

On Rota's Conjecture

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Abstract. The most promising strategy for resolving Rota's Conjecture at present is to extend the Graph Minors Structure Theorem of Robertson and Seymour to representable matroids. That is, given a $\text{GF}(q)$ -representable matroid N , we would like a qualitative structural description of the class of $\text{GF}(q)$ -representable matroids with no N -minor. In particular, since N is a restriction of a projective space (say $\text{PG}(k, q)$), we are interested in the class of $\text{GF}(q)$ -representable matroids with no $\text{PG}(k, q)$ -minor. Such a characterization would help to prove Rota's Conjecture since: *an excluded minor of $\text{GF}(q)$ -representability cannot contain a "large" projective space over $\text{GF}(q)$ as a minor.*