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# Correlation Constants of Fields and Matroids

## Abstract for the Combinatorics Seminar 2019 September 10

Given a finite connected graph and two of its edges, e and f. Choose a spanning tree T uniformly at random. It follows from work of Kirchhoff on electrical networks that the events e ∈ T and f ∈ T are negatively correlated.

A combinatorial generalization of graphs and vector spaces is matroids. I will discuss an analog of the above situation for general matroids, thus introducing, as a measure of the correlation in a matroid, its correlation constant. We use Hodge theory to bound these constants and we give explicit constructions of realizable matroids with positively correlated elements.

This is joint work with June Huh and Botong Wang.

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