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Hui June Zhu* (hjzhu@math.buffalo.edu), Department Of Mathematics, State University of New York at Buffalo, Buffalo, NY 14260. *Almost generic p -divisibility bound.*

The well-known theorem of Ax and Katz gives a p -divisibility bound for the number of rational points on an algebraic variety V over a finite field of characteristic p in terms of the degree and number of variables of defining polynomials of V . We give a p -divisibility bound in terms of the supporting coefficient sets of the algebraic variety that refines and strengthens Ax-Katz bound; given prescribed sets of nonzero coefficient supports, suppose its combinatorial conditional number is nonzero, we show that any algebraic variety supported on these sets over the rationals achieves our p -divisibility bound at a set of primes p of positive density. (Received August 15, 2014)