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Rank metric codes

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Rank metric codes, which are subspaces of the full vector space of matrices over a finite field, provide a method to construct good subspace codes, the central objects in network coding. Codes which reach the Singleton bound are called *MRD codes*. Up to now essentially only one general construction method is known which leads to the class of *Gabidulin codes* or slight variations. We prove that in particular situations other classes exist which are related to finite semi-fields.