

Degree/diameter problem in host graphs

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(joint work with Mirka Miller and Joe Ryan)

The degree diameter problem involves finding the largest graph (in terms of the number of vertices) subject to constraints on the degree and the diameter of the graph. Beyond the degree constraint there is no restriction on the number of edges (apart from keeping the graph simple) so the resulting graph may be thought of as being embedded in the complete graph. In a generalization of this problem, the graph is considered to be embedded in some connected host graph. This problem was posed by Dekker et al. in [1]. M. Miller et al. in [2] investigated the largest subgraphs in the mesh and recently Holub et al. in [3] and in [4] considered embedding the graph in the k -dimensional honeycomb and 2-dimensional triangular grids.

REFERENCES

- [1] A. Dekker, H. Perez-Roses, G. Pineda-Villavicencio, P. Watters, The maximum degree/diameter bounded subgraph and its applications, *J. Math. Model. Algorithms* 11:3 (2012), 249–268.
- [2] M. Miller, H. Perez-Roses, J. Ryan, The maximum degree and diameter-bounded subgraph in the mesh, *Discrete Appl. Math.* 160:12 (2012), 1782–1790.
- [3] P. Holub, M. Miller, H. Perez-Roses, J. Ryan, Degree/diameter problem on honeycomb networks, *Discrete Appl. Math.*, submitted.
- [4] P. Holub, Degree diameter problem on triangular grid, preprint.