

## 基于PLD法制备的MgZnO薄膜紫外传感器的研究

作者: 胡居广, 刁雄辉, 李学金, 林晓东, 李佑国, 刘毅, 龙井华, 李启文

单位: 深圳大学

基金项目: 深圳市传感器技术重点实验室开放基金资助

摘要:

用KrF准分子脉冲激光沉积(PLD)法,以石英为衬底,在300-600℃温度下沉积MgZnO薄膜。由拉曼光谱仪、AFM、UV/vis分光光度计对薄膜进行表征,结果表明,在600℃制备薄膜有最大的禁带宽度3.78eV,以及最好的结晶质量。在此薄膜上镀上Al电极制备了紫外传感器,测量了传感器的I-V曲线、光谱响应特性,以及在365nm紫外光辐照下的时间响应特性。传感器波长响应峰值在约320nm;上升时间常数为9.1ms,下降时间常数为16.5ms。表明PLD法是制备结晶好、响应速度快的薄膜紫外传感器材料的优良方法。

关键词: 紫外探测器; MgZnO薄膜; 脉冲激光沉积

## UV Detector Based on MgZnO Films Prepared by PLD Method

**Author's Name:**

**Institution:**

**Abstract:**

MgZnO films were prepared with KrF excimer pulsed laser deposition (PLD) method on quartz substrate at different temperatures. Films were characterized using Raman spectroscopy, AFM, UV / vis spectrophotometer. The results show that the films prepared at 600℃ has the largest band gap of 3.78eV, and better crystal quality. Al electrode was deposited on the film to make a UV sensor. I-V curve shows that it is ohm contact between Al electrode and the film. Sensor was also detected with monochromatic to gain its spectral response characteristics, with oscilloscope to gain its time response characteristics under 365nm UV irradiation. The results show that, the peak response is at about 320nm, the rising response time constant is 9.1ms, falling time is 16.5ms. These experiments show that PLD method is an excellent method for preparation good crystallization, fast response UV sensor film.

**Keywords:** Ultraviolet detectors; MgZnO film; PLD

投稿时间: 2010-08-16

[查看pdf文件](#)