A STUDY ON DESIGN AND TEMPERATURE MEASUREMENT EXPERIMENT OF COLLECTING SYSTEM USING SPHERICAL REFLECTOR

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Abstract - Greenhouse gases are the cause of global warming, and most of the greenhouse gas emissions are generated in coal power generation. To reduce greenhouse gas emissions, the energy paradigm is shifting rapidly from coal and fossil energy to renewable energy, mainly in developed countries. The large dish-type collecting system that is currently being commercialized is designed in a form using reflectors of different shapes. A collecting system using a large reflector has many drawbacks such as manufacturing cost, weight, and maintenance. Therefore, in this paper, a collection system was designed using a spherical reflector of a single module, and a heat collection system was built to measure the change in temperature with respect to direct normal insolation. Based on the data obtained in this study, we will continue to study the design method of the collecting system combining large reflector modules in the future.

Keywords: Solar collector system, Spherical surface reflector, Stirling engine, Direct normal insolation, Temperature measurement experiment