Embedding and packing large graphs
into dense and sparse graphs

Abstract:
Extremal combinatorics is often concerned with the forced appearance of highly organized structures. In this talk, we explain two major research avenues that deal with such situations. On the one hand, density results assert that these substructures must be present in any sufficiently dense host configuration. On the other hand, partition theorems guarantee that, no matter how we partition a sufficiently large object, at least one of the partition classes must contain the desired substructure.

We first survey old and new results of both types, to give a flavour of the field and its methods, and then focus on a sequence of results that generalize the existence of paths and cycles to graphs of sublinear bandwidth.

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