

Speaker: Chiang Kao

Affiliation: National Cheng Kung University

Title: The quadratic assignment problem with imprecise data: The case of job assignment requiring coordination

Abstract: The classic quadratic assignment problem (QAP) is concerned with assigning facilities to locations. The costs involved are related to location distances and facility interactions. Different exact and heuristic algorithms have been developed for solving this type of problem. A typical QAP, which is also an extension of the traditional linear assignment problem, is job assignment requiring coordination between different jobs. Due to a lack of precise measurement, the coordination level required between different jobs and the coordination ability between assignees are not known exactly, and this paper uses fuzzy numbers to represent the imprecise values. By applying the Yager ranking technique for fuzzy numbers, the fuzzy QAP is transformed into the conventional QAP. Thus, the existing solution methods for the QAP can be utilized to find a solution. An example of assigning the starting basketball players is used to illustrate the transformation process and the characteristics of the optimal solution.

Keywords: quadratic assignment problem, imprecise data, fuzzy set.