

Integral solutions of separated-variables equations

Invited Lecture

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In my talk I shall explain how to explicitly characterize the finiteness of the set of integral solutions of a Diophantine equation with separated variables, i.e. an equation of the form $f(x) = g(y)$ with f, g polynomials having integral coefficients, a result known as the Bilu-Tichy criterion. The proof of this statement uses the geometric description of the situation and ultimately follows as an application of Siegel's famous theorem on integral points on curves. Afterwards, I shall discuss some problems that arise when applying the criterion and which additional information one can get if the equation has infinitely many solutions. These general statements will be applied to concrete equations where Stirling numbers are involved.

MSC2010: 11D41, 14G05.

Keywords: Diophantine equations, integral points on curves.