Graph theoretical characterization of uniquely localizable networks

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Abstract

Suppose that V is a set of nodes in the plane (or in three dimensions) and we are given the distance between some pairs of nodes in V. When does this distance information uniquely determine the location of all nodes, up to congruence?

When the nodes are in 'general position' , unique localizability depends only on the graph of the known distances. We shall discuss a few recent results and open problems related to this question and show how graph and matroid theoretical methods can be used to attack different variations of this problem.