Number Theory Days in Lille

lundi 8 juillet 2019 - jeudi 11 juillet 2019

Université de Lille

Programme Scientifique

Analytic-additive number theory

There have been several startling developments in the recent past in relations between analytic number theory, additive combinatorics, ergodic theory and harmonic analysis . We have seen applications to arithmetic objects like progressions in primes, to algebraic structures like rational varieties and modular forms as well as to hard-core analytic tools like sieves. The meeting will be an opportunity to discuss newer trends as well as some historical ideas.

Galois representations and modular forms

The study of modular forms and Galois representations has been the focal point of research of a large number of forefront mathematicians over the last few decades, in the frame of the ambitious Langlands program. The speakers in this section will present the state of art in that subject and a selection of recent advances and perspectives.

Quadratic forms

A significant progress has been made in the algebraic theory of quadratic forms during the last few years. This is the consequence of various and sophisticated theories, as the theory of motives of quadrics, Chow groups, algebraic cobordism, unramified cohomology of quadrics, algebraic groups...etc. The aim of this session is to present recent results on quadratic forms and some related structures, with an emphasis on tools mentioned before.

Noncommutative algebra

Noncommutative algebra is a branch of mathematics which has resulted since several decades in important developments and in many applications. Quantum groups, noncommutative algebraic geometry, noncommutative ring theory, coding theory are just a few of the prominent areas of this branch. The imbrications of these areas and their connections with other branches of mathematics are multiple. For example: quantum groups are at the base of the noncommutative algebraic geometry. These are Hopf algebras which, when finitedimensional, are themselves Frobenius algebras. These same Frobenius algebras are of paramount importance in coding theory on finite rings, they also appear for the solutions of the Yang-Baxter equations, in representation theory,...

Arithmetic geometry and Galois theory

The overall area will be the arithmetic of covers of the line and of their moduli spaces. With tools coming from Galois theory, Diophantine geometry and model theory, this includes inverse Galois theory, the arithmetic of fields, the study of rational points of bounded height on various geometric objects, etc.