

On Baker Theory

This course will aim at introducing transcendental number theory techniques applied to diophantine geometry. We shall thus cover:

- 1 Introduction to transcendental numbers, first historical constructions.
- 2 The Gelfond-Schneider theorem and Hilbert's 7th problem.
- 3 The Baker Theorem.
- 4 Zero estimates and multiplicity lemmas.
- 5 The theorems of Wustholz and Philippon-Waldschmidt on linear forms in commutative group varieties.
- 6 Minimal periods and the theorem of Masser-Wustholz.
- 7 Minimal isogenies, the former Tate conjecture.
- 8 Galois properties of the torsion of elliptic curves.

The prerequisites for this course is standard knowledge of a student having completed his masters studies in pure mathematics and some background on abelian varieties and algebraic geometry. If deemed useful for the audience the course will be completed by extra sessions covering the above mentioned prerequisites. Seminars and colloquia around these themes may also be organised on the spot (either by the students or by myself) according to the interest of the audience.