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Lázló Babai*, University of Chicago, Chicago, IL. *Groups, graphs, algorithms: The Graph Isomorphism problem.*

Deciding whether or not two given finite graphs are isomorphic has for decades been known as one of a small number of natural computational problems with unsettled complexity status within the P/NP theory.

Building on a framework introduced in a seminal 1980 paper by Eugene M. Luks, recent algorithmic progress on this problem involves an interplay between finite permutation groups, graphs and more generally, relational structures with low arity, and algorithmic techniques such as the “Divide and Conquer” principle. The talk will attempt to illustrate some of the components of this work. (Received August 08, 2017)