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**Tangles, tree-decompositions and grids in matroids.** (English) Zbl 1229.05070  
*J. Comb. Theory, Ser. B* 99, No. 4, 657-667 (2009).

Summary: A tangle in a matroid is an obstruction to small branch-width. In particular, the maximum order of a tangle is equal to the branch-width. We prove that: (i) there is a tree-decomposition of a matroid that “displays” all of the maximal tangles, and (ii) when  $M$  is representable over a finite field, each tangle of sufficiently large order “dominates” a large grid-minor. This extends results of Robertson and Seymour concerning Graph Minors.

**MSC:**

- 05B35** Combinatorial aspects of matroids and geometric lattices
- 05C70** Edge subsets with special properties (factorization, matching, partitioning, covering and packing, etc.)
- 05C83** Graph minors

Cited in **1** Review  
Cited in **10** Documents

**Keywords:**

[branch-width](#); [tangles](#); [tree-decomposition](#); [matroids](#); [graph minors](#)

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**References:**

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