Conjectures on the Total Vertex-irregularity Strength of Graphs

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M. Bača, S. Jendrol′, M. Miller, J. Ryan (2007) introduced the notion of a vertex- (or edge-) irregular total labeling of a graph. A vertex-irregular total k-labeling $\lambda : V(G) \cup E(G) \longrightarrow \{1, 2, ..., k\}$ of a graph G is a labeling on the vertices and edges of G in such a way that for any two distinct vertices x and y, their weights $wt(x)$ and $wt(y)$ are distinct. In this case, we define $wt(x) = \lambda(x) + \sum_{xy \in E} \lambda(xy)$. The total vertex irregularity strength of G, denoted by $tvs(G)$, is the least integer k such that a graph G has a vertex-irregular total k-labeling. In this talk, we present some conjectures related to the total vertex irregularity strength of graphs and provide some progress on solving this conjecture.

Keywords: total vertex irregularity strength, irregular labeling, graph.