1132-11-16 **Rufei Ren*** (rufeir@uci.edu), 28 lilac dr Apt.2, Rochester, NY 14620. *Generic Newton polygon for exponential sums in two variables with triangular base.* Preliminary report.

Let p be a prime number. Every n-variable polynomial $f(\underline{x})$ over a finite field of characteristic p defines an Artin–Schreier–Witt tower of varieties whose Galois group is isomorphic to $\mathbb{Z}_p$. Our goal of this paper is to study the Newton polygon of the L-functions associated to a finite character of $\mathbb{Z}_p$ and a generic polynomial whose convex hull is an n-paralleltope Δ. We denote this polygon by $\mathrm{GNP}(\Delta)$. We prove a lower bound of $\mathrm{GNP}(\Delta)$, which is stronger than the usual Hodge polygon and is called the improved Hodge polygon $\mathrm{IHP}(\Delta)$. We conjecture that $\mathrm{GNP}(\Delta)$ and $\mathrm{IHP}(\Delta)$ are the same. Indeed, when p is larger than a fixed number determined by Δ, we prove that $\mathrm{GNP}(\Delta)$ and $\mathrm{IHP}(\Delta)$ coincide at infinitely many points. As a corollary, we deduce that the slopes of $\mathrm{GNP}(\Delta)$ roughly form an arithmetic progression with increasing multiplicities. (Received July 25, 2017)