On regular distance magic graphs

Primož Šparl

Faculty of Education
University of Ljubljana, Slovenia

According to the "classical" definition going back three decades (although Vilfred used a different name back in 1994) a graph $\Gamma = (V, E)$ is *distance magic* if it admits a bijective labeling of its vertices by positive integers from 1 to $|V|$ such that the sum of the labels of a vertex is independent of the vertex. It turns out that in the case of regular graphs the existence of such a labeling is equivalent to the existence of an eigenvector of a very special form for the eigenvalue 0 of the adjacency matrix of Γ.

The main theme of this talk is this alternative viewpoint on regular distance magic graphs and the corresponding distance magic labelings. Some recent results illustrating the benefits of this approach will be presented. If time permits we will also present a very recent ongoing work introducing a special kind of (regular) distance magic graphs.

The presented results are from several joint projects with different coauthors, including Petr Kovář, Štefko Miklavič and Ksenija Rozman.

primoz.sparl@pef.uni-lj.si