

MATHEMATICS SEMINAR
of the
UNIVERSITY OF LUXEMBOURG
in cooperation with the
LUXEMBOURG MATHEMATICAL SOCIETY

November 2008

4 November 2008, at 5 pm

Room 3.04 bs

Christian Mauduit
Institut de Mathématiques de Luminy

Q-adic properties of prime numbers

Abstract

We will present recent results concerning the q -adic representation of prime numbers. In particular we proved that, under some trivial necessary conditions, the sum of digits function of prime numbers is well distributed in arithmetic progressions (joint work with Joël Rivat), thus solving a conjecture due to Alexander Gelfond (1967). The technics we use to estimate the associated exponential sums can also be applied to give precise estimates for the number of prime numbers with an average sum of digits (joint work with Michael Drmota and Joël Rivat).

11 November 2008, at 5 pm

Room 3.04 bs

TBA

18 November 2008, at 5 pm

Room 3.04 bs

Pierre Schapira
University Paris VI, Jussieu

Sheaves and \mathcal{D} -modules: a microlocal approach

Abstract

Microlocal analysis, which emerged in the 70's, enhances our ability to localize different objects of analysis and geometry by moving the main arena of action from an underlying manifold to its cotangent bundle.

I shall give an introduction to sheaf theory and \mathcal{D} -modules theory from a microlocal point of view. In particular, I will explain the definition of the characteristic variety of a coherent \mathcal{D} -module on a complex manifold, that of the micro-support of a sheaf on a real manifold and their relation. I will also briefly discuss the functorial properties of the characteristic variety and of the micro-support, and the link between constructible sheaves and holonomic \mathcal{D} -modules.

25 November 2008, at 5 pm

Room 3.04 bs

Dragan Mašulović
University of Novi Sad, Serbia

On a new kind of homogeneity

Abstract

A structure is called homogeneous if every isomorphism between finite substructures of the structure extends to an automorphism of the structure. Recently, P. J. Cameron and J. Nešetřil introduced a relaxed version of homogeneity: we say that a structure is homomorphism-homogeneous if every homomorphism between finite substructures of the structure extends to an endomorphism of the structure.

Not much is known about homomorphism-homogeneous structures. Homomorphism-homogeneous posets were characterized in 2007 by D. Mašulović and the characterization of countable posets with respect to various types of morphisms can be found in a recent paper by P. J. Cameron and D. Lockett. Moreover, finite homomorphism-homogeneous tournaments (with loops) were characterized in 2008 by A. Ilić, D. Mašulović and U. Rajković.

In this talk we shall survey some of these results and discuss possibilities for further investigations.