

Special Number Theory Seminar

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Solvability in Polynomials of Pell Equations in a Pencil and a Conjecture of Pink
Umberto Zannier

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Date & Time: Wed, 04/10/2013 - 14:00 - 15:00

Location: S-101

Video Link:

<http://video.ias.edu/specialnumbertheory/1213/0410-UmbertoZannier>

The classical Pell equation $X^2 - DY^2 = 1$, to be solved in integers $X, Y \neq 0$, has a variant for function fields (studied already by Abel), where now $D = D(t)$ is a complex polynomial of even degree and we seek solutions in nonzero complex polynomials $X(t), Y(t)$. In this context solvability is no longer ensured by simple conditions on D and may be considered 'exceptional'. In the talk we shall mainly let $D(t) = D_\lambda(t)$ vary in a pencil. When $D_\lambda(t)$ has degree ≤ 4 , it may be seen that for infinitely many $\lambda \in \mathbb{C}$ there are nontrivial solutions. On the other hand, it is not so when D_λ has degree ≥ 6 (provided natural assumptions are verified). Such finiteness result, obtained jointly with D. Masser, represents a conjecture of Pink for 'Unlikely Intersections' in a simple abelian scheme over a curve. We shall survey on the whole context and also comment on related problems.

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terms:

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