



中国科学院半导体研究所

黄昆半导体科学技术论坛

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报告题目: Recent Advances of 2D Metal-Complex Nanosheets

报 告 人: 黄维扬 (香港理工大学理学院院长、讲座教授)

个人简介: 1992年获香港大学化学专业一级荣誉学士学位; 1995年获香港大学博士学位; 1996至1997分别于美国德州农工大学和英国剑桥大学从事博士后研究。现为香港化学会主席; 长期专注于无机化学中金属有机聚合物/配合物的设计、合成及其光电应用等领域的基础与应用研究。获英国皇家化学会会士、香港裘槎基金会优秀科研者奖、英国皇家化学会过渡金属化学奖(首位华人)、国家教育部高校自然科学奖一等奖(排名第一)、亚洲化学会联合会杰出年青化学家奖、何梁何利基金科学与技术创新奖、国家自然科学奖二等奖(排名第一)、日本光化学学会亚洲及泛洋洲光化学科学家讲学奖、香港研资局高级研究学者奖、国家教育部长江学者讲座教授和香港青年科学院创院院士称号等奖项或称号。



报告摘要: Nanosheet materials have attracted significant attention because of their unique electronic and physical properties, which derive from their two-dimensional (2D) nature. Graphene and other 2D inorganic sheet assemblies of metal chalcogenides are prominent nanosheet materials which are widely exploited in electronics, photonics, and spintronics technologies, because 2D materials possess close affinity with those used in the silicon-based electronics. Most of these nanosheets have been synthesized via exfoliation of bulk layered materials, which is a top-down method. In this lecture, the bottom-up synthesis of some functional 2D metal complex nanosheets from molecular precursors will be presented which can be monometallic or bimetallic in nature. Both single-layer and multilayer 2D nanosheets will be developed depending on the fabrication method (i.e. gas-liquid or liquid-liquid interfacial synthesis). The ligand structure can be easily altered in terms of the spacer group and the number of arms. The metal complexes can be modified to show significant π -conjugation and intense absorptions in the visible and near-infrared region, which will be useful for the construction of photoresponsive and semiconductive nanosheets. The resulting nanosheets are shown to find wide applications in optoelectronics and catalysis.

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地 点: 中国科学院半导体研究所3号楼320会议室

联系人: 尚雅轩 82304453