Abstract

This paper is devoted to the classification of hyperbent functions, *i.e.*, bent functions which are bent up to a primitive root change. We first exhibit an infinite class of monomial functions which are not hyperbent. This result means that Kloosterman sums at point 1 on $\mathbf{F}_{2^m}$ cannot be zero, unless $m = 4$. For the functions with multiple trace terms, we express their spectrum by means of Dickson polynomials. We then introduce a new tool to describe these hyperbent functions, whose efficiency is proving by the characterization of a class of binomial bent functions.