A Polyhedral Study of Dynamic Monopolies in Graphs

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Spread of influence in a network can be modeled and studied within the concept of dynamic monopolies in graphs. We give an integer programming formulation for finding a minimum dynamic monopoly in an undirected graph. The corresponding 0-1 polytope and its facets are studied and several families of facet defining inequalities are introduced. Computational experiments have been performed to show the strength of the IP formulation and its facet defining inequalities.

Keywords: Integer Programming, Dynamic Monopoly, Facets