

## **Laplacians, homology and hypergraph matching**

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(Joint work with R. Aharoni and E. Berger)

The spectral gap of a graph is an important parameter that quantifies various connectivity properties of the graph. We'll discuss spectral gaps of higher dimensional complexes, with some applications in topological combinatorics. One consequence is a lower bound on the homological connectivity of the independence complex of a graph. This in turn implies Hall type theorems for matchings in hypergraphs.