Oberseminar
zur
Algebra und Algebraischen Kombinatorik

"The Chabauty-Kim method for the trice punctured line made explicit"

Part 1: Prof. Dr. Stefan Wewers (Leibniz Universität Hannover)
Part 2: Dr. Ishai Dan-Cohen (Leibniz Universität Hannover)

Let $X = \mathbb{P}^1 \setminus \{0,1,\infty\}$, and let S denote a finite set of prime numbers. In an article of 2005, Minhyong Kim gave a new proof of Siegel's theorem for X: the set $X(\mathbb{Z}[S^{-1}])$ of S-integral points of X is finite. The proof relies on a 'nonabelian' version of the classical Chabauty method. At its heart is a modular interpretation of unipotent p-adic Hodge theory, given by a tower of morphisms h_n between certain $\mathbb{Q}_p$-varieties. We set out to obtain a better understanding of h_2. Its mysterious piece is a polynomial in $2|S|$ variables. Our main theorem states that this polynomial is quadratic, and gives a procedure for writing its coefficients in terms of p-adic logarithms and dilogarithms.

This is a two-part talk, shared between the two authors. In the first talk, we review the theorems of Siegel and Faltings and the classical Chabauty method. We'll also try to give a glimpse of Kim's version of the latter. In the second talk we state and explain the proof of our main result.

Part 1: Montag, 12.12.11 ab 14:30 Uhr, Raum a410
Part 2: Montag, 19.12.11 ab 14:30 Uhr, Raum a410

Hauptgebäude der Leibniz Universität Hannover

Alle Interessierten sind herzlich eingeladen.

gez. Prof. Dr. C. Bessenrodt

Institut für Algebra, Zahlentheorie
und Diskrete Mathematik