

石墨烯技术及产业发展现状

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作者	单位
张芳	中国科学技术部高技术研究发展中心
史冬梅	中国科学技术部高技术研究发展中心
暴宁钟	南京工业大学
任文才	中国科学院金属研究所

中文摘要:石墨烯(graphene)是一种新型的碳基材料,具有极好的结晶性及电学性能,在能源、半导体、生物医学等多个领域具有良好的应用前景,已成为发达国家必争的战略制高点。美国在全球率先将石墨烯研究上升为国家发展战略,欧盟投入巨资资助开发石墨烯在能源和数字技术等领域的应用,英国拟投资6100万英镑建立国家石墨烯研究所,日本、韩国也持续开展了一系列与石墨烯相关的研究和应用。我国对石墨烯材料的基础研究处于国际领先地位,但在器件制造和应用方面仍很欠缺。我国应加强石墨烯规模化制备技术和改性技术的研究,加强石墨烯的应用研究,并在石墨烯研究方面加强产学研联合研究和国际合作。

中文关键词:石墨烯;碳基材料;二维结构;电学性能

Progress of Graphene Technology and Its Industrial Development

Abstract: Graphene is a new C-based material and has a 2D cellular crystal lattice structure closely packed by single layered C atoms. The graphene has excellent crystallinity and electrical properties, and has a good application prospect in several areas like energy, semiconductor, and biomedicine science. The United States is the first to turn the graphene research into a national strategy; the European Union has invested heavily in graphene research and its application in the field of energy and digital technology; the UK will input 61 million pounds to set up the graphene research institute; Japan and South Korea have carried out many studies related to graphene application. China has taken the lead in basic research of graphene, however, it fall behind the developed countries in graphene-based device and its application. In this article, analysis is made to the technologies and industrial development of graphene in China and other countries, and some suggestions for development of graphene in China are proposed.

keywords: graphene; C-based material; 2D graphite; electrical properties

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邮政编码：100045 电子邮件：liaowang69@126.com

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