

1135-52-1984

Maryam Farahmand*, Mfarahmand@math.berkeley.edu. *Partially Magic Labelings and the Antimagic Graph Conjecture.*

The *Antimagic Graph Conjecture* asserts that every connected graph $G = (V, E)$ except K_2 admits an edge labeling such that each label $1, 2, \dots, |E|$ is used exactly once and the sums of the labels of the edges incident to each vertex are distinct. On the other extreme, an edge labeling is *magic* if the sums of the labels on all edges incident to each vertex are the same. In this paper we approach antimagic labelings by introducing *partially magic labelings*, where “magic occurs” just in a subset of V . We generalize Stanley’s theorem about the magic graph labeling counting function to the associated counting function of partially magic labelings and prove that it is a quasi-polynomial of period at most 2. This allows us to introduce *relaxed antimagic labelings* (for which label repetition is allowed), and we show that every bipartite graph satisfies a weakened version of the Antimagic Graph Conjecture. (Received September 25, 2017)