

# Gastvortrag

Montag, 18. November 2019

Uhrzeit: 13:00 Uhr

Seminarraum I

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## Solving a quartic Thue equation by using Tzanakis's method

Abstract:

Let  $\mu \neq 0$  be integer. A Thue equation

$$f(x, y) = \mu \neq 0$$

where  $f(x, y)$  is irreducible of the form  $a_0x^4 + 4a_1x^3y + 6a_2x^2y^2 + 4a_3xy^3 + a_4y^4 \in \mathbb{Z}[x, y]$ ,  $a_0 > 0$  is called quartic Thue equation. Tzanakis, in 1993 gave a powerful algorithm under some assumptions to transform the quartic Thue equation to a system of pellian equations. It is used by several authors to solve quartic Thue equations [1], [4], [3] and so on.

We consider the Thue equation

$$x^4 - ax^3y + bx^2y^2 + axy^3 + y^4 = \mu \quad (1)$$

We look its Tzanakis's method and we obtained the form of integers  $a$  and  $b$  with some conditions. We studied the solution when  $\mu = 1$  [2].

This is a joint work with Bo He (China West Normal University) and Alain Togbe (Purdue University Northwest, Westville USA).