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Generic Newton polygons for $L$-functions of $(A, B)$-exponential sums. (English) Zbl 07457368
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Summary: In this paper, we consider the following $(A, B)$-polynomial $f$ over finite field:

$$f(x_0, x_1, \cdots, x_n) = x_0^A h(x_1, \cdots, x_n) + g(x_1, \cdots, x_n) + P_B(1/x_0),$$

where $h$ is a Deligne polynomial of degree $d$, $g$ is an arbitrary polynomial of degree less than $dB/(A + B)$ and $P_B(y)$ is a one-variable polynomial of degree less than or equal to $B$. Let $\Delta$ be the Newton polyhedron of $f$ at infinity. We show that $\Delta$ is generically ordinary if $p \equiv 1 \mod D$, where $D$ is a constant determined by $\Delta$. In other words, we prove that the Adolphson-Sperber conjecture is true for $\Delta$.

MSC:
11T06 Polynomials over finite fields
11T23 Exponential sums
11S40 Zeta functions and $L$-functions

Keywords:
$(A, B)$-polynomial; $L$-function; exponential sum; Newton polygon; Hodge polygon

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References:
[10] Li, J. Y., Newton polynomials of L-functions associated to Deligne polynomials, Finite Fields Appl., 75, Article 101880 pp. (2021) · Zbl 1472.11302

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