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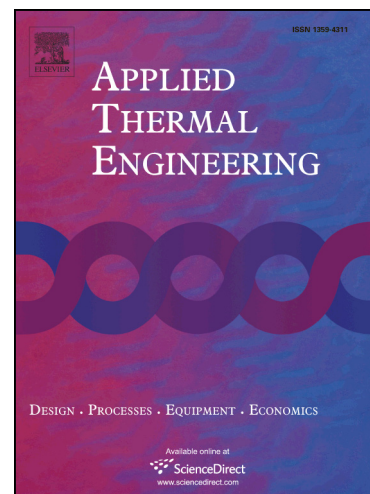
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## Off-design performance analysis of Kalina cycle for low temperature geothermal source

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### Abstract

Low temperature geothermal sources with brilliant prospects have attracted more and more people's attention. Kalina cycle system using ammonia water as working fluid could exploit geothermal energy effectively. In this paper, the quantitative analysis of off-design performance of Kalina cycle for the low temperature geothermal source is conducted. The off-design models including turbine, pump and heat exchangers are established preliminarily. Genetic algorithm is used to maximize the net power output and determine the thermodynamic parameters in the design phase. The sliding pressure control strategy applied widely in existing Rankine cycle power plants is adopted to response to the variations of geothermal source mass flow rate ratio (70%-120%), geothermal source temperature (116 °C-128 °C) and heat sink temperature (0 °C-35 °C). In the off-design research scopes, the guidance for pump rotational speed adjustment is listed to provide some reference for off-design operation of geothermal power plants. The required adjustment rate of pump rotational speed is more sensitive to per unit geothermal source temperature than per

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