

Reconstruction conjectures in graph theory

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Resumo/Abstract:

In the 1940s, Ulam and Kelly conjectured that every unlabeled simple finite graph on 3 or more vertices can be reconstructed (up to isomorphism) from the collection of its vertex-deleted subgraphs. An edge-deletion version was proposed by Harary: A graph on 4 or more edges can be reconstructed from the collection of its edge-deleted subgraphs. There are many other related conjectures and questions, e.g., Halin's conjecture for infinite graphs, Stanley's vertex-switching reconstruction conjecture. We will survey a few classic results on these conjectures. In the second half of the talk I will present some of my work and open questions about generalizations of the conjectures for the abstract partially ordered sets of subgraphs.