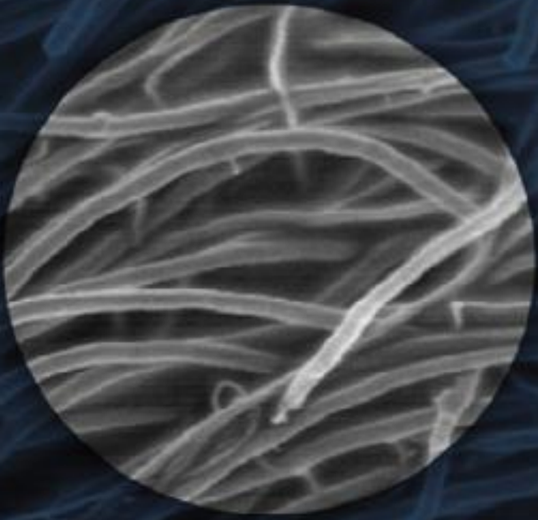
High quality CNTs from a benchtop system.

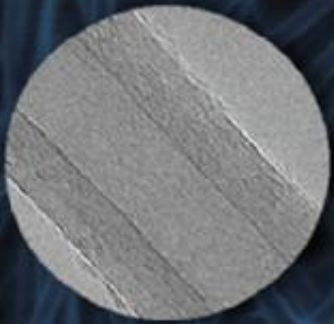
NANOTECH

innovations

GROW YOUR OWN NANOTUBES



- Easy to install and operate in your lab
- Single-step process
- No catalyst pre-deposition
- Affordable for education, research and product development



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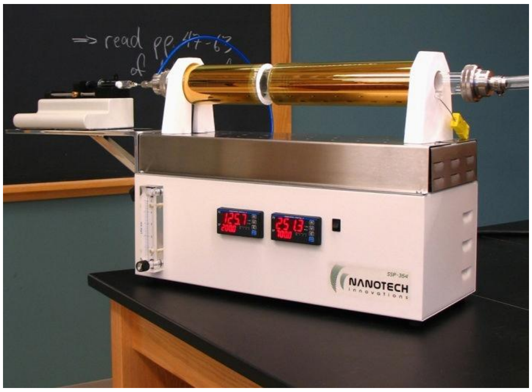
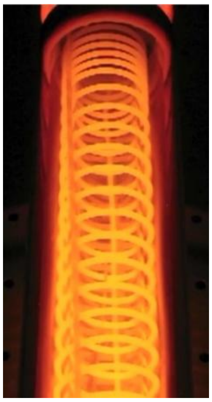
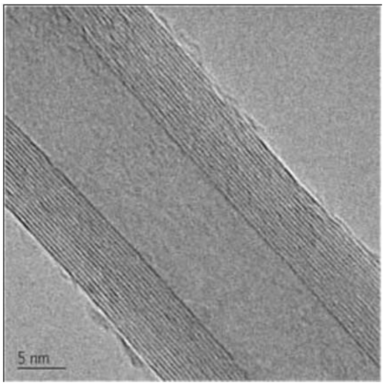
Grow Your Own High Quality CNTs from a benchtop system in your lab !

台式高纯度碳纳米管CVD制备炉

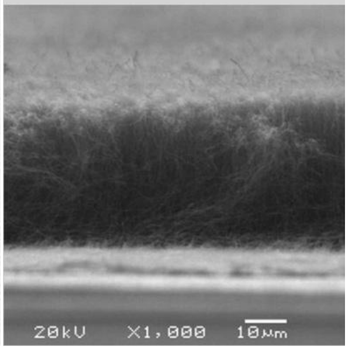


- 美国NASA最新专利CNT制备技术
- 易于安装和操作，单步制备过程
- 单一来源前体，无需催化剂预沉积
- 小于4%催化剂杂质，小于2%不定形非晶形碳
- 拉曼峰强度表明完美的纯度和侧壁完整性
- 无需生成后净化所需的时间和精力
- 桌面设计非常适合科研，教育和产品研发

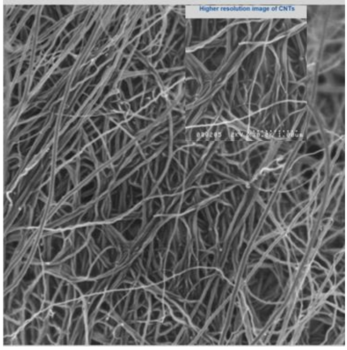




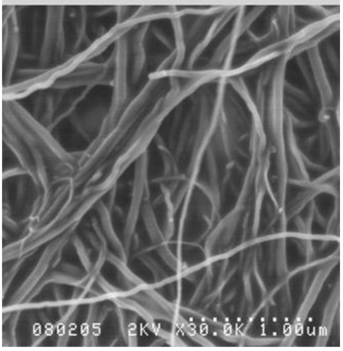
SEM image of CNT array



SEM image of CNTs

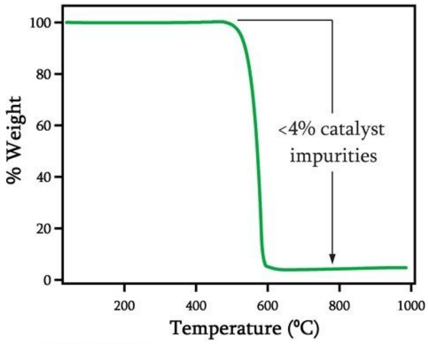


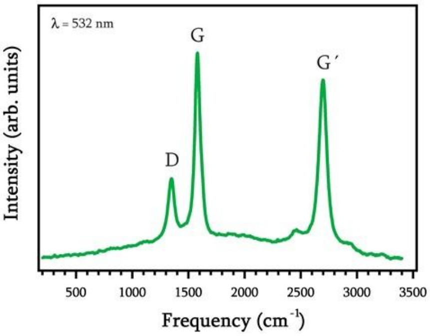
Higher resolution image of CNTs



SSP-354 碳纳米管制备炉技术起源于美国NASA （美国航空航天局）的格伦碳纳米管研究中心。这项技术能够生产出高纯度、低缺陷密度的碳纳米管（小于4%铁催化剂杂质和小于2% 不定形非晶形碳）。该系统能轻松生产出1~100纳米直径的单壁或多壁的碳纳米管。而且有别于 Arc discharge、Laser ablation、CVD这三种生产方式需要预催化的模式。 仪器操作步骤简单无需预催化，桌面放置，非常适合研究所、大学实验室操作使用。

碳纳米管（CNTs）是制造未来产品的最重要原材料之一。他们具有石墨薄膜的传导性和强度在纳米尺度圆柱里展示极端的长度-直径纵横比。因此，碳纳米管将继续保持对材料，电子，医疗和能源领域的影响力。我们采用专利技术，利用有机金属前驱体为碳纳米管合成提供所必需的催化核，只需将其装入注入器，然后开始，一种载气和可调的热梯度为在仪器的最热区域里的气体扩散和生长提供了最佳条件。此过程不需要的催化剂预沉积和价格昂贵的基材。





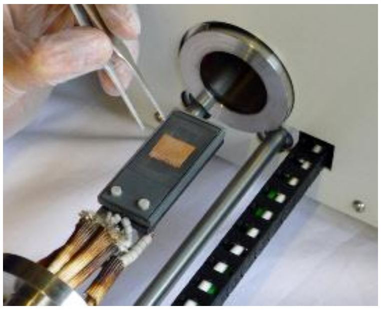
系统减轻生长后净化通常所需的时间和精力。制备的原始碳纳米管含催化剂残留和无定形碳杂质量低和侧壁完整性，正如热重分析，拉曼光谱和电镜系统测试证明的。

nanoCVD

High Throughput High Quality Graphene & SWCNTs synthesis system

桌上型石墨烯、单臂碳纳米管生成装置

- ***Benchtop CVD systems with precise control of conditions***
- ***Reproducible synthesis with process times <30 mins***
- ***1100 °C maximum temperature in 3 mins with ±1°C***
- ***Fully automatic, user-friendly, touch-screen interface***
- ***Create/save multiple growth programs***
- ***Cold-walled reaction chamber***
- ***Low thermal-mass heater/stage assembly***
- ***Equipped for easy servicing and cleanroom compatible***



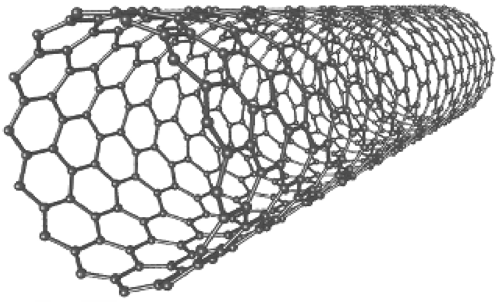

Program Control: 14
Setpoint: 4
Setpoint time (s): 98
Setpoint total time (s): 120

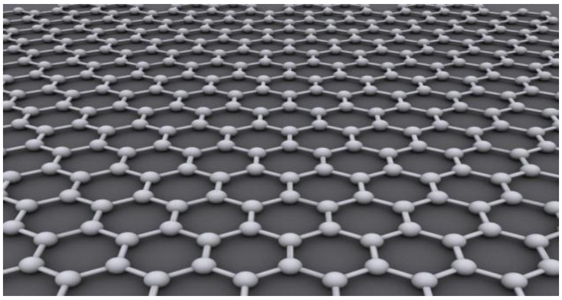
Heater temp. (C):	975	Ar flow (sccm):	71.0
Chamber temp. (C):	76	H2 flow (sccm):	8.9
Pressure (Torr):	5.0	CH4 flow (sccm):	8.9

- ***Fully automatic***
- ***Comprehensive safety features***
- ***20x40 mm^2 maximum substrate size***
- ***5 inch operate touch screen***
- ***PC connection for data-logging***

{**nanoCVD-8N**} for SWCNT

{**nanoCVD-8G**} for Graphene



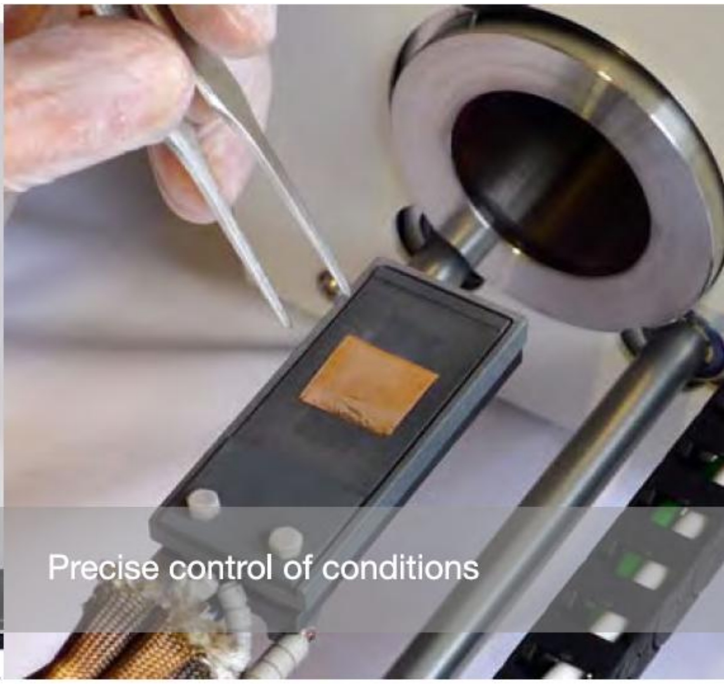


溢鑫科創

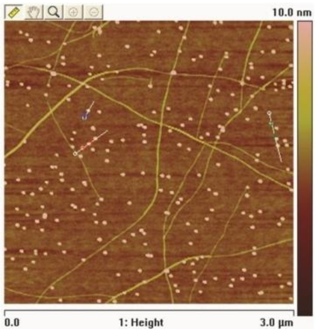
网站:www.nano-em.com　邮箱:info@nano-em.com

*nanoCVD systems are also ideal for **vacuum annealing** of samples. E.g., for effective removal of PMMA contamination following transfer of Graphene from substrate foils to application surfaces.*

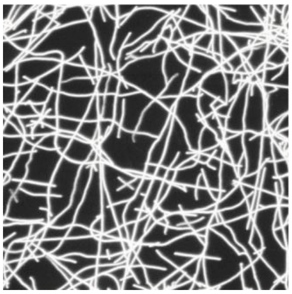

Ultra-compact, easy to use


Precise control of conditions

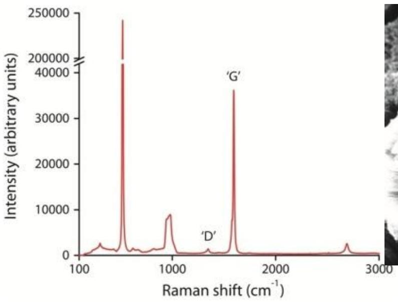
nanoCVD-8N CNT做成的结果解析



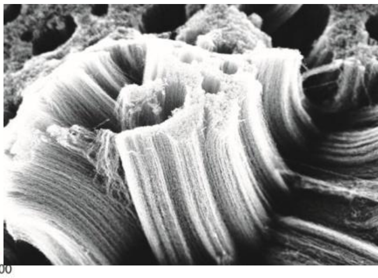
AFM Low-density 2D network



SEM Low-density 2D network



Typical Raman spectrum



nanoCVD-8N SEM image of a "SWNT Forests image width 24um

○ nanoCVD-8N *Growth Schemes*

Substrates	SiO_2 /Si, Al_2O_3 /Si, Si_3N_3
Catalysts	Fe, Co, Ni films or dispersed nanoparticles.
Feedstocks	Ethanol, CH_4, C_2H_4, C_2H_2

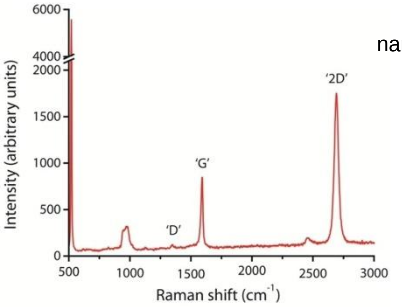
○ nanoCVD-8N *Network morphologies*

Random	Multiply interconnected SWNTs
Aligned	Parallel SWNTs
Forests	Vertically stacked SWNTs

nanoCVD-8G Graphene做成的结果解析

○ nanoCVD-8G *Growth Schemes*

Substrates	Cu, Ni, etc…(Films, or Foils)
Feedstocks	CH_4, C_2H_4 , Solids (PMMA), etc
Process Gases	H2, Ar, N2, etc



Typical Raman spectrum
nanoCVD Graphene on SiO_2/Si