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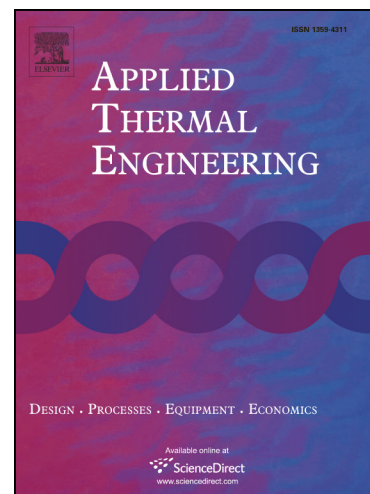
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# A thermodynamic-cycle performance analysis method and application on a three-shaft gas turbine

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**Abstract** The performance of a three-shaft gas turbine is studied in a wide load range in this paper. A thermodynamic analysis method with a hybrid cooling model and a mixing model is employed. The influence of the power turbine nozzle stagger angle and the power turbine rotating speed on the gas turbine performance is analyzed in detail. The results indicate that the influence is quite significant, especially for the part-load condition. Based on the result analysis, an optimal operating strategy of the power turbine is proposed to keep the gas turbine with a high performance.

**Keywords:** Three-shaft gas turbine; Thermodynamic analysis; Optimal operating strategy; Stagger angle; Rotating speed

## Nomenclature

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