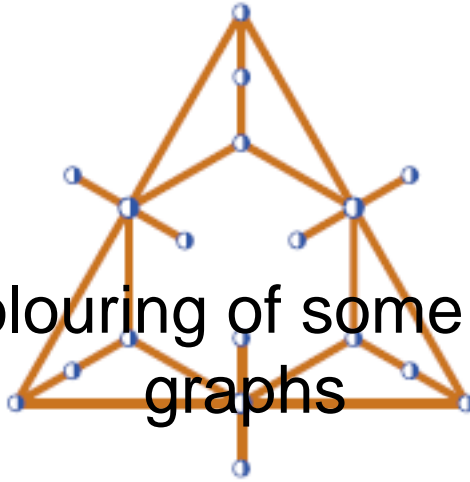


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Acyclic colouring of some classes of graphs



Content :

An acyclic edge k -colouring of a graph G is a proper edge k -colouring of G such that there are no bichromatic cycles. In other words, for every two distinct colours i and j , the subgraph induced in G by all the edges which have either colour i or j is acyclic. The minimum number k of colours such that G has an acyclic edge k -colouring is called an acyclic chromatic index of G .

It is a conjecture, stated by Fiamčík and independently by Alon, Sudakov and Zaks, which says that for any graph G , its acyclic chromatic index does not exceed $\Delta(G)+2$. This conjecture has been verified by now only for some special classes of graphs.

In this talk, we show that if G is a plane graph such that for $i \in \{3,4\}$, no two i -faces of G touch each other, then G has an acyclic edge colouring with at most $\Delta(G)+2$ colours. We also present new upper bounds for the acyclic chromatic index of some other classes of graphs.

Primary authors : FIEDOROWICZ, Anna (University of Zielona Góra)

Co-authors :

Presenter : FIEDOROWICZ, Anna (University of Zielona Góra)

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