THE MOBILE MUTUAL-VISIBILITY PROBLEM IN GRAPHS

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A mutual-visibility set of a connected graph G is a set of vertices $S \subset V(G)$ such that for every pair of vertices $x, y \in S$ there is a shortest x, y-path whose interior vertices are not in S. We shall consider a robot navigation model that uses such sets. Assume that in each vertex of a mutual-visibility set S a robot is placed. At each stage one robot moves to a neighbouring vertex. Then, the set S is a mobile mutual-visibility set of G if there exists a sequence of moves of the robots such that all the vertices of G are visited by at least one robot, while keeping all the time the mutual-visibility property for the set of vertices of G occupied by the set of robots. The mobile mutual-visibility number of G is the cardinality of a largest mobile mutual-visibility set of G. These mobile mutual-visibility concepts are introduced in this work, and the study of its combinatorial and computational properties is initiated.

References

[1] M. Dettlaff, M. Lemańska, J. A. Rodríguez-Velázquez, I. G. Yero, Mobile mutual-visibility sets in graph. Manuscript, (2024).