

简报

多晶纳米ZnO薄膜的溶胶-凝胶法制备及光催化性能研究

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摘要 在石英玻璃衬底上用溶胶-凝胶法制备了纳米级的多晶ZnO薄膜,通过XRD、AFM和UV-Vis吸收光谱对薄膜进行了表征;以苯酚作为被降解的物质,研究了退火温度、降解温度、苯酚溶液的初始浓度和空气流量对ZnO薄膜光催化降解苯酚性能的影响,以及其光催化活性的失活与恢复。实验结果证明,溶胶-凝胶法制备的纳米级ZnO薄膜光催化效果显著,并且可以再生。

关键词 [ZnO薄膜](#) [溶胶-凝胶法](#) [光催化](#) [苯酚](#)

分类号 [TQ034; 0484](#)

Photocatalytic properties of polycrystalline nano-ZnO thin films prepared by sol-gel

Abstract Polycrystalline nano-ZnO thin films on quartz substrates were prepared by sol-gel process. Structural features, surface morphology and UV absorption spectrum were studied by XRD, AFM and UV-Vis spectrophotometer. The influences of annealing temperatures, degradation temperatures, original concentration of phenol and air flux on photocatalytic properties of ZnO thin films were investigated. And the activity loss and resurrection of photocatalytic properties were also studied. The results show that the photocatalytic properties of nano-ZnO thin films prepared by sol-gel are efficient and recyclable.

Key words [ZnO thin films](#) [sol-gel process](#) [photocatalysis](#) [phenol](#)

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