



NanoLab 3D

The advanced
particle sizer

B r e a k i n g t h e L i m i t s o f T u r b i d i t y

LS INSTRUMENTS THE GLOBAL LEADER IN ADVANCED LIGHT SCATTERING TECHNOLOGIES

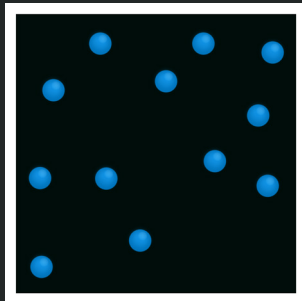
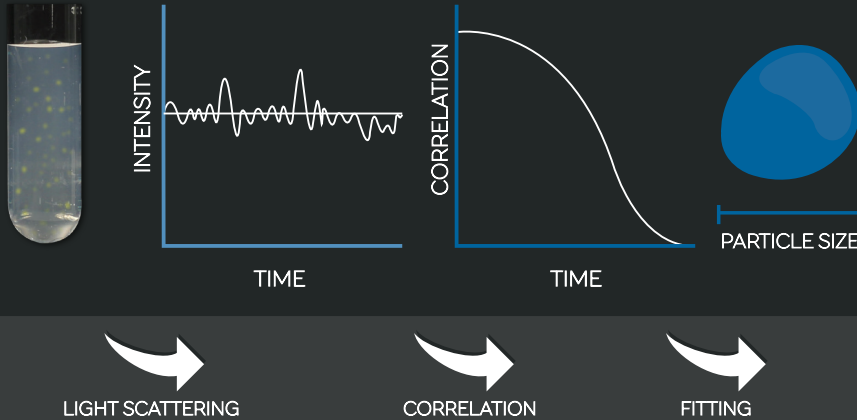


We invented the Modulated 3D technology to advance DLS particle sizing to a new level. It allows you to measure even turbid samples with high particle concentrations precisely! This patented technology is now available in the **NanoLab 3D**.

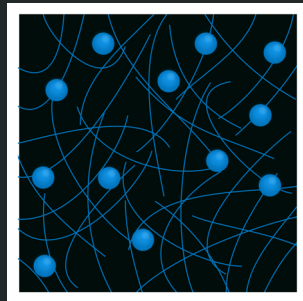
The **NanoLab 3D** is a compact and easy-to-use instrument that measures particle size and distribution accurately, where all other instruments fail. Reliable particle sizing has never been simpler!

DYNAMIC LIGHT SCATTERING (DLS)

Dynamic light scattering is the technology of choice to measure the size of nanoparticles in solution. Driven by Brownian motion, the particles move within the solvent, causing the intensity of scattered light to fluctuate. The statistics of this fluctuation is reflected in the correlation function. Because the size of the particles influences the particle movement and thus the statistics, DLS can extract the particle size distribution from the obtained correlation function.



VISCOUS SYSTEM



VISCOELASTIC SYSTEM

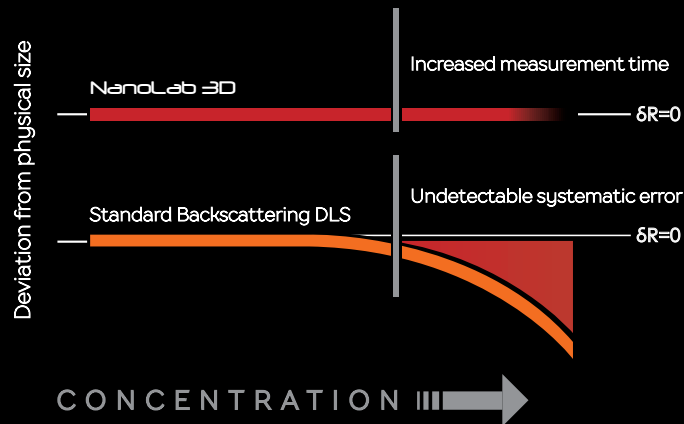
DLS MICRORHEOLOGY

DLS Microrheology is a technique for measuring the viscoelastic properties of your sample. This is another application area in which the **NanoLab 3D** delivers impressive results. It not only measures simple viscosity, but can also determine both elastic and viscous moduli (G' and G''). The reason for the great superiority of the **NanoLab 3D** is based on the Modulated 3D technology, which suppresses multiple scattering efficiently. This is specifically important in the case of DLS Microrheology, since many technologically important samples are concentrated and thus suffer from multiple scattering.



Most DLS instruments boast an unrealistically high concentration limit. Unfortunately, they do not provide any information about the measurement accuracy at such high concentrations. The image on the left shows several dilutions of a sample. Standard DLS instruments might be able to measure accurately the most diluted sample on the left. Only the Modulated 3D technology fully suppresses multiple scattering arising in concentrated samples, hence allowing measurements up to the highest concentration while also guaranteeing the reliability of the measurement.

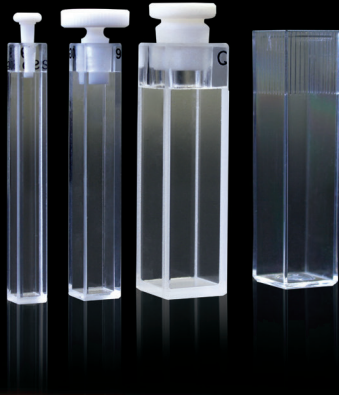
Standard DLS instruments never indicate any measurement error. Without dilution, there is no means of verifying whether the sample concentration is above the DLS limit. Since the error caused by multiple scattering is systematic, it does not matter how long or how many times you repeat the measurement, the result will be wrong. And you won't even know! The **NanoLab 3D**, not only allows measurements beyond the limit, but also indicates the precision. As concentration increases beyond the limit, the precision does decrease eventually. Unlike other instruments however, increased measurement duration allows you to obtain the correct size!



CAN YOU TRUST YOUR MEASUREMENTS?



with the NanoLab 3D you can!



You can choose between three different sizes of glass cuvettes (3 x 3 mm, 5 x 5 mm and 10 x 10 mm). Choose the size that best suits your sample. If only small quantities of your precious sample are available, just select the smallest cuvette and fill it with as little as 50 μ L.

Standard disposable plastic cuvettes can be also used, in case you want to avoid cuvette cleaning and/or need sterile conditions.

SYSTEMS

- Nanoparticles
- Polymers
- Peptides
- Proteins
- Emulsions

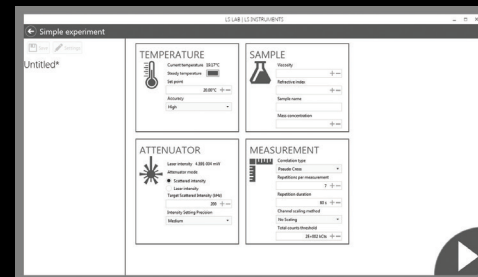
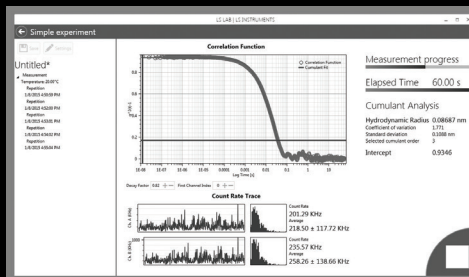
INDUSTRIES

- Pharmaceuticals
- Dairy products
- Cosmetics
- Paints

PROCESS MONITORING

- Gelation
- Aggregation
- Ageing
- Micelle formation
- Protein denaturation

SOFTWARE



We designed the software of the **NanoLab 3D** for both DLS experts as well as beginners without specific training. Anything from one simple, yet reliable measurement, to a complex series of multiple measurements can be configured with just a few clicks. The powerful analytical tools allow highly customizable data display and export, while saving all results in a well-organized and comprehensive database.

Our software allows you to control the **NanoLab 3D** from any PC within the same network. You can work at your desk and remotely monitor the progress of your measurements!

Specifications NanoLab 3D

Scattering angle	90°
Hydrodynamic radius	0.15 nm–15 µm*
Cuvette sizes	3x3 mm, 5x5 mm, 10x10 mm
Maximum concentration	40% w/v*
Sample volume	50 µL –2 mL
Temperature range	4–85°C +/-0.02°C** online measured
Laser class	1
Wavelength	685 nm
Laser power	45 mW
Detector	2 high sensitive APD, QE 65% dark counts <250
Detection	Single mode fiber with integrated optics
Correlator	Two channel multiple tau, 12.5 ns –1 h 1088 channels
Laser attenuation	System with online incident power measurement
Software	Including Cumulant and CONTIN analysis
Laboratory requirements	<60% relative humidity and T=17–26°C

* As for all DLS instruments, the maximum range is sample dependent.

** A climate controlled room at or below 23°C required to meet these specifications, for temperatures below the dew point a dry air source is required.



Size	45 x 45 x 30 cm
Weight	approx. 30 kg

LS instruments

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