On Rosa-Type Labelings of Graphs and Hypergraphs

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A labeling (or valuation) of a graph G is an assignment of integers to the vertices of G subject to certain conditions. A hierarchy of graph labelings was introduced by Rosa in the late 1960s. Rosa showed that certain basic labelings of a graph G with n edges yielded cyclic G-decompositions of K_{2n+1}. If in addition G is bipartite, other stricter labelings of Rosa's yielded cyclic G-decompositions of K_{2nx+1} for all natural numbers x. In recent years, variations on Rosa's labelings have been introduced and shown to extend his decompositions results. We survey various Rosa-type labelings and summarize some of the related results.

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