

**Ribenboim, P.**

**Density results on families of diophantine equations with finitely many solutions.** (English)

Zbl 0804.11026

Enseign. Math., II. Sér. 39, No. 1-2, 3-23 (1993).

This paper gives applications of Falting's Theorem to families of diophantine equations, investigating the density of exponents for which there are only trivial solutions. The underlying idea comes from the work of *A. Granville* [C. R. Math. Acad. Sci., Soc. R. Can. 7, 55-60 (1985; Zbl 0565.10016)] and the reviewer [Bull. Lond. Math. Soc. 17, 15- 16 (1985; Zbl 0546.10012)] on Fermat's equation. A theorem of *A. Schinzel* and *R. Tijdeman* [Acta Arith. 31, 199-204 (1976; Zbl 0339.10018)] on equations  $y^m = F(x)$  is used in the same way. As an example, take nonzero integers  $a, b, c$  for which  $c/b$  and  $(c \pm a)/b$  are not zero, nor  $-1$ , nor proper powers of rational numbers. Let  $S$  be the set of  $m \geq 3$  such that there exists  $n \geq 2$  and  $x, y$  with  $y \geq 2$  satisfying  $ax^m - by^n = c$ . Then  $S$  has density zero.

Reviewer: [D.R.Heath-Brown \(Oxford\)](#)

**MSC:**

[11D41](#) Higher degree equations; Fermat's equation

Cited in **3** Documents

**Keywords:**

higher degree diophantine equation; applications of Falting's theorem; density of exponents