

---

**SCOTT SITAR**, University of British Columbia, 121-1984 Mathematics Road, Vancouver, BC V6T 1Z2

*Counting Diophantine Quadruples*

A Diophantine  $m$ -tuple is a set  $A$  of  $m$  positive integers such that  $ab + 1$  is a perfect square for every pair  $a, b$  of distinct elements of  $A$ . We derive an asymptotic formula for the number of Diophantine quadruples whose elements are bounded by  $x$ . In doing so, we extend two existing tools in ways which may be of independent interest. The Erdős-Turán inequality bounds the discrepancy between the number of elements of a sequence that lie in a particular interval modulo 1 and the expected number; we establish a version of this where the target interval is allowed to vary. We also adapt an argument of Hooley on the equidistribution of solutions of polynomial congruences to handle reducible quadratic polynomials.