

Cyclic ordering of split matroids

Own results

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Our own results in the paper are the following.

- We formulated **Conjecture 3**, a strengthening of Gabow’s conjecture for matroids that are the union of k pairwise disjoint bases. This conjecture would also imply **Conjecture 2** proposed by Kajitani, Ueno and Miyano in the special case when the matroid is the union of k disjoint bases. Our conjecture is stronger in the sense that it also states that the elements of each basis form an interval in the cyclic ordering.
- We proved a stronger version of Conjecture 3 for split matroids, which also states that the bases form intervals in a given order.
- In particular, Conjecture 3 holds for sparse paving and paving matroids, which are conjectured to be almost all matroids asymptotically.
- Our proof gives an algorithm using a polynomial number of independence oracle calls to determine a proper cyclic ordering.
- In **Example 12**, we showed a counterexample to a possible approach of proving Conjecture 2, that would come from a reformulation of the theorem of Van den Heuvel and Thomassé.
- We defined cyclic exchange and the weight of a cyclic exchange for a k -tuple of bases as a possible generalization of symmetric exchange for basis pairs, and using them we proposed Conjectures 7 and 8 as generalizations of Conjectures 5 and 6 for k -tuples of bases instead of basis pairs.

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