

# 各種CNTの観察と測定 II

Various Types of CNT Observations and Measurements: #2

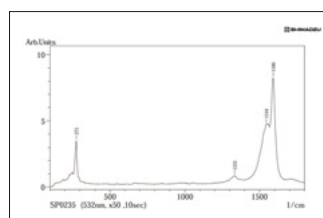
## 試料：HiPco® 単層カーボンナノチューブ (Super Pureグレード)

Sample: HiPco® single-walled carbon nanotubes (Super Pure grade)

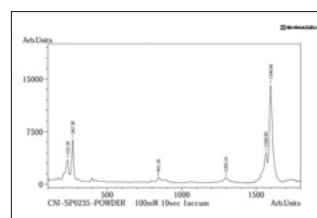
カーボンナノテクノロジーズ社製SWNTの観察、測定例です。

This is an example of observation and measurement of SWNT, produced by Carbon Nanotechnologies Inc.

### ラマン分光 (HoloProbe モニタリングシステム) / Raman Scattering

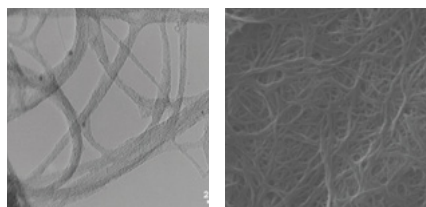


532nm励起のラマンスペクトル  
Raman spectrum at 532 nm excitation



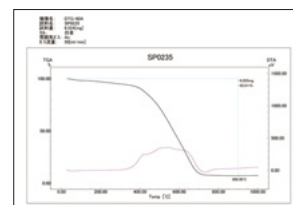
785nm励起のラマンスペクトル  
Raman spectrum at 785 nm excitation

### TEM・SEM



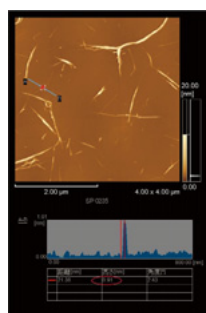
TEM・SEMによるSWNTの観察  
SWNT observation by TEM and SEM

### 熱重量 (DTG-60A) / Thermogravimetry



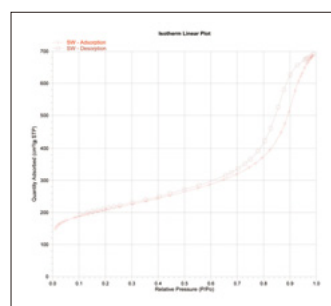
DTGによる熱重量測定  
Thermogravimetric measurement by DTG

### SPM (SPM-9600)



SPMによるSWNTの観察と直径の見積もり  
SWNT observation and estimate of diameter by SPM

### 比表面積/細孔分布 (TriStar 3000形) / Specific Surface Area/Porous Distribution



前処理装置：バキュープレップ061形  
前処理条件：300°Cで5時間、真空排気  
吸着ガス：窒素ガス (液体窒素温度)

Pretreatment equipment: Vacu-prep 061  
Pretreatment conditions :  
Vacuum exhaust for 5 hours at 300°C  
Absorption gas :  
Nitrogen (liquid nitrogen temperature)

試料名	BET比表面積(m <sup>2</sup> /g)	細孔容積(cm <sup>3</sup> /g)
Sample Name	BET Specific Surface Area (m <sup>2</sup> /g)	Porous Volume (cm <sup>3</sup> /g)
SWNT	751	1.05995

定容法 (ガス吸着法) による比表面積/細孔分布測定  
Specific surface area/porous distribution measurement via constant volume (gas absorption) method

試料ご提供：住友商事株式会社電子材部 (米国CNI社) 殿  
Sample provided by: Electronic Materials & Equipment Department Sumitomo Corporation (Carbon Nanotechnologies Inc. in the U.S.)