

COMBINATORICS
SEMINAR

Spanning subgraphs in uniformly dense and inseparable graphs

Mathias Schacht
The University of Hamburg and Yale University

Abstract: We consider sufficient conditions for the existence of k -th powers of Hamiltonian cycles in n -vertex graphs G with minimum degree cn for arbitrarily small $c > 0$. About 20 years ago Komlós, Sarközy, and Szemerédi resolved the conjectures of Psa and Seymour and obtained optimal minimum degree conditions for this problem by showing that $c = k/k+1$ suffices for large n . For smaller values of c the given graph G must satisfy additional assumptions. We show that inducing subgraphs of density $d > 0$ on linear subsets of vertices and being inseparable, in the sense that every cut has density at least c , are sufficient assumptions for this problem and, in fact, for a variant of the bandwidth theorem. This generalises recent results of Staden and Treglown.

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