Generalized Hamming weights of affine Cartesian codes - DTU Orbit (11/11/2019)

**Generalized Hamming weights of affine Cartesian codes**

Let $F$ be any field and $A_1, \ldots, A_m$ be finite subsets of $F$. We determine the maximum number of common zeroes a linearly independent family of $r$ polynomials of degree at most $d$ of $F[x_1, \ldots, x_m]$ can have in $A_1 \times \ldots \times A_m$. In the case when $F$ is a finite field, our results resolve the problem of determining the generalized Hamming weights of affine Cartesian codes. This is a generalization of the work of Heijnen and Pellikaan where these were determined for the generalized Reed–Muller codes. Finally, we determine the duals of affine Cartesian codes and compute their generalized Hamming weights as well.

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