

**MATEMATYKA
DYSKRETNA**

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in total proper colorings*

Preprint Nr MD 051
(otrzymany dnia 15.02.2011)

**Kraków
2011**

Redaktorami serii preprintów *Matematyka Dyskretna* są:
Wit FORYŚ,
prowadzący seminarium *Słowa, słowa, słowa...*
w Instytucie Informatyki UJ
oraz
Mariusz WOŹNIAK,
prowadzący seminarium *Matematyka Dyskretna - Teoria Grafów*
na Wydziale Matematyki Stosowanej AGH.

On the adjacent-vertex-distinguishing index by sums in total proper colorings *

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Abstract

We consider a proper coloring c of edges and vertices in a simple graph and the sum $f(v)$ of the color of a vertex v and colors of all the edges incident to v . We say that a coloring c distinguishes adjacent vertices by sums, if every two adjacent vertices have different values of f . We conjecture that $\Delta + 3$ colors suffice to distinguish adjacent vertices in any simple graph. We show that this holds for complete graphs, cycles, bipartite graphs, cubic graphs and graphs with maximum degree at most three.

Keywords: simple graph, total proper coloring, adjacent vertex distinguishing index, neighbor sum distinguishing coloring.

2000 Mathematics Subject Classification: 05C15.