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On inequivalent representations of matroids over non-prime fields. (English) Zbl 1230.05087
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Summary: For each finite field \mathbb{F} of prime order there is a constant c such that every 4-connected matroid has at most c inequivalent representations over \mathbb{F} . We had hoped that this would extend to all finite fields, however, it was not to be. The (m, n) -mace is the matroid obtained by adding a point freely to $M(K_{m,n})$. For all $n \geq 3$, the $(3, n)$ -mace is 4-connected and has at least 2^n representations over any field \mathbb{F} of non-prime order $q \geq 9$. More generally, for $n \geq m$, the (m, n) -mace is vertically $(m + 1)$ -connected and has at least 2^n inequivalent representations over any finite field of non-prime order $q \geq m^n$.

MSC:

05B35 Combinatorial aspects of matroids and geometric lattices

Cited in **9** Documents

Keywords:

matroids; inequivalent representations; connectivity

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