

CHAPTER6

CONCLUSION AND FURTHER RESEARCH

6.1 Conclusion

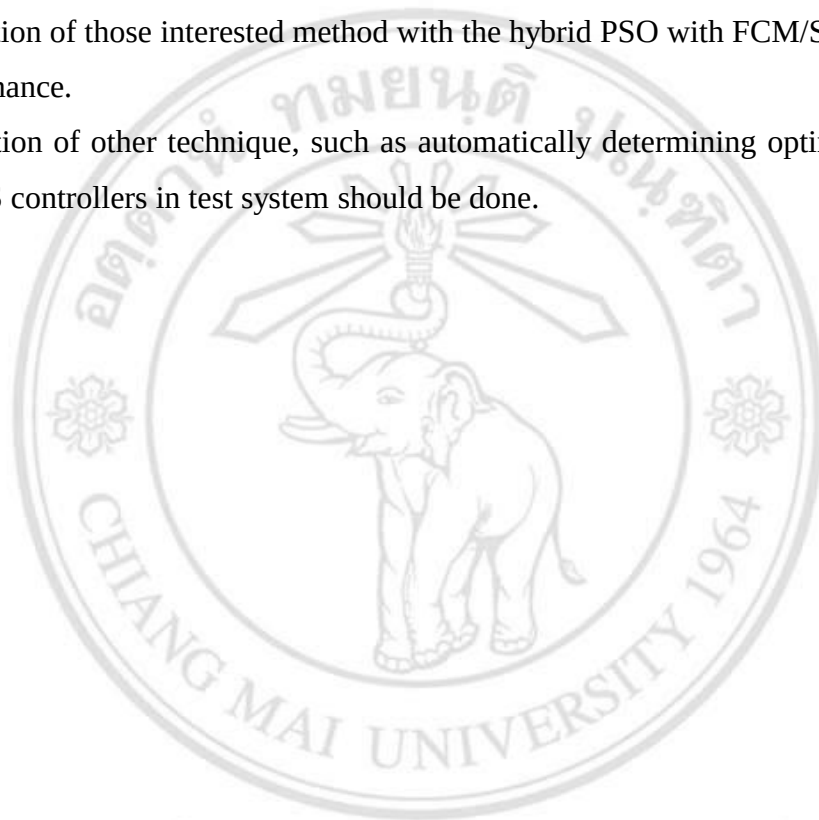
In this thesis, a hybrid heuristic method with multi-objective function solving based on PSO, EP, TS and fuzzy C-means and tournament scheme has been presented. According to the results from chapter 5, in section 5.1:, hybrid PSO can determine better objective function values. These effective results of single-objective function by hybrid PSO might be due to the uses of selection mechanism with a probabilistic updating strategy based on TS which can step over from the local optimal solutions. In addition, tournament scheme can keep the best particle between previous generation particles and present particles. Then, the best particle will adjust their position in search space to find out the optimal objective function value.

According to the results from chapter 5, in section 5.2: the hybrid PSO with FCM/S can determine better results in multi-objective function compared with other methods. The hybrid PSO with FCM/S gives better TTC value, less cost of FACTS controller. Moreover, almost of losses in all test systems are less than those from comparing methods. The fuzzy C- mean which is integrates into hybrid PSO can reduce the particle group size. Furthermore, the tournament scheme can select the particles which are in pareto frontier. These particles in pareto frontier are the solution of optimal multi-objective function. And the tournament scheme at the final step gives the best compromising particle which contains the best optimal compromising value.

6.2 Further research

This thesis studies includes the study of the conventional method and modern heuristic methods, as well as the fuzzy C-means. The purposed method gives better results compared to those from the comparing methods. Suggestions for further research are as following:

- 1) The advantage and limitation of other new modern heuristics methods should be studies. Examples, bee algorithm, ant colony, greywolf algorithm and etc. Then, integration of those interested method with the hybrid PSO with FCM/S to increase its performance.
- 2) Integration of other technique, such as automatically determining optimal number of FACTS controllers in test system should be done.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved