

1079-05-74

Xiang-dong Hou* (xhou@usf.edu). *Classification of self dual quadratic bent functions.*

Let p be a prime and $\omega = e^{2\pi i/p}$. A bent function on \mathbb{F}_p^n is called (γ, u) -self dual, where $\gamma \in \mathbb{C}$, $|\gamma| = 1$, $u \in \mathbb{F}_p^*$, if $\sum_{x \in \mathbb{F}_p^n} \omega^{f(x)+xy^T} = \gamma p^{n/2} \omega^{uf(y)}$ for all $y \in \mathbb{F}_p^n$. The orthogonal group $O(n, \mathbb{F}_p)$ acts on the set of all (γ, u) -self dual bent functions. We classify all self dual quadratic bent functions on \mathbb{F}_p^n under this action. The sizes of the $O(n, \mathbb{F}_p)$ -orbits of such self dual bent functions are explicitly determined. (Received December 16, 2011)