

Arc-coloring of directed hypergraphs and chromatic number of walls

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Abstract

We define an arc-coloring for directed hypergraphs, such that any two arcs having either intersecting tails or the same head must be colored differently. We investigate the arc-coloring of those hypergraphs which can be represented by suitable adjacency matrices (*walls*), whereas a polynomial reduction is provided from the general arc-coloring problem to the *brick-coloring* of walls. An upper bound for the least number of required colors with fixed degree is established for a subclass of hypergraphs. Some particular walls are subsequently analyzed.

Key-words: arc-coloring, brick, chromatic index, directed hypergraph, wall.

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