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Erdős, Paul; Pach, János; Pyber, L.

Isomorphic subgraphs in a graph. (In English)

Combinatorics, Proc. 7th Hung. Colloq., Eger/Hung. 1987, Colloq. Math. Soc. János Bolyai 52, 553-556 (1988).

[For the entire collection see Zbl 673.00009.]

Let $f_{r,s}(n)$ denote the maximum integer f such that every r-uniform hypergraph H of size n contains s pairwise edge-disjoint isomorphic subhypergraphs of size f each. The authors prove that for every $r \geq 3$ and $s \geq 2$ there exist constants $c_{r,s}$, $d_{r,s} > 0$ such that

$$c_{r,s} n^{s/(rs-1)} < f_{r,s}(n) < d_{r,s} n^{s/(rs-r+1)} \cdot \frac{\log n}{\log \log n}.$$

The particularization to graphs ($r = 2$) settles a problem posed by Schönheim.

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Classification:
05C65 Hypergraphs
05C70 Factorization, etc.
05C60 Isomorphism problems (graph theory)

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