

1127-05-144

Heather Smith and **Laszlo Szekely*** (szekely@math.sc.edu), Dept. Mathematics, LeConte College, University of South Carolina, Columbia, SC 29208, and **Hua Wang** and **Shuai Yuan**.

On different “Middle parts” of a tree.

We determine the maximum distance between any two of the center, centroid, and subtree core among trees with a given order. Corresponding results are obtained for trees with given maximum degree and also for trees with given diameter. The problem of the maximum distance between the centroid and the subtree core among trees with given order and diameter becomes difficult. It can be solved in terms of the problem of minimizing the number of root-containing subtrees in a rooted tree of given order and height. While the latter problem remains unsolved, we provide a partial characterization of the extremal structure. (Received February 01, 2017)