

Christopher G. Eppolito (Binghamton)

Geometric Algebra for Matroids

Abstract for the Combinatorics Seminar 2016 April 4

In a 1989 paper, Dress and Wenzel create a group which recasts the realization problem for matroids in a more algebraic framework. In particular, they prove that for any matroid M there is a “universal representation ring” R such that the set of ring homomorphisms from R to any field F is in natural bijection with the set of realizations of M over F . This approach naturally extends to an algebraic criterion to determine which matroids admit orientation via a chirotope.

In the first talk I construct two groups related to the combinatorial structure of a general matroid and prove that these groups are cryptomorphic via an exact sequence. In the second talk I exploit this machinery to sketch a proof of the aforementioned result.

This is Mr. Eppolito's Admission-to-Candidacy examination. The examining committee consists of Laura Anderson (chair), Michael Dobbins, and Thomas Zaslavsky.

All interested persons are welcome to attend.

From:
<http://www2.math.binghamton.edu/> - **Department of Mathematics and Statistics, Binghamton University**

Permanent link:
<http://www2.math.binghamton.edu/p/seminars/comb/abstract.201704epp>

Last update: **2020/01/29 19:03**

