

研究简报

微波加热在高岭石表面制备ZnO纳米微晶及其机理分析

张先如, 顾晓文, 孙嘉, 徐政

同济大学材料科学与工程学院微电子材料研究所, 上海 200092

收稿日期 2005-9-21 修回日期 网络版发布日期 2007-4-4 接受日期

摘要 报道了一种新的制备纳米氧化锌的方法, 即在微波辐射条件下, 将熔融态聚乙二醇(PEG)直接插入到高岭石层间, 继续延长辐射时间使高岭石发生剥片. 以剥片的高岭石片晶为模板, 经微波加热水解, 在其表面合成了簇状纳米氧化锌晶须.

关键词 [微波](#) [高岭石](#) [ZnO](#) [簇状晶须](#)

分类号 [O643](#) [TB383](#)

Preparation of Nanocrystalline ZnO on the Surface of Kaolinite by Microwave Heating and Mechanism Analyses for Its Formation

ZHANG Xian-Ru, GU Xiao-Wen, SUN Jia, XU Zheng

Research Institute of Microelectronic Materials, School of Material Science and Engineering, Tongji University, Shanghai 200092, China

Abstract ZnO nano-powders was prepared on the surface of exfoliated kaolinite(with the precursor solution of $ZnAc_2 \cdot 2H_2O$ and ammonia) *via* microwave heating hydrolysis method, the nanocrystalline ZnO was characterized by using XRD, FTIR, TEM and their formation mechanism was proposed. The results indicate that the products are composed of hexagonal-phased ZnO. The morphology of ZnO is rod-like without exfoliated kaolinite(length is 100—200 nm, diameter is 50—80 nm) as well as is cluster whisker-like in the presence of exfoliated kaolinite(length is 200—350 nm, diameter is 40—60 nm). The infrared absorption of the latter was enhanced apparently. The formation mechanism of the nanocrystalline ZnO synthesized by this method was also suggested.

Key words [Microwave](#) [Kaolinite](#) [ZnO](#) [Cluster whisker](#)

DOI:

通讯作者 徐政 xz001@mail.tongji.edu.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(519KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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“微波”的 相关文章](#)

▶ 本文作者相关文章

- [张先如](#)
- [顾晓文](#)
- [孙嘉](#)
- [徐政](#)