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Department of Applied Mathematics

VŠB – Technical University Ostrava, 17. listopadu 15, Ostrava–Poruba

UNIQUE-MAXIMUM EDGE-COLOURING OF PLANE PSEUDOGRAPHS

IGOR FABRICI, STANISLAV JENDROL', MICHAELA VRBJAROVÁ*

A unique-maximum k -edge-colouring with respect to faces of a 2-edge-connected plane pseudograph G is an edge-colouring with colours from the set $\{1, 2, \dots, k\}$ such that for each face f of G the maximum colour occurs exactly once on the edges of f . We will prove that any 2-edge-connected plane pseudograph has such a colouring with 3 colours in general and if we require the colouring to be facially-proper, then 6 colours are enough to colour every 2-edge-connected plane pseudograph.