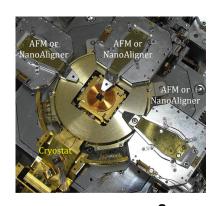


MultiProbe AFM Integrated
With Raman Chemical
NanoCharacterization
For Functional Imaging &
Transport





Down To 10°KAllowing For Mixing &
Matching of AFM &
Nanoaligners

2D & METAMATERIALS AFM MultiProbe PROBE STATIONS

On-line Raman
Temperatures Down To 10°K
Electrical Nanophotonics Thermal
KPM MFM

Magnetic Fields

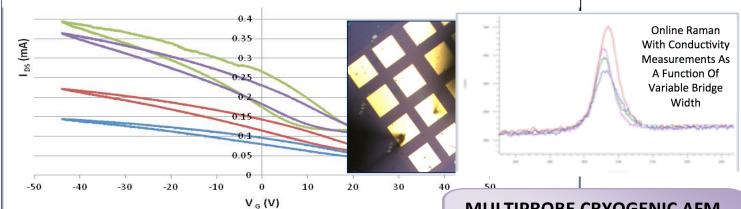




An Integrated Solution To Fully Characterize Nanomaterials Highlighting 2D & Related MetaMaterials

The MultiProbe AFM Probe Station[™] is a must-have tool to probe a variety of properties on a wide range of functional nanomaterials and metamaterials. The plasmonic revolution and the discovery of carbon nanotubes and its 2D counterpart graphene have induced a plethora of discoveries of other inorganic systems with exceptional 2D and other qualities such as MoS₂, WSe₂, BN, TaS₂, NBSe₂, WS₂, HfO₂ etc. These materials are complemented by a variety of inorganic nanotubes and other metamaterials including plasmon supporting metallic surfaces. All of these materials require a combination of structural, chemical and functional nanocharacterization. Conventional probe stations not only do not have capabilities to address such ultrasmall dimensions but also generally lack integration with such techniques as Raman scattering & Raman imaging at the nanoscale (TERS). This is crucial for the type of chemical characterization required to understand these systems. Furthermore, most of these materials have exceptional optical qualities over a broad range of the electromagnetic spectrum that require the new abilities in nano optics provided by near-field scanning optical microscopy (NSOM), scattering NSOM and its variants. Nanonics Multiprobe Systems allow for a unified understanding by not only permitting optical integration but also allowing singular functional and transport insights not capable of being obtained previously. On-line measurement possibilities include nanometric photoconductivity, electron mobility and charge carrier distribution and multiprobe transport, thermal conductivity and transport, quantum Hall related phenomena, apertured and scattering NSOM and contact potential via Kelvin Probe Microscopy all capable of being compared on-line with nanoRaman (TRES) and fluorescence nano-imaging even at 10°K. This combination of singular integrated measurement possibilities are not provided by any other instrument. Furthermore, these measurement modalities can be coupled with imposed magnetic fields and MFM down to cryogenic temperatures.

MultiProbe Conductivity of Graphene Devices Can Now Be Monitored As A Function of Temperature & Raman





MULTIPROBE CRYOGENIC AFM FULLY INTEGRATED WITH RAMAN

A BREAKTHROUGH IN
MEASUREMENTS OF GRAPHENE &
OTHER 2D MATERIALS



Nanonics Imaging Ltd. Har Hotzvim Hi Tech Park 19 Hartum Street, BYNET Bldg Jerusalem 97775, Israel Tel: 972-2-6789573 Fax: 972-2-6480827 Toll Free: 1-800-220-6828 www.nanonics.co.il info@nanonics.co.il



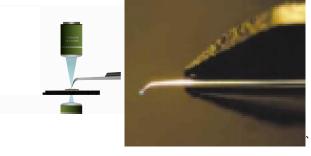
tuning fork NSOM tip Drain Drain Vo Si oxide Source Si

PHOTOCONDUCTIVE NANOIMAGING OF A GRAPHENE TRANSISTOR

MIX & MATCH AFM PROBE HEADS & NANOALIGNERS



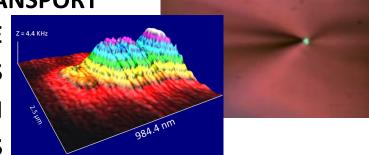




A NanoToolKitTM
OF FUNCTIONAL PROBES
NON-OPTICALLY OBSCURING &
MULTIPROBE ENABLING

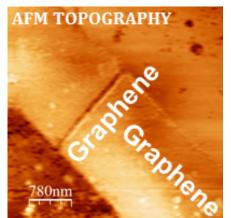
INVESTIGATE AMPLITUDE & PHASE OF ELECTROMAGNETIC NANOTRANSPORT

WITH MULTIPROBE
ON-LINE APERTURELESS
& APERTURED NSOM
FOR EXCITING DARK PLASMONS



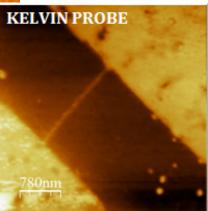




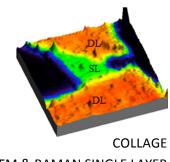


KELVIN PROBE OF GRAPHENE DEVICE

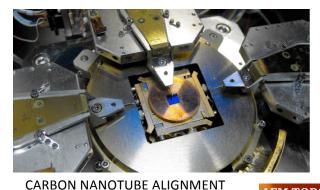








AFM & RAMAN SINGLE LAYER & DOUBLE LAYER GRAPHENE



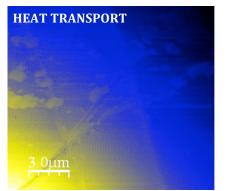
HEAT NANOTRANSPORT

WITH ON-LINE RAMAN 12 I para I perp 8 intensity (45 60 75 90 105 120 135 150 165 180

Angle between line direction and laser polarisation (degrees)

UNLIMITED HORIZONS

AFM TOPOGRAPHY .0µm



NANOHEATER

NANOTHERMOCOUPLE



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