

Finite and infinite median graphs

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Median graphs are generalizations of trees and defined as graphs in which every triple of vertices has a unique median, i.e. a vertex that lies on shortest paths between any two vertices of the given triple. Median graphs can also be characterized as the retracts of hypercubes and have numerous applications, some of which will be briefly mentioned.

The talk begins with the description of the structure of median graphs, properties they share with trees and their lattice dimension.

Then the relationship between median graphs and triangle-free graphs will be treated, the recognition complexity of finite median graphs and how fast they can be embedded into the hypercube once they have been recognized.

In the infinite case the structure of vertex-transitive median graphs of finite degree with finite blocks will be investigated, and the structure of two-ended vertex-transitive median graphs of finite degree.

The talk ends with the description of the decomposition of finite and infinite hypercubes with respect to the direct product, resp. the representations of hypercubes as double covers.

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