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Title: NBC bases for broken circuit complexes of matroids

Abstract: In the first part of this talk we construct a maximal linear system of parameters for the Stanley-Reisner ring of the broken circuit complex of a regular matroid which can be described in terms of the circuits and cocircuits of the underlying matroid. In the second part we try to find monomial bases for the quotient of the Stanley-Reisner ring of the broken circuit complex with the aforementioned linear system of parameters. Two infinite classes of matroids are identified for which there exists a basis which is entirely determined by the circuits and cocircuits of the matroid. We call these bases NBC bases and show a deletion-contraction axiom for their existence. The presented results are a generalization of work by Brown, Sagan and Colbourn for broken circuit complexes of graphs.

This is joint work with Andri Egilsson.