

Random simplicial complexes based on Steiner systems

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Following the work of Linial and Meshulam on random simplicial complexes, we introduce a model for random complexes with bounded degree and study its topology.

We use spectral gap theory, in particular, Garland’s method, to show homological connectivity of these random complexes.

We also show an upper bound on Betti numbers of complexes with highly connected links, in the spirit of Garland’s method.

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