

Geometric Random Graphs

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Title: Optimal cuts of random geometric graphs

Abstract: Given a "cloud" of n points sampled independently uniformly at random from a Euclidean domain D , one may form a geometric graph by connecting nearby points using a distance parameter $r(n)$. We consider the problem of partitioning the cloud into two pieces to minimise the number of "cut edges" of this graph, subject to a penalty for an unbalanced partition. The optimal score is known as the Cheeger constant of the graph. We discuss convergence of the Cheeger constant (suitably rescaled) for large n with suitably chosen $r(n)$, towards an analogous quantity defined for the original domain D .

(Joint work with Tobias Muller)