Title: Distance Magic Labelings

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Abstract: A distance magic labeling of a graph G is a bijection $f : V(G) \to \{1, 2, \ldots, |V(G)|\}$ such that the sum of labels on the neighbourhood of each vertex is constant. A framework based on linear algebra has been developed using the notion of neighbour balance to determine whether there exists a distance magic labeling for a hypercube with dimension n. In this thesis, we extend this framework to all Cayley graphs on $\mathbb{Z}_2^n$. We use this framework to reprove some known results from recent literature. We also use this framework to introduce the notion of *component-wise* distance magic labelings on Cayley graphs of $\mathbb{Z}_2^n$.

Keywords: distance magic labeling, Cayley graph, hypercube, neighbour balance