



## Certus

### Scanning Probe Microscope

#### Applications:

- ▶ Scanning Probe Microscopy
- ▶ Integration with various measurement and research systems
- ▶ Upgrade to Certus Optic and Centaur

#### Models:

- ▶ Certus Standard
- ▶ Certus Light

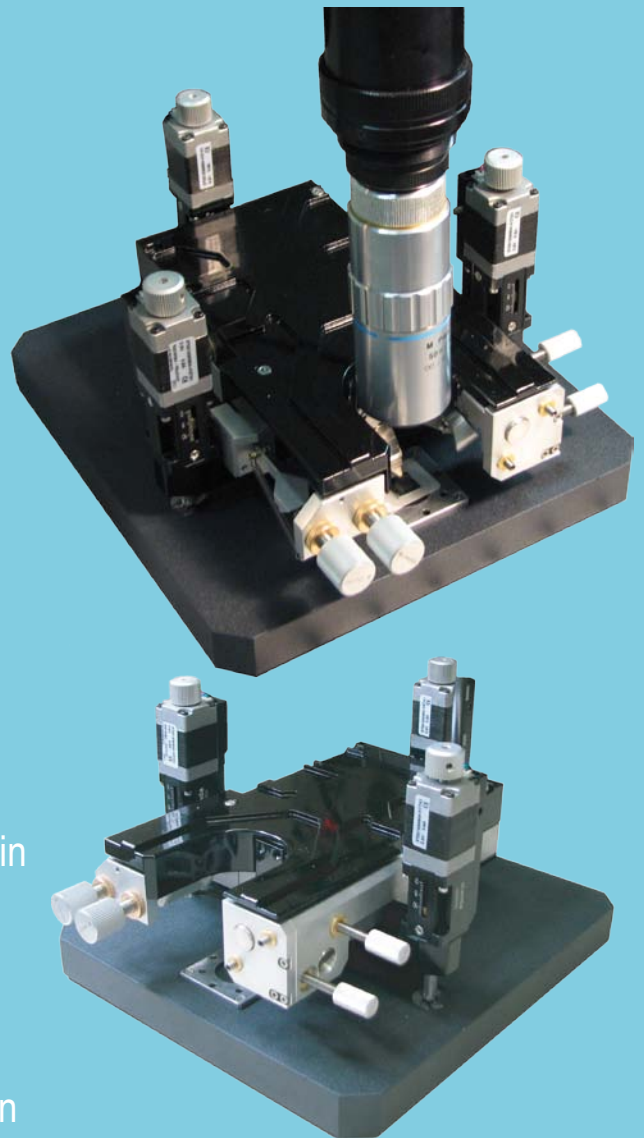
#### Where to use:

- ▶ Biology
- ▶ Chemistry
- ▶ Physics
- ▶ Interdisciplinary researches:
  - ▼ Nanotechnology
  - ▼ Material Science
  - ▼ Pharmaceuticals
  - ▼ Microelectronics
- ▶ Specialists education

- ▶ Our R&D team has 10-years experience in the field of scanning probe microscopy
- ▶ The Certus has flexible configuration for diverse applications.
- ▶ Unique combination of drive electronics system and the Certus software will enable to carry out your experiments in an extremely short time

#### Accessories:

- ▶ DNA-test samples
- ▶ Ultra-sharp cantilevers
- ▶ Atomic smooth substrates
- ▶ Quartz resonator probe with glued tungsten tip (tip radius of curvature is less than 20 nm after the chemical etching and ~ 5 nm after the FIB-etching)



#### Contacts:

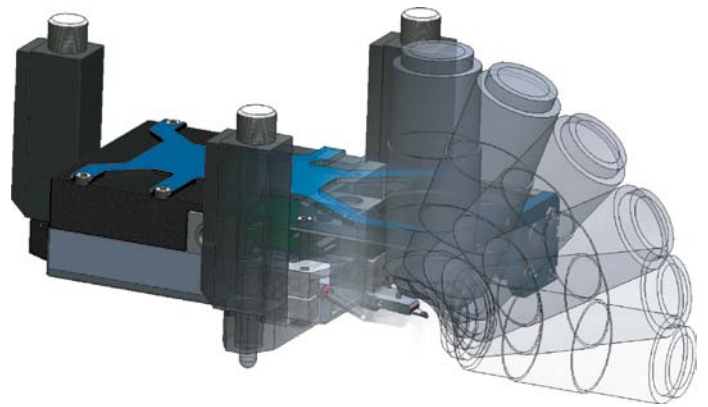
Russia  
141700, Dolgoprudny, Zavodscaya St, 7  
Phone: +7 (495) 642-40-68  
+7 (495) 642-40-67  
Skype: NanoScanTech  
E-mail: info@nanoscantech.ru  
Nano Scan Technology Ltd.



# The Certus SPM features:

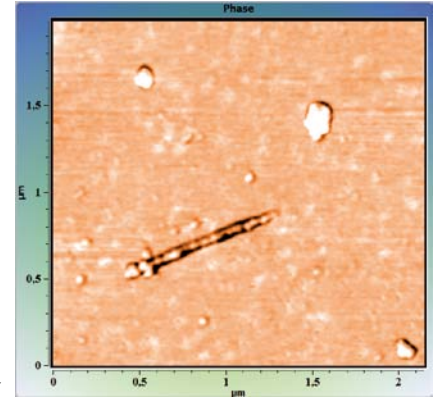
## Scanning head:

- ▶ XYZ – plane scanner with “closed-loop” system based on three capacitance sensors without second order scanning plane distortion
- ▶ Optical convenient design of SPM-head allows to keep out standard microscopic functions, easy viewing of scanning workspace and mounting of additional objective
- ▶ Plane vertical landing of SPM-probe
- ▶ Quick-detachable SPM-probe coupling unit for one-touch changing of SPM procedures: AFM to NSOM for example



## Specification:

- ▶ XYZ range 100x100x15  $\mu\text{m}$
- ▶ Residual nonlinearity 0.003 %.
- ▶ Angle tilting < 0.01  $^\circ$  over the full range
- ▶ Minimum scan step 0.1 nm
- ▶ Plan deviation < 1 nm
- ▶ Temperature drift < 1 nm/h
- ▶ Resonant frequency XY — 1 kHz
- ▶ Resonant frequency Z — 3 kHz
- ▶ Maximum sample size 50x50x30 mm
- ▶ Maximum scanning speed 10 Hz (line/sec)



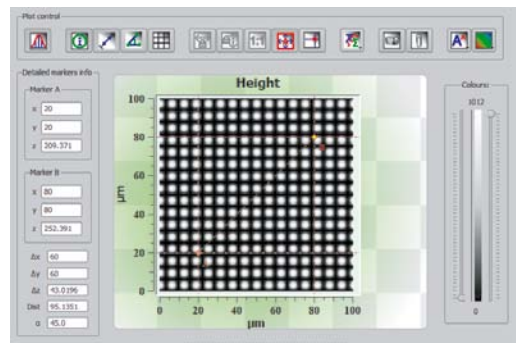
The Phase Image SWNT. ▶

## Controller:

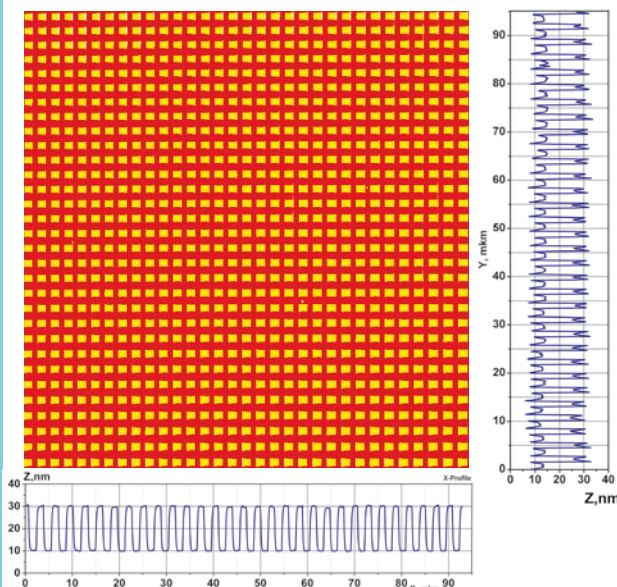
- ▶ Drive digital controller combined USB 2.0 interface
- ▶ Up to 6 channels of piezoelectric scanners with “closed-loop” system control
- ▶ Possibility of carrying out long-continued studies using external detectors



## Software:



- ▶ Modern cross-platform simultaneous driven software for all the Certus units
- ▶ Built-in capabilities of the collected data basic processing and exporting into specialized software



◀ The periodic structure Si/SiO<sub>2</sub> image obtained with AFM contact mode. Dimension scan 100x100  $\mu\text{m}$ , 1024x1024 points. High linearity is clearly observed to prove positioning system performance.

The image DNA molecules on mica, data obtained in tapping mode. Dimension scan 1x1  $\mu\text{m}$ , 512x512 points. ▶

