

GENERALIZED HAMMING WEIGHT OVER THE \mathcal{GH} CURVE

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ABSTRACT. Linear codes can be employed in wiretap channels to secure a communication against an eavesdropper (see [2]). In [3], Wei proved that the performance of a code employed in such a channel is measured by an algebraic invariant of the code, namely, the collection of its generalized Hamming weights. Generalized Hamming weights have interesting mathematical properties. For example, they generalize the notion of minimum distance of a linear code, and they always form a strictly increasing sequence of integers (*monotonicity*). An other interesting combinatorial property is that the generalized Hamming weights of a linear code C completely determine the generalized Hamming weights of the dual code C^\perp (*duality*).

In this work, we studied the *generalized Hamming weights* of algebraic geometric Goppa codes on the \mathcal{GH} curve [1]. Especially, exact results on the second generalized Hamming weight are give for almost all cases. Furthermore, we apply the results obtained to show an example where the weight hierarchy characterizes the performance of the \mathcal{GH} codes on a noiseless communication channel.

REFERENCES

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