

籽晶辅助化学气相传输法生长ZnO单晶的特征研究

张华伟^{1,2}, 施尔畏¹, 陈之战¹, 严成锋¹, 陈博源^{1,2}

(1. 中国科学院上海硅酸盐研究所, 上海 200050; 2. 中国科学院研究生院, 北京, 100049)

(1. Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China;

2. Graduate University of the Chinese Academy of Sciences, Beijing 100049, China)

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摘要 采用籽晶辅助化学气相传输法生长得到 $\phi 32\text{mm}$ ZnO单晶体. X射线衍射表明晶体沿c轴方向生长, 结晶质量较好: 中心部位摇摆曲线半高宽 47arcsec , 边缘部分为 78.4arcsec . 利用Raman谱、光致发光谱等研究了ZnO晶体退火前后的缺陷和光学性质, 表明经氧气氛退火后晶体缺陷明显减少, 晶体质量进一步提高.

关键词 [氧化锌](#) [化学气相传输法](#) [摇摆曲线](#) [拉曼光谱](#) [光致发光谱](#)

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Characteristics of ZnO Single Crystal Grown by Seeded Chemical Vapor Transport Method

ZHANG Hua-Wei^{1,2}, SHI Er-Wei¹, CHEN Zhi-Zhan¹, YAN Cheng-Feng¹, CHEN Bo-Yuan^{1,2}

(1. Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China; 2. Graduate University of the Chinese Academy of Sciences, Beijing 100049, China)

Abstract

ZnO single crystal with a diameter of 32mm, was grown by a seeded chemical vapor transport method. X-ray diffraction technique was used to evaluate the crystalline quality. The structure defects and optic properties of as-grown and annealed ZnO crystals were compared by Raman and photoluminescence measures. It is found that the growth direction is along c-axis and FWHM is 47arcsec and 78.4arcsec in the centre and at the edge of the crystal, respectively. Quality of the crystal is improved after annealing in oxygen ambience.

Key words [ZnO](#) [chemical vapor transport method](#) [X-ray rocking curve](#) [Raman spectrum](#) [photoluminescence](#)

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通讯作者 张华伟 zhanghuawei@mail.sic.ac.cn

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