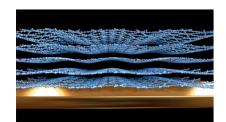
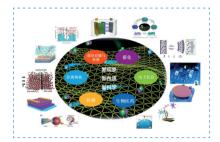
# Research Group of Studies On Two-Dimensional Carbon Graphdiyne Institute of Chemistry, Chinese Academy of Sciences



在国际上首次制备了石墨炔. 开创了石墨炔新领域 Graphdiyne was synthesized for the first time internationally, created the new research field of graphdiyne.



石墨炔优异的物理化学性质

The superior physical and chemical properties of graphdiyne

Major contributors

Liu Huibiao Xue Yurui Huang Changshui

Li Yongjun

Zuo Zicheng

Jiu Tonggang Wang Ning Li Guoxing

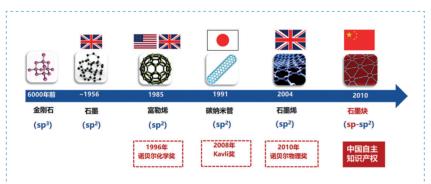
He Feng

The research group has made pioneering work in research of graphdiyne, opened up new areas of international carbon material research, and has led the development of the field. They found carbon new allotrope-graphdiyne with sp and sp²-hybridized of two-dimension for the first time internationally, creating a new member of the carbon material family. It has opened up a precedent for synthesis of all-carbon materials by synthesis of chemistry at low temperature and ambient pressure. A series of original achievements have been obtained in the fields of catalysis, energy, photoelectric and the new model conversion of materials.

# Outstanding contributors of this research group

# Li Yuliang

He has created a new field of synthetic chemistry research of all-carbon materials internationally, discovered graphdiyne, achieved a series of original innovational results, and opened up the new direction on the research of carbon materials.



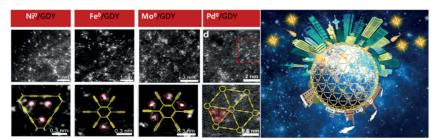
碳材料发展历程

Development history of carbon materials

# 溶液法 燃烧法 自裂分法 电化学法 原位法 原位法 原域法 两相法 圆相法

## 建立了石墨炔系统合成方法

Systematic synthetic methods of graphdiyne were established



石墨炔过渡金属原子催化剂

Graphdiyne based transition metal atomic catalysts

研究集体照片 Group photo

# 二维碳石墨炔研究集体

推荐单位:中国科学院化学研究所

# 研究集体主要科技贡献:

该研究集体在石墨炔研究方面作出了开创性工作,开拓了国际上碳材料研究的新领域,并一直引领该领域的发展。在国际上首次发现了以 sp 和 sp² 两种杂化态存在的碳新同素异形体 – 石墨炔,使碳材料家族诞生了一个新成员,开辟了人工低温、常压化学合成全碳材料的先例。在石墨炔的催化、能源、光电和新模式物质转化与转换等领域获得了系列原创性成果。



王良 Li Vuliana

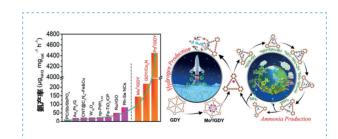
# 研究集体突出贡献者

李玉良 中国科学院化学研究所

主要科技贡献:在国际上开拓了全碳材料合成化学研究新领域,发现了石墨炔,获得系列原创性成果,开创了碳材料研究新方向。

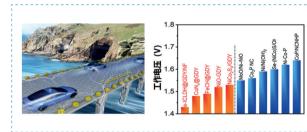
# 研究集体主要完成者

刘辉彪 薛玉瑞 黄长水 李勇军 左自成 酒同钢 王 宁 李国兴 何 峰



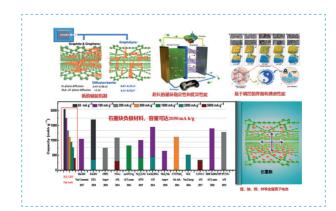
石墨炔原子催化剂在固氮制氨中变革性突破

The transformative breakthrough of graphdiyne based atomic catalysis in nitrogen fixation.

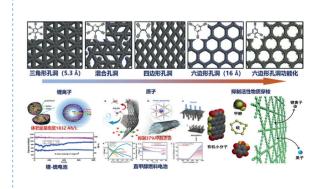


石墨炔基催化剂在全水解中的应用

Application on graphdiyne-based catalysts in full water splitting.



石墨炔在储能中的高效利用 Efficient utilization of graphdiyne in energy storage



石墨炔在储能中离子、质子等的高效选择性传输 Efficient and selective transport of ions and protons etc. in energy storage