

2 英訳文

In (Kajiura-Matsumoto-Okuda, 2021), the applicant defined an “equi-distributed subset” as one of the generalizations of the difference set. This is defined as a property of a subset of the vertex set when considering the partition of a complete graph by a regular graph. This definition allows us to extend the difference set to a wider class including association schemes.

There are three major plans for future research:

Plan 1. Deepen our understanding of Equi-distributed subsets.

Plan 2. Establish a search method for Equi-distributed subset

Plan 3. Improve the search method of Difference set

In Plan 1, we will conduct research from the viewpoint of how generalizable is the known abstraction (relation to symmetric 2-design) in the difference set? In Plan 2, we will implement a well-known method of searching for difference sets as a method of searching for equi-distributed subsets. In Plan 3, we will utilize the search method implemented in Plan 2, and aim to speed up the search for difference sets by using the idea of “attributing the search for difference sets on finite groups to the search for equi-distributed subsets on a specific association scheme”. speeding up the search for differencing sets.

As research deliverables, we will construct a database of difference sets and create a library for fast computation. In addition, as a budding research project, we would like to consider the relationship with white noise in the signal processing field.