1. Schedule

- 13:30 – 14:30

Prof. David Masser - Vienna

Title: Specialization and bounded height.

Abstract: After the work of Silverman and Manin-Demjanenko it was natural to ask if the absolute heights of numbers $\alpha$ defined by multiplicative equations such as $\alpha^r(1 - \alpha)^s = 1$ are bounded above independently of the integers $r, s$ (here not both 0). With the more general context of algebraic curves in $\mathbb{G}_m^n$ this was answered affirmatively in 1999. Here we present a generalization, obtained with Amoroso and Zannier, of which the corresponding assertion for $\alpha^r + (1 - \alpha)^s = 1$ is a very special case (now with $r, s$ not both 1).

- 14:40 – 15:40

Prof. Fabien Pazouki, Copenhagen

Title: A Northcott property for regulators of abelian varieties.

Abstract: Let $A$ be an abelian variety defined over a number field $K$. One can define a regulator associated with the Mordell-Weil group $A(K)$, which plays an important role in the strong form of the Birch and Swinnerton-Dyer Conjecture for instance. We show that under a conjecture of Lang and Silverman, this regulator verifies the following property: up to isomorphisms, there is only finitely many simple abelian varieties of dimension $g$, defined over $K$, with positive rank over $K$ and bounded regulator. On the way, we give unconditional inequalities between the Faltings height of $A$, the primes of bad reduction of $A$ and the Mordell-Weil rank of $A(K)$.

- 16:10 – 17:10

Prof. Yuri Bilu - Bordeaux

Title: Subgroups of class groups.

Abstract: The following conjecture is widely believed to be true: given a finite abelian group $G$, a number field $K$ and an integer $d > 1$, there exist infinitely many extensions $L/K$ of degree $d$ such that the class group of $L$ contains $G$ as a subgroup.

I will speak on some old and recent results on this conjecture, in particular, on my joint work with J. Gillibert in course.

- 17:15 – 18:00

Prof. Yann Bugeaud - Strasbourg

Title: "Around the Littlewood conjecture".

Abstract: The Littlewood conjecture in Diophantine approximation claims that every pair $(\alpha, \beta)$ of real numbers satisfies

$$\inf_{q \geq 1} q \cdot ||q\alpha|| \cdot ||q\beta|| = 0,$$

where $|| \cdot ||$ denotes the distance to the nearest integer. In 2004, de Mathan and Teulié asked the following analogous question: for a given prime number $p$, is it true that

$$\inf_{q \geq 1} q \cdot ||q\alpha|| \cdot |q|_p = 0$$

holds for every real number $\alpha$? Here, $|\cdot|_p$ denotes the $p$-adic absolute value normalized such that $|p|_p = p^{-1}$. We present recent results towards the resolution of these two problems, which are still not solved.