

Shifted plateaued functions and their differential properties

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A bent₄ function is a Boolean function with a flat spectrum with respect to a certain unitary transform \mathcal{T} . It was shown previously that a Boolean function f in an even number of variables is bent₄ if and only if $g = f + \sigma$ is bent, where σ is a certain quadratic function depending on \mathcal{T} . Hence bent₄ functions are also called shifted bent functions. Similarly, a Boolean function f in an odd number of variables is bent₄ if and only if $f + \sigma$ is a semibent function satisfying some additional properties. In this talk, we comment on the effect of the shifts on plateaued functions, on partially bent functions and on the linear structures of Boolean functions. Then we discuss the differential properties of partially bent₄ functions.

This is a joint work with Nurdagül Anbar, Wilfried Meidl and Alev Topuzoğlu.