PROPERTIES OF MEDIAN GRAPHS

ANNA ZAPART

Faculty of Mathematics and Information Sciences, Warsaw University of Technology e-mail: A.Zapart@mini.pw.edu.pl

A characterization of some proper class of the median graphs which are defined recursively is given. It is known that the median graphs are exactly retracts of hypercubes [1] and they have the fixed hypercube property under edge-preserving maps [2]. An elementary retraction of the median graph it is defined and it is shown that any c-recursively median graph is retractible. There are some similarities between c-recursively median graphs, defined in our paper, and s-recursively contractible complexes [3]. The s-recursively contractible complexes are a special class of retractible complexes and they have a fixed simplex property [4]. Moreover, it is possible to obtain any hypercube contained in a c-recursively median graph by elementary retractions. An alternative proof of the fixed hypercube property for c-recursively median graphs is presented.

References

- J. Bandelt, Retracts of Hypercubes, Journal of Graph Theory 8 (1984) 501-510.
- [2] H.-J. Bandelt, M. van de Vel, A fixed cube theorem for median graphs, Discrete Mathematics 62 (1987), 129–137.
- [3] A. Wieczorek, The Kakutani Property and the Fixed Point Property of Topological Spaces with Abstract Convexivity, Journal of Mathematical Analysis and Applications 168 (1992) 483–499.
- [4] A. Idzik, A. Zapart, Fixed Simplex Property for Retractable Complexes, Fixed Point Theory and Applications, vol. 2010, Article ID 303640, 7 pages, 2010. doi:10.1155/2010/303640