WORKSHOP ON DIOPHANTINE APPROXIMATION
GÖTTINGEN, NOVEMBER 25-TH
MN67 IM INSITUT FÜR NUMERIK

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 α 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 $\mathbf{G}_{\mathrm{m}}^n$ 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 $A(K)$.

- 15 : 40 – 16 : 10 : Coffee break.

- $16:10 - 17:10$

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 (α, β) 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 α ? 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.