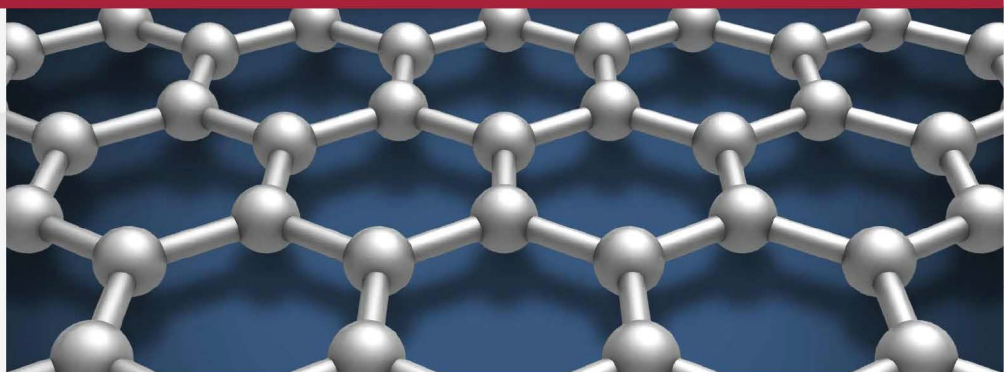


Graphene Characterization Service



Materials Analysis



Why Work with Us?

- 
Expertise in Graphene Analysis
 Highly experienced with advanced technology
- 
Affordable Price
 Up to 40% lower than industry pricing
- 
Free Consultation
 Before and after service
- 
In-Depth Data Interpretation
 As a second opinion to yours
- 
Quality Assurance Program
 Free remeasurement if not satisfied

Advanced Graphene Applications



Objective

- Surface topography
- Distinguish single vs. multilayer
- Count average number of layers
- Measure atomic layers thicknesses



Solution

- AFM
- Nano-Raman
- XRD
- C_s-TEM*

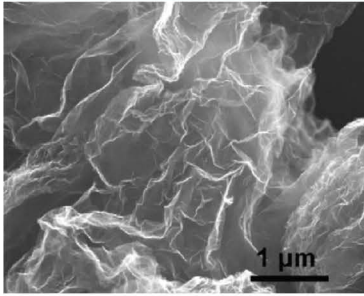
*C_s-TEM: Aberration corrected TEM which has 5x higher resolution than HR-TEM

Graphene Applications

Microscopy	Visualization of graphene from macroscopic to atomic level: 3D-CT, AFM, Dual Beam FIB/SEM, SQUID, SEM, TEM, C _s -TEM
Scattering	Analysis of graphene crystal structure & impurities: ToF SIMS, XRR, XRD, XRF
Chemical Analysis	Quantitative elemental analysis of graphene: d-AES, d-XPS, ToF SIMS, EDS, EELS
Spectroscopy	Characterization of graphene chemical bonding states: Fluorescence, FTIR, Nano-FTIR, Raman, Nano-Raman, UV-VIS
Chromatography	Detection of graphene decomposition products: GC-MS, TGA-GC-MS, IC-MS, HPLC-MS, HPLC-MS-MS, UPLC
Thermal & Mechanical	Measurement of graphene thermal and mechanical properties: Porosimetry, TMA, DSC, TGA, Nano-indentor

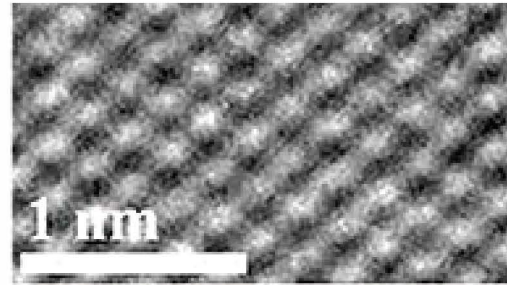


SEM-EDS



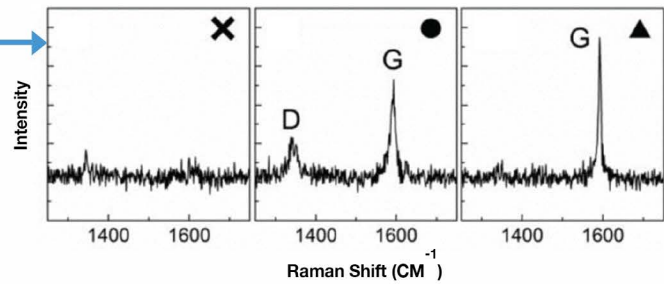
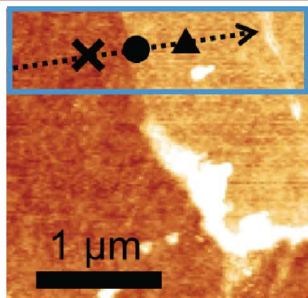
Routine imaging of raw materials

C_s-TEM-STEM-EDS-EELS



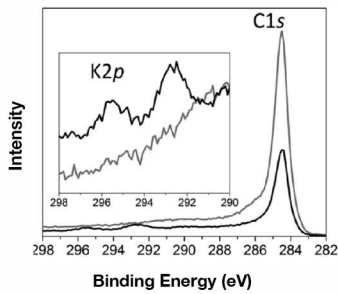
Highest resolution imaging of graphene layer thickness

Nano-Raman



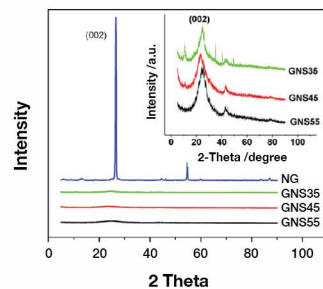
Combined AFM and Raman surface measurement

XPS



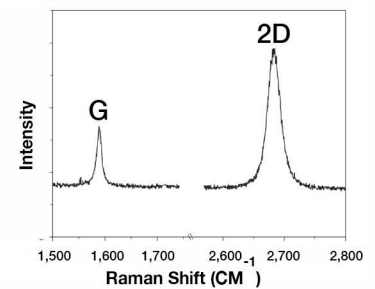
Deconvolutes chemical bonds

XRD



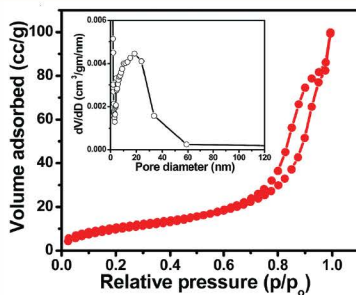
Distinguishes graphite, graphite oxide & graphene

Raman



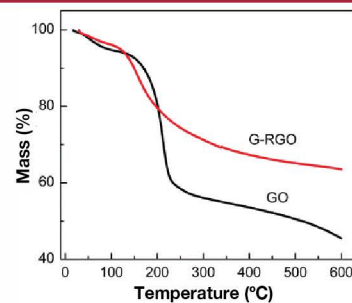
Resolves chemical bonding and D/G ratios

BET



Measures graphene surface area

TGA/DSC



Characterizes thermal properties

Image Credits: SEM and XRD from Du et al (2010), TEM from Pham (2018), Raman and XPS from Xia et al (2009), Nano-Raman from Iwasaki et al (2017), BET from Bera (2016), TGA from Zhang (2012)

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