

## Distance Magic Labelings and Spectra of Graphs

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Let  $G = (V, E)$  be a graph of order  $n$ . A distance magic labeling of  $G$  is a bijection  $\ell: V(G) \rightarrow \{1, \dots, n\}$  for which there exists a positive integer  $k$  such that  $\sum_{x \in N(v)} \ell(x) = k$  for all  $v \in V$ , where  $N(v)$  is the neighborhood of  $v$ . We show how the analysis of graph spectra may be used to identify the distance magic graphs. These results are applied to chosen families of graphs, in particular to some types of products.