

简报

室温固相法合成ZnO纳米棒及其光学特性

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摘要 在氯化钠存在下,以硫酸锌和氢氧化钠为原料,采用一步室温固相法制备了纳米氧化锌。XRD、TEM分析结果表明:所得纳米氧化锌为棒状,直径约10nm左右,长度约100~160nm。利用紫外-可见分光光度计测试了光吸收性能,发现ZnO纳米棒对200~380nm波长范围的光有很强吸收性,在可见光范围内,也有较强的吸收。ZnO纳米棒在

550nm左右具有较弱的荧光发光峰且ZnO纳米棒较普通氧化锌发光峰波长发生了明显的红移。

关键词 [纳米棒](#) [氧化锌](#) [固相反应](#) [光学性质](#)

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Synthesis of zinc oxide nanorods by one step solid state reaction and their optical properties

Abstract ZnO nanorods were successfully prepared by one step solid state reaction of zinc sulfate and sodium hydroxide in the presence of sodium chloride. The powder X-ray diffraction(XRD) and the transmission electron microscopy(TEM) tests indicate that the product is pure hexagonal phase zinc oxide nanorods with diameter 10nm and length (100-160)nm. The UV absorption properties were tested by the UV spectr ophotometer. The results show that ZnO nanorods have an extremely strong absorption at 200-380 nm wavelength and also a relatively strong absorption in visible region, and a wide blue-green light emission peak at 460-610nm at room temperature, which can be attributed to the recombination of a photogenerated hole with singly ionized oxygen vacancy.

Key words [nanorod](#) [zinc oxide](#) [solid state reaction](#) [optical property](#)

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