Titres et Résumés des exposés

Pietro Corvaja (Univ. Udine, Italy):
Recent results on integral points on surfaces.

Abstract: *We present new results, obtained in collaboration with Zannier, on integral points on surfaces. In particular we show the first example (to our knowledge) of a simply connected smooth surface whose integral points are never Zariski dense (whatever ring of S-integers is considered).*

Ludovic Delabarre (Univ. Jean Monnet, France):
Maximal domain of meromorphy of multivariable Euler products.

Abstract: *The aim of this talk is to study the maximal domain of meromorphic extension of eulerian products of multivariate "ganzvertige" polynomials. The meromorphic continuation of this class of fonctions permits for example, using analytic tools, to obtain interesting results in arithmetic or in group theory. The problem consists first to find an expression of a meromorphic continuation of the Euler product until a certain domain precising the eventual poles or zeros that appear. By giving a necessary and sufficient condition on the polynomial which ensures the existence of a natural boundary (i.e. a boundary beyond which it does not exist meromorphic extension), we extend the classical one variable result of 1928 obtained by T. Estermann. Moreover, this work constitutes a first step towards the resolution of a conjecture of Z. Rudnick and M. du Sautoy concerning the domain of meromorphy of eulerian products associated with the counting of subgroups of a given group.*

Bruno Iochum
(Univ. de Provence et CPT de Marseille, France):
Spectral geometry and physics.

Abstract: *This review will particularly emphasize the spectral motivations of noncommutative geometry based on spectral triples (an algebra acting on a Hilbert space and a Dirac-like operator.) The role of the Dirac operator will be considered in different situations: classical geometry (including the case of manifolds with boundary,) noncommutative torus, Moyal planes etc. Physics motivations will be also presented, via the zeta function of this operator.*

Yasushi Komori (Univ. Nagoya, Japan):

Multiple Bernoulli polynomials and multiple L-functions of root systems.

Abstract: *We define multiple zeta and L-functions of root systems, which are multi-variable Witten zeta and L-functions, including ordinary multiple zeta and L-functions. We also define multiple Bernoulli polynomials, by which we describe special values of these functions at positive integers. This description is a certain generalization of what is called the Witten volume formula which was formulated by Zagier.*
This is a joint work with Matsumoto and Tsumura.

Stéphane Louboutin (Institut de Mathématiques Luminy, Marseille, France):

Bounds for residues of Dedekind zeta functions.

Abstract: *We present some explicit upper bounds on the residue κ_K at $s = 1$ of the Dedekind zeta function $\zeta_K(s)$ of a number field K of degree $n > 1$ (we let d_K denote the absolute value of its discriminant): The first one is*

$$\kappa_K \leq \Big(\frac{e \log d_K}{2(n-1)}\Big)^{n-1}.$$

For abelian number fields we have a better bound:

$$\kappa_K \leq \Big(\frac{\log d_K}{2(n-1)} + \mu\Big)^{n-1}$$

(where μ does not depend on K). If $\zeta_K(s)/\zeta(s)$ is entire, then

$$\kappa_K \leq \frac{\log d_K}{2^{n-1}(n-1)!} \leq \frac{1}{\sqrt{2\pi(n-1)}}\Big(\frac{e \log d_K}{2(n-1)}\Big)^{n-1}$$

provided that $d_K \geq c_n$ is explicitly large enough.

Kohji Matsumoto (Univ. Nagoya, Japan):

Functional equations for double zeta and L-functions

Abstract: *We report certain functional equations for double zeta-functions of Euler-Zagier type, and also for double L-functions twisted by Dirichlet characters. This is a joint work with Komori and Tsumura.*

Elie Mosaki (Univ. Lyon 1, France):

Irrationalité aux entiers impairs positifs d'un q-analogue de la fonction zêta de Riemann.

Abstract: *To come.*

Xavier-François Roblot (Univ. Lyon 1, France):

p-adic integration and p-adic zeta functions.

Abstract: *I will explain how one can use p-adic integration to construct a p-adic continuous function interpolating (some of) the values at integers of a complex function provided that these can be "encoded" in a power series satisfying certain conditions. As an example, I will explain how to construct the p-adic Kubota-Leopoldt zeta function and also, if time allows, p-adic Hecke L-functions of real quadratic fields. This will be an expository talk that aims to serve as an introduction to the topic.*

Hirofumi Tsumura (Univ. Tokyo, Japan):

Certain multiple series related to the Barnes multiple zeta-functions.

Abstract: *In this talk, I will consider certain multiple series involving hyperbolic functions, which are closely related to the Barnes multiple zeta-functions. Based on this consideration, I will show several types of multiple analogues of the known formulas for the series involving hyperbolic functions given by Cauchy, Ramanujan, and so on. The content of this talk is partly the joint work with Kohji Matsumoto and Yasushi Komori.*

Jean-Louis Verger-Gaugry (Institut Fourier, Grenoble, France):

Equidistribution of poles near unit circle of the Artin-Mazur Zeta function of the beta transformation.

Abstract: *A Parry number $\beta > 1$ (ex - beta-number) is an algebraic integer for which the β-expansion of β in the sense of Rényi is finite or eventually periodic. In this work we are interested in the limit and dynamical properties of sequences of Parry numbers (β_i) viewed by the associated Artin-Mazur zeta functions. We present a new equidistribution theorem for the conjugates of the Parry numbers β_i near the unit circle in Solomyak's fractal set based on a suitable notion of convergence of (β_i). This theorem uses the theory of Erdös-Turán, improved by Amoroso and Mignotte, applied to the analytical function $f_{\beta_i}(z) = -1 + \sum_{j_i \geq 1} t_{j_i} z_i$, called Parry Upper function, associated with the Rényi β-expansion $d\beta_i(1) = 0.t_{i_1} t_{i_2} t_{i_3}...$ of unity.*

In the context of the dynamics of the beta-transformation, the Parry Upper function is simply correlated to the Artin-Mazur zeta function $\zeta_{\beta_i}(z)$, and is a rational fraction by a result of

Szegö. The poles of the Artin-Mazur zeta functions $\zeta_{\beta_i}(z)$ *are the zeros of* $f_{\beta_i}(z)$*. This equidistribution theorem is addressed to the poles of the Artin-Mazur zeta functions* $\zeta_{\beta_i}(z)$*, namely to the union of the Galois conjugates and the beta-conjugates of all the* $\beta_i s$*, not only to the Galois conjugates. When convergence occurs and the limit is 1, analogs in Arithmetic Geometry are Bilu's Theorem for the 1-dimensional torus and equidistribution Theorems for sets of conjugates in some abelian varieties. This theorem asks questions about the difficult problem of the factorization of the numerator of the Parry Upper function (namely the Parry polynomial, ex - characteristic polynomial) of a Parry number* β*, the multiplicities of its beta-conjugates, the geometry of its beta-conjugates. As an introduction, we first present the dynamics of Lehmer's number, as smallest known Salem number, of degree 10, which is a Parry number, and the corresponding Artin-Mazur zeta function.*