

# 凝聚态物理-北京大学论坛

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## Graphene and beyond: Synthesis and applications

任文才研究员

报告人简介: 中国科学院金属研究所研究员, 国家杰出青年科学基金获得者, 科技部中青年科技创新领军人才和国家“万人计划”科技创新领军人才入选者。主要从事石墨烯等二维晶体材料研究, 在石墨烯材料的控制制备及其光电、储能、复合材料等应用以及二维过渡金属碳化物等新型二维晶体材料探索方面取得了系列创新性成果, 并实现了石墨烯粉体的规模制备产业化。迄今在Nature Materials等期刊发表SCI论文90多篇, 被SCI引用12,000多次; 申请国家发明专利和PCT专利60余项, 其中获授权20余项(含4项国际专利), 1项已实施。曾获中国青年科技奖、中国科学院青年科学家奖、辽宁省自然科学一等奖、国家自然科学基金二等奖等。

摘要: Two-dimensional (2D) materials show many fascinating properties and a wide range of potential applications. In this talk, I will first give an overview about our progress on the controlled synthesis and applications of graphene materials, including chemical vapor deposition (CVD) growth of large-area high-quality graphene single crystals, films and their applications in flexible touch panels and OLEDs, large-scale production of highly conductive pristine graphene nanosheets by intercalation-exfoliation method and their applications in lithium ion batteries (LIBs), lithium sulfur batteries, anti-corrosion coatings, and thermal management, and CVD growth of highly conductive flexible three-dimensional graphene network structures and their applications in elastic conductors, flexible LIBs with ultrafast charge and discharge rates, lightweight and flexible electromagnetic interference shielding materials, and high-energy lithium sulfur batteries. Then, I will introduce our recent progress on the CVD growth and applications of high-quality uniform monolayer  $WS_2$  and 2D transition metal carbide superconducting crystals.

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报告地点:北京大学物理大楼西202报告厅

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