

ON THE SECOND LOWEST HAMMING WEIGHT OF BINARY PROJECTIVE REED-MULLER CODES

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Projective Reed-Muller codes were introduced by Lachaud, in 1988 and their dimension and minimum distance were determined by Serre and Sorensen in 1991. In coding theory one is also interested in the higher Hamming weights, to study the code performance. Yet, not many values of the higher Hamming weights are known for these codes, not even the second lowest weight (also known as next-to-minimal weight) is completely determined. In this talk we will present all the values of the next-to-minimal weight for the binary projective Reed-Muller codes, and we will also comment on their relation to the next-to-minimal weight of generalized (affine) Reed-Muller codes.

Joint work with Victor G.L. Neumann (Universidade Federal de Uberlândia).