The Minimum Sum Vertex Cover Problem

Ralucca Gera*, Craig Rasmussen, Pantelimon Stanica, Naval Postgraduate School; Steve Horton, United States Military Academy
{rgera, s Horton, ras, pstanica}@nps.edu

Let $f$ be an ordering of the vertices of an $n$-vertex graph $G$, meaning a numbering using $\{1, 2, \ldots, n\}$. For each edge $uv$, let
$$g(uv) = \min\{f(u), f(v)\}.$$ The minimum sum vertex cover number (or the cost) $\mu_s(G)$ of $G$ is defined by $\mu_s(G) = \min \sum_{e \in E(G)} g(e)$, where the minimum is taken over all orderings $f$. We present results on this parameter for several graph classes.

Keywords: labeling, vertex cover, independence.