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论文

二维纳米结构——氧化铋纳米片的制备与表征

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摘要：

利用物理气相沉积法，在氩气和氧气保护下将氧化铋粉末在水平管式炉中常压加热至1050℃，然后降温沉积，在硅衬底上得到了大量具有规则矩形外形的二维纳米结构——片状氧化铋.纳米片的长约1200nm，宽约300nm，厚约10～15nm.采用扫描电镜（SEM），X-ray能谱仪（EDS）、高分辨透射电镜(HRTEM)等测试手段分析了样品的形貌、成分及微结构.研究分析了衬底放置方式对产物沉积量的影响.

关键词： 物理气相沉积法 氧化铋 二维纳米结构 表征

Preparation and characterization of two-dimensional Bi_2O_3 nanoslices

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Abstract:

Employing the physical vapor deposition method, Bi_2O_3 powder was heated to 1050℃ at normal pressure in a horizontal tube furnace with the protection of argon gas and oxygen, and then cooled and deposited naturally. A great deal of two-dimensional nanostructure Bi_2O_3 nanoslices with regular rectangle morphologies were obtained on the silicon substrate. The length, width and thickness of the obtained nanoslice are respectively about 1200nm, the 300nm, and 10～15nm. The composition, morphology and microstructure of Bi_2O_3 nanomaterials were characterized by energy dispersive X-ray spectroscopy (EDS), scanning electron microscopy (SEM) and high resolution transmission electronic microscope (HRTEM). The influence of the substrate placing way to the quantity of depositions was investigated.

Keywords: physical vapor deposition Bi_2O_3 two-dimensional nanostructures characterization

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