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Yifan Jing, Alexandr Kostochka and **Fuhong Ma*** (mafuhongsdnu@163.com), Shandong University, 27 Shanda Nanlu, Jinan, Shandong 250100, Peoples Rep of China, and **Pongpat Sittitrai** and **Jingwei Xu**. *Defective DP-colorings of sparse multigraphs*.

DP-coloring (also known as correspondence coloring) is a generalization of list coloring developed recently by Dvořák and Postle. We introduce and study defective DP-colorings of graphs and multigraphs with 2 colors. Each vertex v of a multigraph G has colors $\alpha(v)$ and $\beta(v)$ in its list. In an (i, j) -coloring of G , if v is colored with $\alpha(v)$, then it can be incident to at most i 'conflicting' edges, otherwise it can be incident to at most j such edges. We concentrate on (i, j) -colorings of sparse multigraphs.

Let $f_{DP}(i, j, n)$ be the minimum number of edges that may have an n -vertex (i, j) -critical multigraph, that is, a multigraph G that has no (i, j) -defective DP-coloring but whose every proper subgraph has such a coloring. For all i and j , we find linear lower bounds on $f_{DP}(i, j, n)$ that are exact for infinitely many n . (Received July 10, 2019)