1163-11-1089   **Arda H. Demirhan*** (`ademir3@uic.edu`), 851 S Morgan St (MC 251), University of Illinois at Chicago, Chicago, IL 60607, and **Ramin Takloo-Bighash**, 851 S Morgan St (MC 251), University of Illinois at Chicago, Chicago, IL 60607. *Distribution of Rational Points on Toric Varieties.* Preliminary report.

Manin's conjecture for Fano varieties predicts an asymptotic formula for the number of rational points of bounded height with respect to the anti-canonical height function on a small enough Zariski open set with a dense set of rational points. In the case of toric varieties, Manin's conjecture was verified by Victor Batyrev and Yuri Tschinkel. In this talk, we will explain a multi-height variant of the Batyrev-Tschinkel theorem proposed by Emmanuel Peyre in his paper "Liberté et accumulation" where one considers at *height boxes*, instead of a single height function, as a way to get rid of accumulating subvarieties. This is our main result: Let X be an arbitrary toric variety over a number field F, and let H_i, $1 \leq i \leq r$, be height functions associated to the generators of the cone of effective divisors of X. Fix positive real numbers a_i, $1 \leq i \leq r$. Then the number of rational points $P \in X(F)$ such that for each i, $H_i(P) \leq B^{a_i}$ as B gets large is equal to $CB^{a_1+\cdots+a_r} + O(B^{a_1+\cdots+a_r-\epsilon})$ for an $\epsilon > 0$. Our result is a first example of a large family of varieties along the lines of Peyre's idea. (Received September 14, 2020)