

传递现象

## EHD强化换热能耗的热力学第二定律分析

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摘要

关键词 [可用能获益系数](#) [强化系数](#) [强化换热](#) [电水动力学](#)

分类号

## Analysis of energy consumption of EHD enhancement of heat transfer using second law of thermodynamics

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### Abstract

Based on the second law of thermodynamics, a method of energy consumption evaluation of electrohydrodynamics (EHD) enhancement of heat transfer was presented, the profit factor of available energy was newly defined. The experimental data were analyzed. The results showed that the profit factor of available energy increased with increasing heat flux under the same voltage given in experiments, while decreased with increasing voltage under the same heat flux given in experiments. It was found for the first time that the application of EHD enhancement of heat transfer was not economical when the voltage was higher than a critical value at a low heat flux. This method provided a theoretical basis for the economy of EHD heat transfer enhancement.

**Key words** [profit factor of available energy](#) [enhancement factor](#) [heat transfer enhancement electrohydrodynamics\(EHD\)](#)

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