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Gray maps and linearities

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Since its first usage for solving a coding theory problem in 1994 the Gray maps have been used to make constructions of well-known families of linear and nonlinear codes. The Gray map was first presented as an isometry between \mathbb{Z}_4 and \mathbb{Z}_2^2 with the Lee and Hamming metrics respectively. Later, generalisation up to finite chain rings of such Gray map were defined. In this talk we will see some properties of this Gray map and how can be used to obtain a compact representation of some families of nonlinear codes [1, 2, 3, 4].

References

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