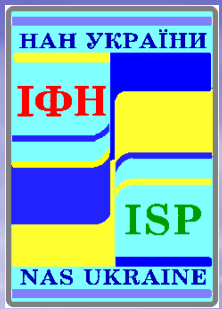


V. Lashkaryov Institute of Semiconductor Physics

National Academy of Sciences
of Ukraine

Athens, 11 April 2008

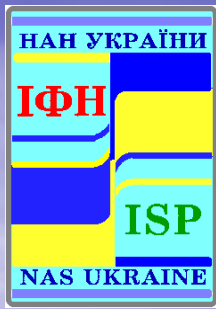




ISP was established in 1960

The staff of our Institute includes now
785 employees:

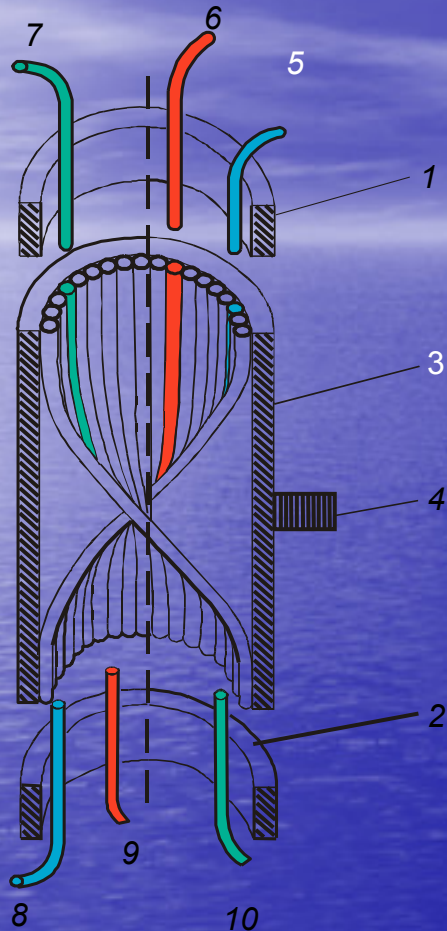
- 2 Academicians
- 9 Corresponding Members of NASU
- 88 Doctors of Sciences (Habilitation)
- 204 Candidates of Sciences (Ph.D.)



The areas of fundamental investigations and scientific-technical works

- physics of semiconductors and semiconductor devices;
- semiconductor materials science;
- optics and spectroscopy;
- optoelectronics;
- sensorics;
- diagnostics and certification of semiconductor materials;
- infrared photoelectronics;
- liquid-crystal and electroluminescence facilities for displays;
- high-temperature electronics;
- semiconductor solar power engineering

Multichannel Optical Rotating Connector

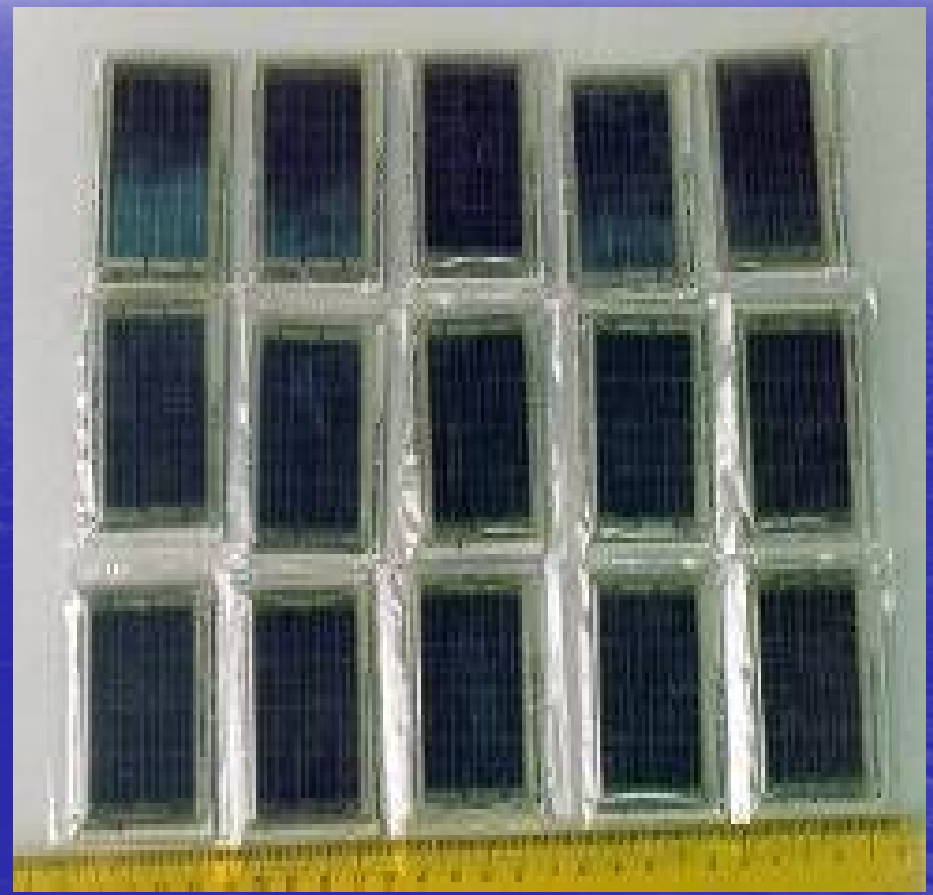
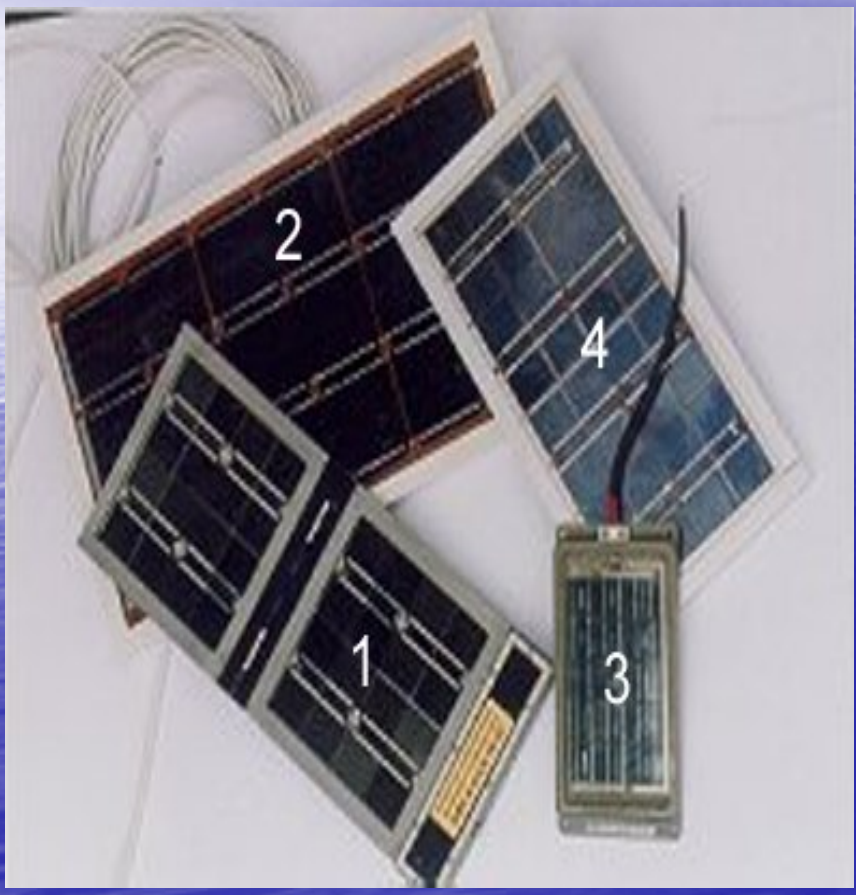


Applications:

- in optical communication systems with rotating components
- radar antenna equipment
- wide angle azimuth field of view scanning systems in visible and IR

Designed for the non-contacting transferring of broadband digital signals to and from a rotating body

Solar cells for ground-based portable electronic facilities and mobile communications



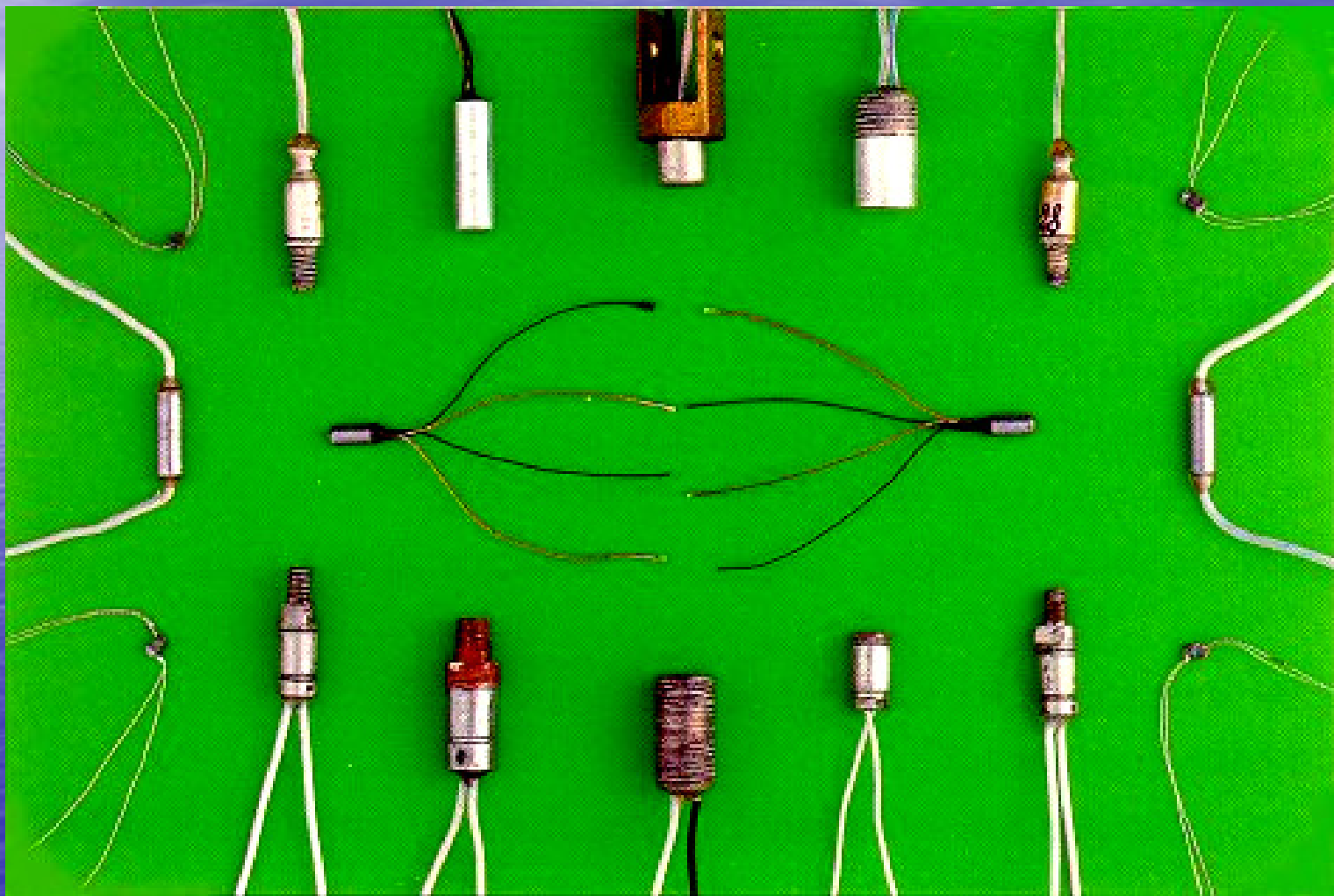
Technological system for helio-welding

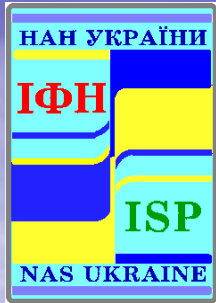


Parameters of solar battery

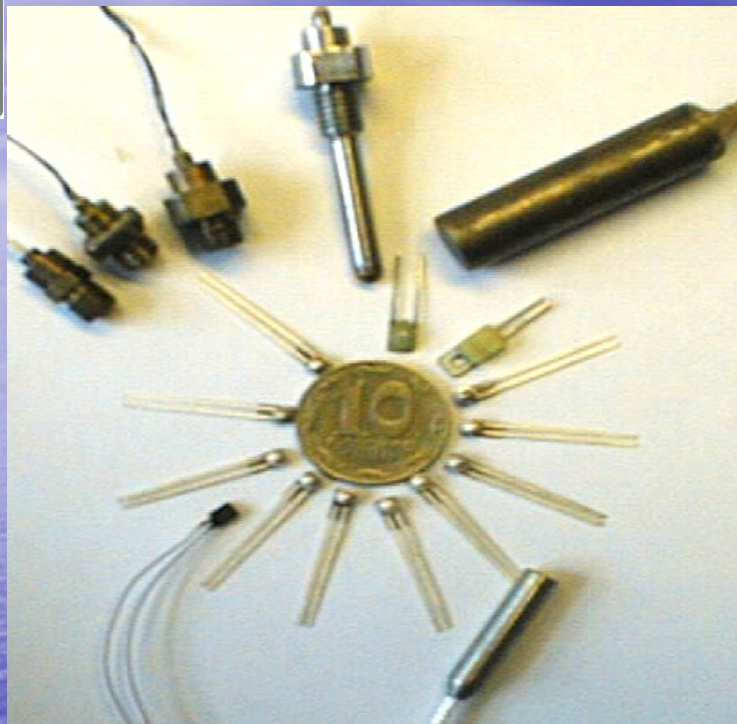
<i>Open-circuit voltage, V</i>	<i>40,0</i>
<i>Short-circuit current, A</i>	<i>5,5</i>
<i>Operating voltage, V</i>	<i>36,0</i>
<i>Operating current, A</i>	<i>5,0</i>
<i>Peak power, W</i>	<i>180</i>
<i>Weight (together with orientation system), kg</i>	<i>20</i>
<i>Number of solar battery modules</i>	<i>10</i>
<i>Coefficient of module efficiency, %</i>	<i>12-14</i>

GERMANIUM RESISTANCE THERMOMETERS FOR CRYOGENIC TEMPERATURES





Diode Temperature Sensors DTS-1



Diode Temperature Sensors DTS-100



Minimized influence of self-heating and noise, enhanced sensitivity in low temperature range, accuracy and reproducibility.

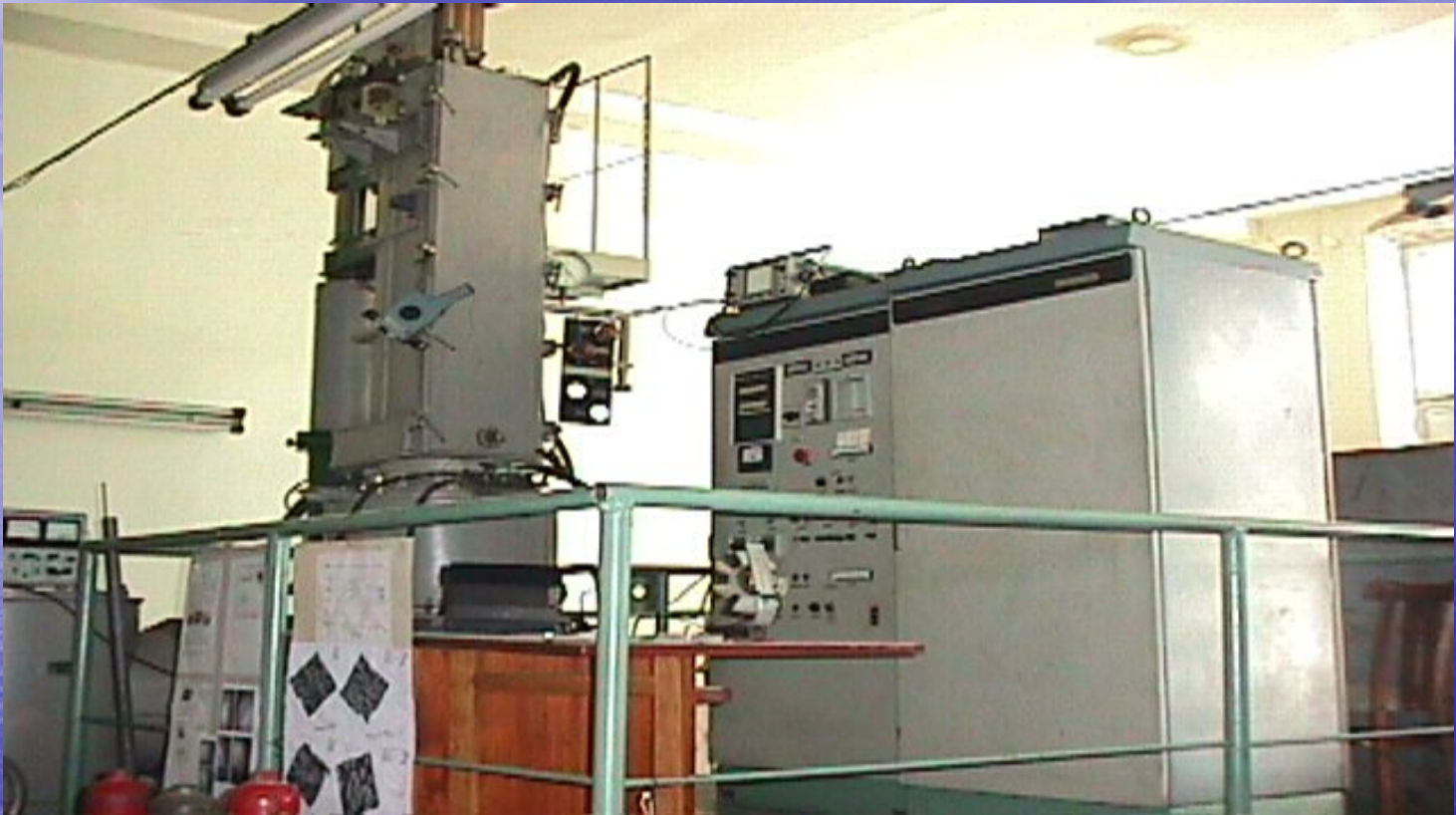
The sensors have provide most reliable and accurate measurements for the objects, which are operating under extreme conditions

Powder electroluminescent indicators

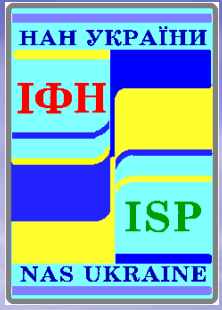
- *Average brightness is 50-60 Candle/m² at 150V and 400 Hz*
- *Based on screen printing and roll technology*
- *Price ~ 50-80\$/m²*



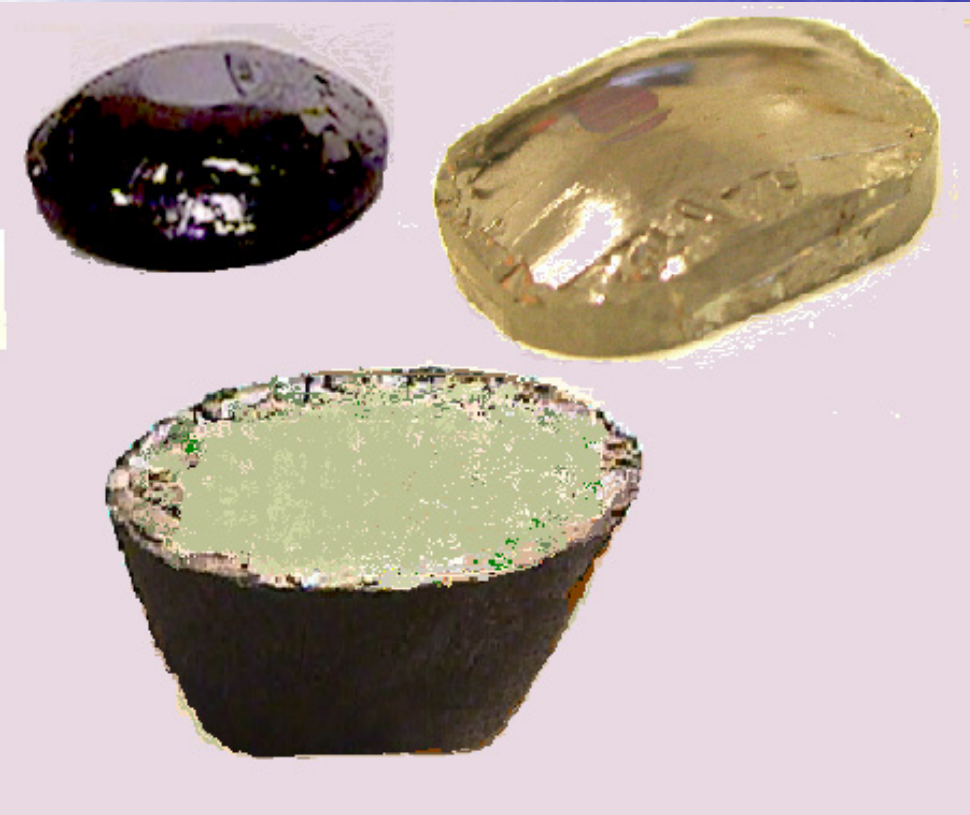
Semiconductor silicon carbide technology



This technology provides amorphous and polycrystalline silicon carbide with grain sizes from 0.02 up to 5 mm. The main impurity is nitrogen with the concentration $<10^{17} \text{ cm}^{-3}$. The basic application is a source of materials for growing single crystals

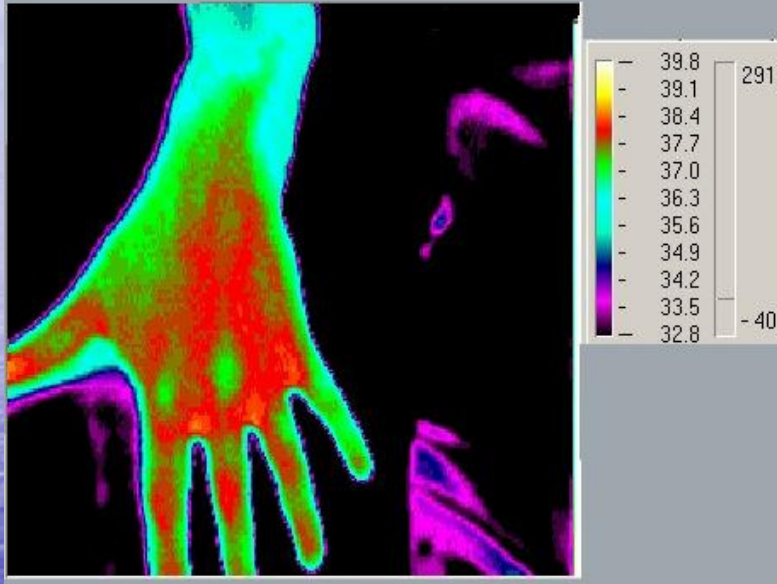


SiC

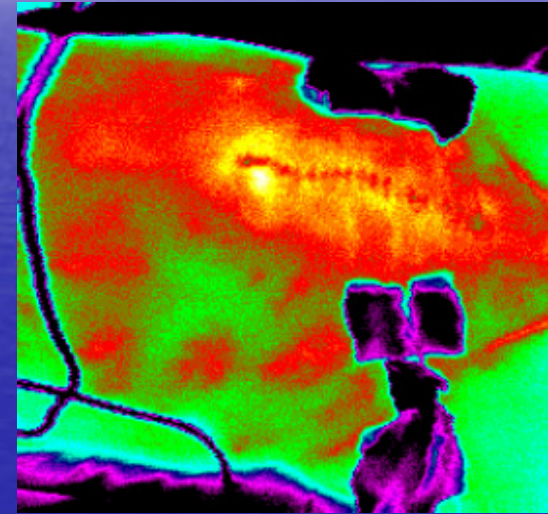


INFRARED IMAGER

The portable infrared imager is designed for detection of thermal (infrared) radiation, subsequent processing of the signal and its real-time visualization on the built-in LCD display or external monitor.

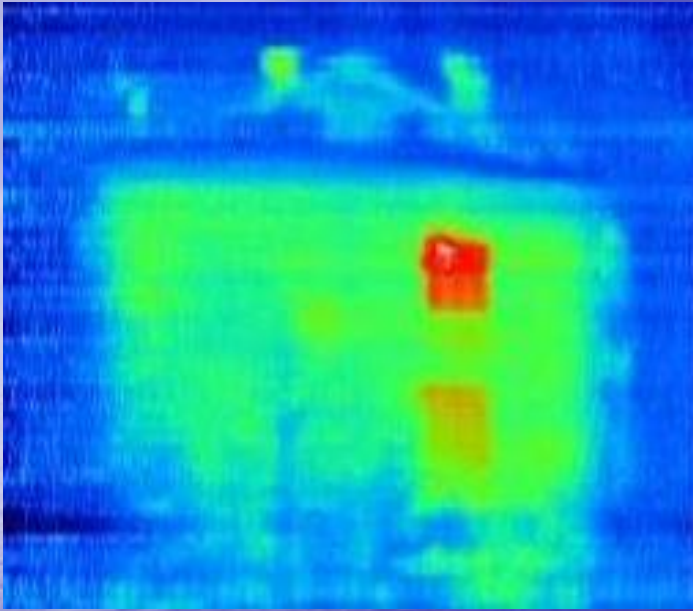


Blood circulation



Inflammation

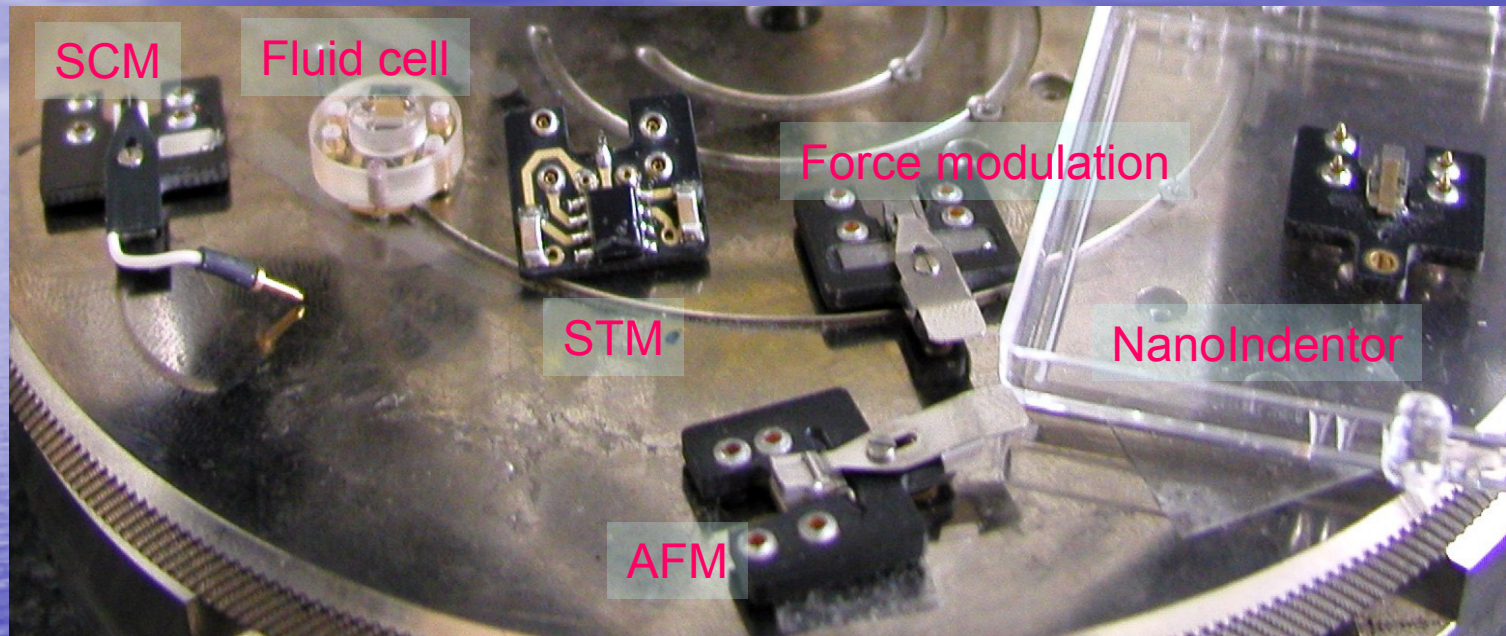
Contactless and intrusionless detection of inflammations, blood circulation anomalies and other pathologies, particularly in oncology (breast cancer, thyroid gland cancer), traumatology, gynaecology, post-operation complications control.



Ecological monitoring and nondestructive control:

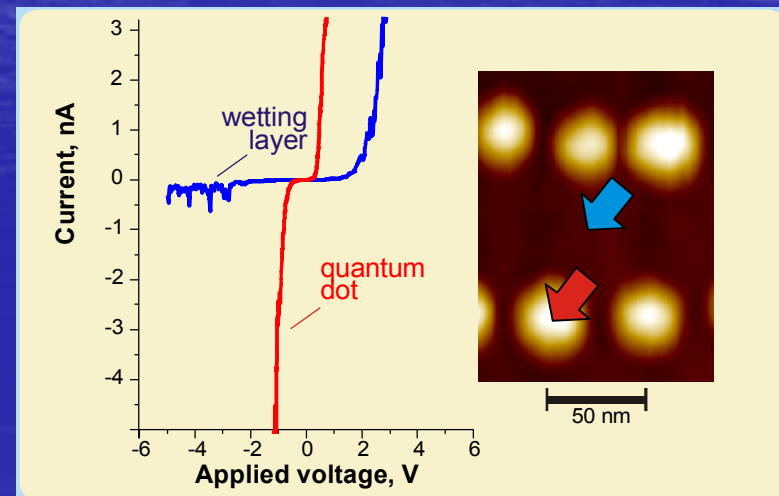
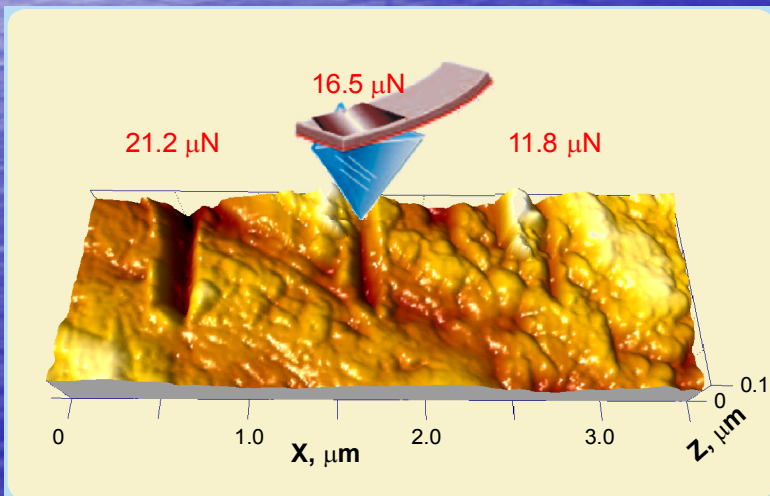
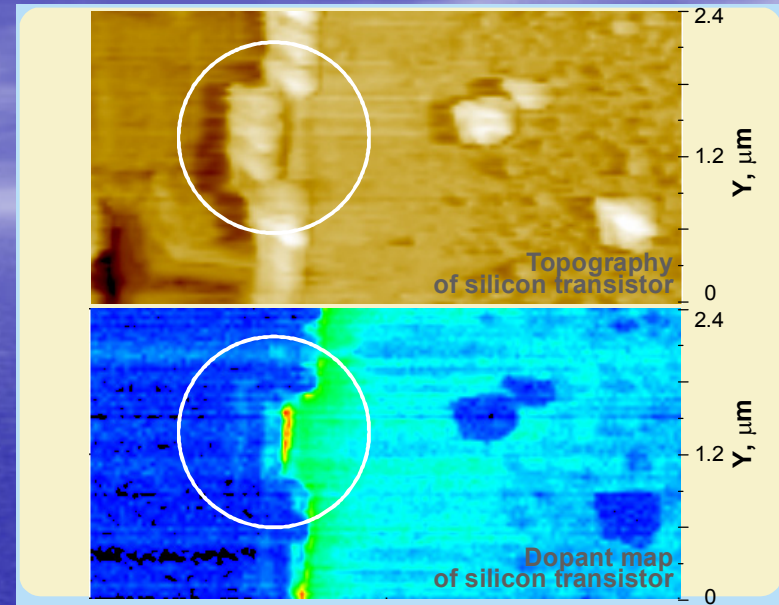
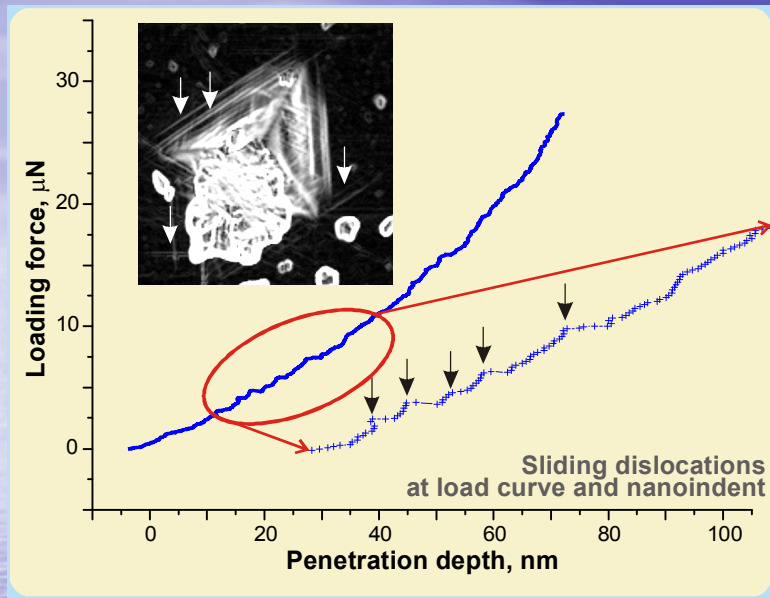
Detection of thermal losses of buildings, pipelines, monitoring of moving engine parts, control of fire-risk areas, etc.

Qadrexed Dimension 3000 NanoScope IIIa Scanning probe microscope



Nanosensors for various methods of tip spectroscopy:
C-AFM –conducting AFM; SCM – scanning capacitance m; Fluid c.- for study of fluids, STM – scanning tunnelling m.; Force modulation – for the mapping of surface elastic properties

Examples of nanoindenter functioning





Thank you for your attention