



纳米碳材料的结构控制制备方法研究



State Key Laboratory
of Chemical Resource Engineering

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时 间：2018-03-14（周三）03:00 PM-04:30 PM

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报告内容：

Direct growth single-walled carbon nanotubes (SWNTs) with controlled structures still remains many challenges. In this talk, we will focus on the controlled growth of SWNTs arrays with ultra-high density, high ratio semiconducting properties and special chiral angles. For the SWNTs arrays with ultra-high density, Trojan catalysts (released from substrate) was developed and the density can be as high as 150 tubes/ μm . For the SWNTs arrays with semiconducting properties, oxides catalysts with oxygen vacancy, bimetal catalysts and uniform Mo_2C catalyst were used to grow semiconducting SWNTs arrays and ratio of semiconducting tubes can be higher than 95%. For the SWNTs arrays with special chiral angles, it is based on a consideration of nanotube/catalyst interfacial thermodynamics determined by symmetry, and the kinetic growth rates set by the number of kinks. Using these strategies, horizontally aligned metallic ((12, 6), abundance >90%) and semiconducting ((8, 4), abundance >80%) SWNT arrays with an average density higher than 20 tubes/ μm and 10 tubes/ μm , respectively, were successfully obtained on uniform solid catalysts.

个人简介：

张 锦，男，北京大学教授、博士生导师，国家杰出青年基金获得者、教育部长江学者特聘教授、英国皇家化学学会会士、中组部万人计划科技创新领军人才入选者、科技部重点研发计划项目首席科学家。1997年12月获兰州大学和北京大学联合培养理学博士学位。1998—2000年在英国利兹大学从事博士后研究。主要从事纳米碳材料的控制制备及其拉曼光谱学研究，在Nature 和Nat. Mater.等刊物发表论文260余篇，获授权专利20余项。荣获国家自然科学奖二等奖、全国优秀博士学位论文指导教师、中国化学会青年化学奖、教育部“新世纪优秀人才资助计划”等和北京大学“十佳”导师等奖励。现任北京大学化学学院副院长、北京石墨烯研究院副院长和北京大学纳米化学研究中心副主任。兼任中国化学会理事、《Nano Res.》、《化学学报》、《物理化学学报》和《光散射学报》的编委。

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