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Maria Axenovich* (axenovic@iastate.edu) and **Lale Ozkahya**. *On homometric sets in graphs.*

Two disjoint vertex sets in a graph are called homometric if they have the same size and if the multisets of pairwise distances between the elements of each set coincide. In particular, in a diameter 2 graph, homometric sets induce the same number of edges. This notion was recently introduced by Albertson, Pach and Young. We investigate the sizes of the largest homometric sets in general graphs, and in some special classes such as trees. This problem, considered for path is a classical problem in number theory. (Received August 03, 2011)