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Abstracts of Short Communications and Posters

Section:

3. Number Theory and Arithmetic Algebraic Geometry

1991 MS Classification: X

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Equations Involving the Euler ϕ Function

Let $(U_m)_{m\geq o}$, and $(v_n)_{n\geq 0}$ be two nondegenrate binary recurrence sequences of integers. In my talk, I will show that if the two sequences $(U_m)_{m\geq 0}$ and $(v_n)_{n\geq 0}$ satisfy some mild assuptions, then the equation
$v(|U_m|) = |v_n|$,
where v is the Euler function, has only finitely many solutions (m, n). The proof uses linear forms in logarithms of algebraic numbers.
Using only elementary methods some global results can also be obtained. As an example I give a complete list of solutions for the equation
$v(|X^m + Y^m|) = |X^n + Y^n|$,
where X, and Y are integers, and m and n are positive integers.