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**Caroline Accurso\***, Dept. of Mathematics and Computer Science, DeSales University, Center Valley, PA 18034, and **Leaha Hand**, Department of Mathematics, Boise State University, Boise, Boise, ID 83725. *Weak dynamic coloring of graphs.*

The  $k$ -weak dynamic number of a graph  $G$  is the smallest number of colors we can use to color the vertices of  $G$  in such a way that each vertex  $v$  of degree  $d(v)$  sees at least  $\min\{r, d(v)\}$  colors on its neighborhood. The chromatic number of a hypergraph  $H$  is the smallest number of colors we can use to color the vertices of  $H$  in such a way that each edge of size at least 2 sees at least 2 different colors.

2-weak dynamic coloring of graphs is a well-studied subject, as it has a close relation to proper coloring of hypergraphs. Here we study  $k$ -weak dynamic coloring of graphs when  $k \geq 3$ . We use the discharging method to prove that all planar graphs have 3-weak dynamic number at most 6. We also use the Probabilistic methods to determine upper bounds for  $k$ -weak dynamic number of  $d$ -regular graphs. (Received July 29, 2017)