

Codes deriving from some subvarieties of the Segre variety

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30th Applications of Computer Algebra - ACA 2025

Let $\mathbb{K}$ be the Galois field $\mathbb{F}_{q^t}$ of order q^t , $q = p^e$, p a prime, $A = \text{Aut}(\mathbb{K})$ be the automorphism group of $\mathbb{K}$ and $\sigma = (\sigma_0, \dots, \sigma_{d-1}) \in A^d$, $d \geq 1$. The following generalization of the Veronese map is studied:

$$\nu_{d,\sigma} : \langle v \rangle \in \text{PG}(n-1, \mathbb{K}) \longrightarrow \langle v^{\sigma_0} \otimes v^{\sigma_1} \otimes \dots \otimes v^{\sigma_{d-1}} \rangle \in \text{PG}(n^d-1, \mathbb{K}).$$

We investigate the link between such points sets and a linear code $\mathcal{C}_{d,\sigma}$ that can be associated to the variety, obtaining examples of MDS and almost MDS codes.

This is a joint work with N. Durante and G. Longobardi.

References

- [1] N. Durante, G. Longobardi, V. Pepe. (d, σ) -Veronese variety and some applications *Des. Codes Cryptogr.*, 91:1911–1921, 2023.