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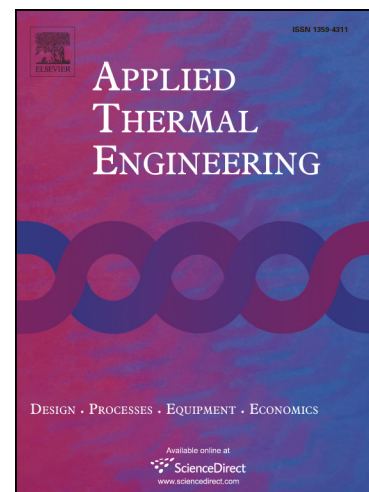
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**Off-design performance comparative analysis between basic and parallel
dual-pressure organic Rankine cycles using radial inflow turbines**

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Abstract

This paper compares off-design performances of the basic organic Rankine cycle (ORC) and the parallel dual-pressure organic Rankine cycle (PDORC) for low temperature hot water. Off-design models of the basic ORC and the PDORC are established based on specially designed plate heat exchangers and radial inflow turbines. The particle swarm optimization (PSO) algorithm is applied to obtain optimal operating parameters. The sliding pressure operation is adopted for different conditions in terms of corresponding hot water parameters and saturated condensing temperature. The results indicate that the efficiency of the low-pressure radial turbine is more strongly affected by the hot water mass flow rate ratio than that of the high-pressure radial turbine does in the PDORC. Radial inflow turbine efficiencies of the basic ORC and the PDORC are more strongly influenced by the saturated condensing temperature than the hot water inlet temperature. The ratio of the

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