Graduate School of Science and Technology Master's Thesis Abstract

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Abstract

The gathering problem requires multiple mobile agents in a network to meet at a single location. This paper investigates the gathering problem in carrier graphs, a subclass of recurrence of edge class of time-varying graphs. By focusing on three subclasses of single carrier graphs – circular, simple, and arbitrary – we clarify the conditions under which the problem can be solved, considering prior knowledge endowed to agents and obtainable online information, such as the count and identifiers of agents or sites. We propose algorithms for solvable cases and analyze the complexities. We also consider general carrier graphs with multiple carriers and propose an algorithm for arbitrary carrier graphs. To the best of our knowledge, this is the first work that investigates the gathering problem in carrier graphs.