DISTINGUISHING GRAPH VERTICES USING EDGE COLORING

Mariusz Woźniak

AGH University of Krakow

e-mail: mwozniak@agh.edu.pl

Let $G = (V, E)$ be a graph of order n. The function $f : E(G) \longmapsto \{1, 2, \ldots, k\}$ is called an *edge coloring*. Any such coloring assigns to the vertices of a graph *palette of colors*, *i.e.* the multiset of colors on incidental edges. Palettes are used to distinguish the vertices of the graph in one way or another.

A completely different approach is based on the concept of a locally irregular graph. A *locally irregular graph* is a graph in which every two adjacent vertices have distinct degrees. By a locally irregular decomposition of a graph, we thus mean a decomposition into locally irregular graphs.

Yet another approach to the problem of distinguishing is to use both of the above-mentioned possibilities, i.e. decomposition and coloring.

The aim of the talk is to discuss the relationship between these different approaches to the problem of distinguishing vertices of a graph.