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Hang M Do* (hdo@linfield.edu), **Brent Moran** (brent.moran@ucdenver.edu) and
Timothy Singer (tsinger@linfield.edu). *1-Relaxed Modular Edge-Sum Labeling.*

We introduce a new graph labeling and derive a game on graphs called the *1-relaxed modular edge-sum labeling game*. Given a graph G and a natural number n , we define a labeling by assigning to each edge a number from $\{1, \dots, n\}$ and assign a corresponding label for each vertex u by the sum of the labels of the edges incident to u , computing this sum modulo n . Similar to the chromatic number, we define $\Lambda(G)$ for a graph G as the smallest n such that G has a proper labeling. We provide bounds for $\Lambda(G)$ for various classes of graphs. Motivated by competitive graph coloring, we define a game on G using modular edge-sum labeling and determine the chromatic game number for various classes of graphs. We will emphasize some characteristics that distinguish this labeling from traditional vertex coloring. (Received September 16, 2014)