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### 大功率EB-PVD陶瓷热障涂层的研究与应用

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#### RECENT DEVELOPMENT IN THERMAL BARRIER COATINGS PREPARED BY EB-PVD

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摘要

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**摘要** 陶瓷热障涂层用于涡轮发动机的热端部件可显著提高其使用温度,延长部件的使用寿命,并提高发动机的效率。介绍了制备陶瓷热障涂层的电子束物理气相沉积技术。分析了热障涂层的剥落失效机理,同时对热障涂层的隔热效果的研究也进行了介绍。

**关键词:** 热障涂层 ZrO<sub>2</sub> 涡轮发动机叶片

**Abstract:** Ceramic thermal barrier coatings (TBCs) have been increasingly used to extend the durability of aircraft gas turbine engine. This not only increases components lifetime, but also allows higher engine temperatures and therefore better efficiency. Compared with the plasma spray technique, the electron beam physical vapor deposition has led to the incorporation of very durable coatings on the most demanding rotating turbine components. The failure mode and the thermal barrier effect of TBCs are also discussed.

**Keywords:** TBCs ZrO<sub>2</sub> gas turbine blades

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