

Regularity method for cluster hypergraphs.

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Szemerédi's regularity lemma for graphs allows us to approximate large graphs by much smaller (possibly weighted) graphs, often called the cluster or reduced graph. Together with an associated embedding and counting lemma, this allows us to use properties of the reduced graph to prove properties of the larger graph. While for graphs, this approximating structure is still another graph, on which one can apply the regularity method for graphs again, the same is not true for 3-uniform hypergraphs. In this talk, we will describe a regularity lemma and counting lemma for reduced or cluster hypergraphs of 3-uniform hypergraphs.

This is joint work with Vojtěch Rödl and Mathias Schacht.