

## 微型热光电系统的新型微混合器的模拟研究

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摘要:

通过使用计算流体力学软件FLUENT 6, 研究了一种混合通道中带有不动凸块的新型T型微混合器, 并与直通通道不带不动凸块的相同大小的T型微混合器在相同工况下进行模拟比较, 观察到前者的混合效果比后者有显著改善, 认为这是由于当混合气体通过这些不动凸块时产生漩涡和分层引起的。同时也研究了混合通道不动凸块的数量对混合强度的影响, 证明混合管道越长, 不动凸块的数量越多, 混合效果越明显。研究结果对微热光电系统中混合器的选用和制造具有指导意义

关键词: 微混合器; FLUENT模拟; 不动凸块。

## Investigation of a new micro T-mixer for the MTPV system

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**Abstract:**

By using the computational fluid dynamic software FLUENT6, we have investigated a new micro T-mixer with static mixing elements in the mixing channel, and the performance of the micro T-mixer with and without static mixing elements are compared in the same work condition. We find that the performance is improved after the static mixing elements are used. The enhancement in mixing performance is thought to be caused by the generation of eddies and separation of boundary layers. We have also investigated the effect of the number of static mixing elements affect to the mixing intensity, it has proved that the mixing effect will be evidence as the mixing channel get longer and the number of static mixing elements gets more. The investigation of this kind of micro T-mixer will do a great positive effect on selecting and fabricating of micro T-mixer for the MTPV (micro thermo photovoltaic) system.

**Keywords:** Micro T-mixer; FLUENT simulation; Static mixing elements.

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