

GRÖBNER BASES FOR GENERALIZED HERMITIAN CODES.

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In recent years the theory of Gröbner bases have been largely applied to solve problems in Code Theory. In particular, in 1995 Heegard, Little and Saints found an efficient and interesting decoding method using Gröbner bases, but it has a very high computational cost.

Little, Heegard and Saints found a method to reduce the computational cost and they applied to the Hermitian curve, and then it was applied the same method to the Norm-Trace curve by Farran, Sepulveda, Tizziotti, Torres.

In this talk I want to show how it is possible to extend these results to the curve $x^{q^r+1} = y^q + y$ over the finite field $\mathbb{F}_{q^{2r}}$ (studied by Kondo, Katagiri and Ogihara) and to the curve $x^m = y^q + y$, with $m|q+1$, over the finite field \mathbb{F}_{q^2} (studied by Matthews), determining the so-called Root-Diagram of a curve.

Joint work with This work was supervised by G.Tizziotti and F.Torres.