

Abstract

Constructions of Two-Weight Codes over Rings

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In [1] it was shown that linear *projective, regular* codes with two non-zero homogeneous weights over finite Frobenius rings yield strongly regular graphs. In [2], Honold extended this result to show that homogeneous two-weight *modular* codes also give rise to strongly regular graphs.

We present constructions yielding two families of two-weight codes. The first arises from unions of submodules of R_R^k and the second arises from Frobenius rings whose weights satisfy a cardinality property.

References

- [1] E. Byrne, M. Greferath, T. Honold, "Ring Geometries, Two-Weight Codes and Strongly Regular Graphs", *Designs, Codes and Cryptography*, 48 (1):1-16, 2008."
- [2] T. Honold, "Further Results on Homogeneous Two-Weight Codes, *Proceedings of Optimal Codes and Related Topics*, Bulgaria, 2007.