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Equivalence and Duality for Rank-Metric and Matrix Codes.

We study self-dual rank-metric and matrix codes. Such codes often have a well-balanced trade-off between dimension and minimum distance. As we seek to enumerate and classify these self-dual codes, we also examine the notion of equivalence for rank-metric and matrix codes and use this to characterize the automorphism groups of these codes. Both rank-metric codes and matrix codes, also known as array codes or space-time codes over a finite field, have garnered significant attention because they can be “lifted” to form subspace codes. Subspace codes have become widely studied since Koetter and Kschischang first proposed their use in error correction for random linear network coding. (Received August 14, 2011)