups? Can one give some kind of useful description of such sets? We shall survey some of the successes of additive number theory, or additive combinatorics, in dealing with this type of question, where one attempts to classify statistically weakened versions of algebraic structures, and mention applications to some problems of a number theoretic flavour.
- 14.25-14.45 Fika
- 14.45-15.45 Wushi Goldring *The Langlands Program: The general-special dual role of reductive group representations* Since its early days in the 19th century to the present, there has been an ever-growing tension about the role of group theory – and later representation theory – in mathematics: Is group-representation theory ‘merely’ a powerful, versatile tool with applications throughout mathematics? Or is its role much more fundamental – an underlying source for a variety of seemingly independent objects? By contrast, from the Greeks to Grothendieck, there has been a steady stream of attempts at a universal language for mathematics based on geometry.
My aim is to explain how the Langlands Program has offered a new outlook on this tension concerning group-representation theory and the contrast with geometry.
- 15.45-16.45 Medlemsmöte