

SCHEDULE ARITHMETIC JOINT SEMINAR

GIUSEPPE ANCONA - FRÉDÉRIC DÉGLISE - ANNETTE HUBER

9h - coffee

9h30 - **Annetter Huber (Freiburg) : Relations of 1-periods**

(joint work with Gisbert Wüstholz) We prove that all $\bar{\mathbf{Q}}$ -linear relations between 1-dimensional periods are induced by bilinearity and functoriality for 1-motives. This gives Kontsevich's version of the period conjecture for periods of this type. As a corollary we deduce a characterisation of algebraic 1-periods and a generalisation of Baker's Theorem.

10h30 - coffee

11h15 - **Ronan Terpereau (Dijon) : Real structures on horospherical varieties**

In this talk we will consider the real structures of certain complex algebraic varieties equipped with a reductive algebraic group action : the horospherical varieties. We will see how to determine when such structures exist and, if so, how to describe them. In particular, we will try to illustrate our approach on two classical families of horospherical varieties : the flag varieties and the toric varieties. This is a joint work with Lucy Moser-Jauslin (IMB, Dijon).

12h15 - Lunch at "La Patrie"

14h30 - **Carlo Gasbarri (Strasbourg) : Rational vs transcendental points on analytic Riemann Surfaces**

Let $(X; L)$ be a polarized smooth projective variety of dimension at least two defined over \mathbb{Q} . Let M be a Riemann surface (which may be non algebraic) and $f : M \rightarrow X(\mathbb{C})$ be an holomorphic map. Let U be an open set of M . The number $A(T)$ of points of logarithmic height less or equal then T contained in the image of U is, according to a classical theorem of Bombieri–Pila, bounded by $\exp(\epsilon T)$. Besides the fact that explicit examples show that this estimate is optimal, we will discuss many situations when $A(T)$ is bounded by a polynomial in T . An important class of these examples is the leaves of smooth foliations. We will also discuss the (mysterious) interaction within the behavior of $A(T)$ the presence in the image of f of transcendental points (called of type S) which verify inequalities similar to the standard Liouville inequality. This interaction may be resumed in the following fact : One transcendental point of type S in the image implies few rational points in the image and many points of type S, or equivalently, many rational points in the image imply no points of type S in the image.

15h30 - coffee