Natural Gas Liquefaction Plant Optimization Using Particle Swarm Optimization

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Nowadays general purpose process plant simulator are used widely in industry and in academia, reason being process model can be developed more rigorously with less endeavor and the graphical user interface makes the realization of model less time consuming. During the development phase of a process model, we often have a lot of variables that has to be varied to get the best solution among several candidates. The automation capability of the simulator can be exploited to look for the best solution by varying these variable under some optimization scheme. Since the case study in simulatior employs brute-force-method and can lead to combinatorial explosion as the number of variables increases. In this study the Particle Swarm Optimization was exploited to optimize the process plant under the automation of process simulator Hysys. In the case study LNG liquefaction plant was used to optimize and results shows the method can save energy and improves the process efficiency.