



Horizontally aligned carbon nanotube arrays: growth mechanism, controlled synthesis, characterization, properties and applications



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内容简介：

Carbon nanotubes (CNTs) have attracted worldwide research interest in the past two decades owing to their extraordinary properties and wide applications in numerous fields. Among various types of CNTs, the horizontally aligned CNT (HACNT) arrays, which refer to CNTs grown on flat substrates and parallel with each other with large intertube distances and lengths up to centimeters, show many advantages due to their perfect structures and extraordinary mechanical, thermal and electrical properties. HACNTs show great potential as building blocks for transparent displays, nano electronics, quantum lines, field emission transistors, superstrong tethers, aeronautics & astronics materials, and even space elevators. During the past years, great progress has been achieved on the HACNT research. In this talk, I will systematically review the growth mechanism, structure control, morphology control, characterization, manipulation, properties, and applications of HACNTs. Finally, I present a summary and outlook for the future development of HACNTs. I hope these advances will shed light on the future study of HACNTs.

报告人简介：

张如范，清华大学化工系教研系列助理教授，博士生导师，特别研究员，中国颗粒学会青年理事。2005-2009年本科就读于中国石油大学（北京）化工学院，2009-2014年博士就读于清华大学化工系，导师魏飞教授，2014-2017年在斯坦福大学材料系崔屹教授组从事博士后研究，2018年1月起在清华大学化工系工作。主要从事纳米碳材料、功能纳米材料制备等方面的研究工作。截止目前，共发表论文44篇；其中，一作/通讯论文15篇，包括Nature Nanotechnology 2篇、Nature Communications 1篇、Advanced Materials 2篇、Nano Letters 3篇、Chemical Society Reviews、Accounts of Chemical Research、ACS Nano、Carbon、Nanoscale、Nano Research各1篇；其他合作论文28篇，总引用2800余次，H因子20；获6项授权发明专利；独立或参与撰写5部学术专著。曾获瑞士Chorafas青年研究奖、教育部自然科学奖一等奖（排名5/10）、教育部博士研究生学术新人奖、清华大学研究生特等奖学金、清华大学研究生学术新秀、北京市优秀毕业生、清华大学优秀博士论文一等奖、国家奖学金、巴斯夫优秀博士生特等奖等在内的多种重要荣誉和奖励。