

传递现象

## 去耦室压力变化对脉动燃烧器尾管传热的影响

翟明, 董芑, 彭三珑, 夏新林

哈尔滨工业大学能源科学与工程学院

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摘要

去耦室是脉动燃烧器的重要部件,除降低燃烧噪声外,其另一作用是保证尾管出口声学边界条件,维持整个燃烧器的运行性能。在一台无阀自激脉动燃烧器尾部建立了去耦室压力控制系统,通过调节引风机前的阀门开度来改变去耦室内部压力即尾管出口压力大小(调节范围-10~10 kPa),实验研究了去耦室压力变化对脉动燃烧器尾管传热的影响。结果表明:当去耦室压力高于或低于大气压力时,尾管中的传热系数均能提高,而去耦室压力为负值时,尾管传热系数相对较高;燃烧室压力幅值的大小和速度比的大小均能反映传热系数的高低。

关键词

[自激脉动燃烧器](#) [去耦室](#) [压力变化](#) [尾管传热](#)

分类号

## Influence of pressure variation in decoupling chamber on heat transfer in tailpipe of self-excited pulse combustor

ZHAI Ming,DONG Peng,PENG Sanlong,XIA Xinlin

### Abstract

Decoupling chamber is an important component of a pulse combustor which is not only for noise elimination, but also to ensure the acoustics boundary conditions at the exit of tailpipe as to maintain the performance of the whole combustor. Thus, a decoupling chamber pressure control system was designed and installed at the end of the tailpipe of a valveless self-excited pulse combustor. The relative pressure in the decoupling chamber was controlled from about -10 kPa to 10kPa through a blower, and the influence of pressure variation on the heat transfer in tailpipe was investigated. Experimental results showed that when the pressure in decoupling chamber is higher or lower than atmospheric pressure, the heat transfer coefficient in tailpipe would be increased, the heat transfer coefficient in tailpipe is relatively higher when pressure in decoupling chamber is lower than atmospheric pressure,and both the magnitude of pressure amplitude and the velocity ratio in the combustor can reflect the heat transfer coefficient in tailpipe.

### Key words

[self-excited pulse combustor](#) [decoupling chamber](#) [pressure variation](#) [heat transfer in tailpipe](#)

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