

In the thesis a new way of checking whether a function is CCZ-equivalent to a permutation is given. The results for known families of almost perfect nonlinear (APN) functions are presented for functions defined over $GF(2^n)$, for even $n \leq 12$. The ways how to reduce the number of polynomials from each family are studied. For functions of the form $x^3 + a^{-1}\text{tr}_1(a^3x^9)$ it is shown, that they cannot be CCZ-equivalent to a permutation on fields $GF(2^{4n})$ for $n \in \mathbb{N}$.