Thermodynamics optimization functional parameters of synchronic recovery cycle by using of PSO algorithm

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Abstract

Designing synchronic recovery cycle was very complex due to existence two different recovery cycle power which was related to retrievers boiler. And any change in designing directly was eclipsed power, efficiency, and costs, and many other variables. Researchers always was tied to indicating a way for optimizing properties and different sections (parts) of synchronic recovery cycles, but complete reviewing cycle was less considered due to unique complexities. In this article, we are considered to complete modeling synchronic recovery cycle, indicating the results of energy and exergy analysis, defining appropriate fitness function and then optimizing the model which was indicated by powerful instruments, genetic and PSO algorithms. Also, the accuracy of calculated results was proved by comparing with practical cycle results of BILKENT University. It was necessary to say that in this research, for the first time, has been optimized complete cycle synchronic recovery by genetic algorithm.

Keywords: synchronic recovery cycle, optimization, genetic algorithm, modeling.