PIUMA Nanoindenter

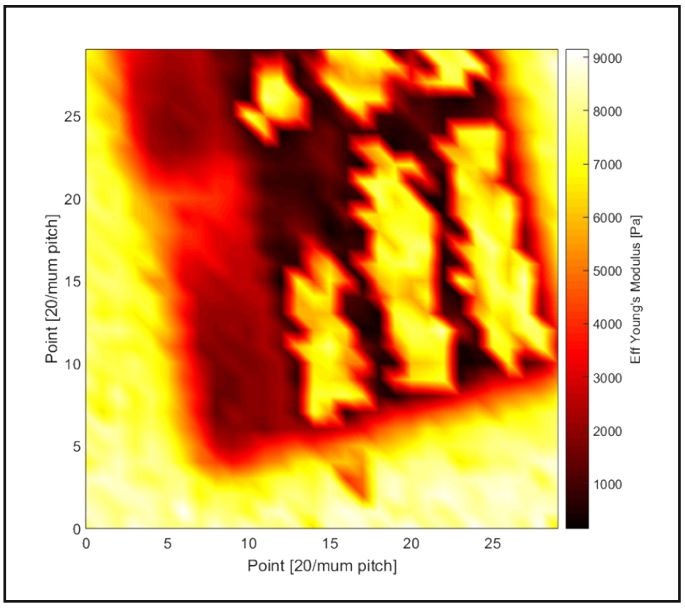
Define the mechanical properties of complex materials with the worlds most advanced nanoindenter instruments

- **Map the micro-mechanical properties of soft and/or biological materials**
- **Define material performance while immersed in liquids**
- **Quantify biology by directly measuring single cells or tissues**

The Piuma Nanoindenter is engineered to enable researchers that work with **soft or biological materials** with an **accurate and easy** way to **non-destructively** measure the **local mechanical properties** of any sample.

Amongst the many applications possible, the Piuma Nanoindenter is used to examine the local mechanical properties of hydrogels, tissues, tissue-engineered constructs, 3D-printed scaffolds and structures, cell spheroids, (stem)cells, microparticles and capsules, microtissues, plant and tissue sections, rubbers, synthetic- and bio-polymers, silicones, biodegradable materials and many more.

- **Measure extremely soft or delicate materials**
- **Tip sizes f rom 5 µm up to 500 µm diameter**
- **Measure samples while immersed in liquids**
- **Automated mapping up to 12 x 12 mm**
- **Plug-and-play pre-calibrated probes**
- **Static or dynamic measurement modes**



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Specifications Piuma Nanoindenter		
	Standard version	**Dynamic version**
Maximum displacement	20 µm	20 µm
Min. force resolution	0.02 nN	0.02 nN
Sample stage range	12 x 12 mm	12 x 12 mm
Minimum lateral pitch	< 1 µm	< 1 µm
Grid mapping speed	Up to 1 point / s	Up to 1 point / s
Temperature control*	Ambient - 60°C +/_ 0.5°C	Ambient - 60°C +/_ 0.5°C
Young's Modulus range	5 Pa up to 5 GPa	5 Pa up to 5 GPa
Oscillatory frequency range	-	0.1 - 10 Hz
Modes**	D	D, I, F
In-suite models	O&P, Hertzian	O&P, Hertzian, DMA analysis
Modelling parameters	E	E, E', E" (G', G")
Data output	Tab separated text file	Tab separated text file

* Optional

**Modes:

D:	**Displacement mode**	**Controlling piezo (probe) displacement**
P:	**Load control mode**	**Controlling load applied to sample**
I:	**Indentation control mode**	**Controlling indentation depth in sample**

The following options are available for the Piuma Nanoindenter: Acrylic sample stage enclosure for reducing environmental noise, sample stage heater, backlight illumination module (LED) and an inverted camera module for inverted imaging of small samples (10X magnification).

The probes are made of glass and reusable. Probes can be cleaned using demineralized water or isopropylalcohol, or using enzymatic solutions or plasma cleaning. Indentation probes are supplied pre-calibrated and plug-and-play: just plug in the probe, use the built-in microscope to select the region of interest, and click the start button!

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