

Stoll, Michael

Asymptotics of some number theoretic functions and an application to the growth of nilpotent groups. (English) [Zbl 1112.11307](#)

Bonner Mathematische Schriften 266. Bonn: Univ. Bonn. 67 S. (1994).

This is the author's doctoral dissertation studying the asymptotic behavior of $T(n)$, the number of lattice points in the region $R(n) = \bigcup_{a+b+c=n} \{[-ab, ab] \times [-ac, ac]\}$ where the union is taken over positive integers a , b , and c , with sum n . The author obtains the estimate $T(n) = \frac{1}{8}n^4 - Cn^{8/3} + o(n^{8/3})$, where C is a positive constant. The proof involves Fourier techniques, Hardy-Littlewood type dissection of the unit interval, and an estimate of Salié for Kloosterman sums.

Reviewer: [Olaf Ninnemann \(Berlin\)](#)

MSC:

- [11N37](#) Asymptotic results on arithmetic functions
- [11P21](#) Lattice points in specified regions
- [20F18](#) Nilpotent groups
- [11L05](#) Gauss and Kloosterman sums; generalizations
- [11P55](#) Applications of the Hardy-Littlewood method

Cited in **2** Documents