

## Ni基催化剂上CH<sub>4</sub>裂解制备纳米碳管的研究

王军科,王育煌,翁维正,郑兰荪,胡云行,万惠霖

厦门大学化学系;厦门大学固体表面物理化学国家重点实验室

收稿日期 修回日期 网络版发布日期 接受日期

**摘要** 本文研究了负载型Ni催化剂上,以CH<sub>4</sub>为原料制备纳米碳管的方法。考察了载体、温度、CH<sub>4</sub>浓度及在反应气中添加O<sub>2</sub>或CO<sub>2</sub>等因素对纳米碳管的生长的影响。实验发现,采用稀释的CH<sub>4</sub>在较低的温度下反应或在反应气中添加O<sub>2</sub>或CO<sub>2</sub>均有利于纳米碳管的生长。

**关键词** [氧](#) [催化剂](#) [镍](#) [二氧化碳](#) [裂解](#) [甲烷](#)

分类号 [0643](#)

## Preparation of carbon nanotube by reacting CH<sub>4</sub> over Ni-based catalysts

WANG JUNKE,WANG YUHUANG,WENG WEIZHENG,ZHENG LANSUN,HU YUNHANG,WAN HUILIN

**Abstract** Carbon nanotube was prepared by reacting CH<sub>4</sub> over supported Ni catalyst at elevated temperature. The influences of support and other reaction conditions such as temperature, CH<sub>4</sub> concentration and addition of O<sub>2</sub> or CO<sub>2</sub> to the reactant on the formation of carbon nanotube were investigated. It was found that the formation of carbon nanotube was favoured when the reaction was performed at relatively low temperature with dilute CH<sub>4</sub> as the reactant. Addition of O<sub>2</sub> or CO<sub>2</sub> to the reactant is helpful to the removal of graphite and amorphous carbon deposition on the catalyst and therefore will be favorable to the growth of carbon nanotube.

**Key words** [OXYGEN](#) [CATALYST](#) [NICKEL](#) [CARBON DIOXIDE](#) [PYROLYSIS](#) [METHANE](#)

DOI:

通讯作者

扩展功能

### 本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(1965KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

### 服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

### 相关信息

- ▶ [本刊中 包含“氧”的 相关文章](#)
- ▶ 本文作者相关文章

- [王军科](#)
- [王育煌](#)
- [翁维正](#)
- [郑兰荪](#)
- [胡云行](#)
- [万惠霖](#)