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# ON ULAM'S HYPOTHESIS

by

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A graph G is a couple $\langle V(G), E(G) \rangle$ where V(G) is a finite set and E(G) is a set of pairs of elements of V(G). In 1960, Ulam conjectured that a graph with at least three vertices can be uniquely (up to isomorphism) reconstructed from its maximal induced (i.e. vertex-deleted) subgraphs. This conjecture is solved for special classes of graphs only. Harary conjectured the weaker hypothesis - that a graph with at least five vertices can be uniquely reconstructed from its maximal (i.e. edge-deleted) subgraphs. In 1972, Lovász proved that this hypothesis is true for graphs containing more than half of all edges i.e. for graphs with n vertices and more than $\frac{n^2 - n}{4}$ edges.

In the lecture was shown that this result can be improved for graphs with more than $n \cdot \log_2 n$ edges.