

Advanced Zeta Potential Analysis using Phase Analysis Light Scattering

The Brookhaven NanoBrook ZetaPALS incorporates both traditional ELS and the more sensitive and versatile Phase Analysis Light Scattering (PALS). The high salt tolerance of PALS makes it ideal for samples prepared at physiological ionic strength and above. This NanoBrook is a valuable tool, not only for biopharmaceutical research, but also for oil-recovery where salt concentrations can be several orders of magnitude higher still.

Measurements made in water and other polar liquids are easy and fast with the NanoBrook ZetaPALS. Additionally, PALS makes it possible to measure zeta potential at extremely high ionic strengths or conductivities, such as those encountered at physiological salt concentrations. This includes particles dispersed in oily or unusually viscous media, and weakly charged samples near their isoelectric points. Electrostatic repulsion of colloidal particles is often the key to understanding the stability of any dispersion. A simple, easy measurement of the electrophoretic mobility, even in organic solvents, yields valuable information.

Principles of Operation

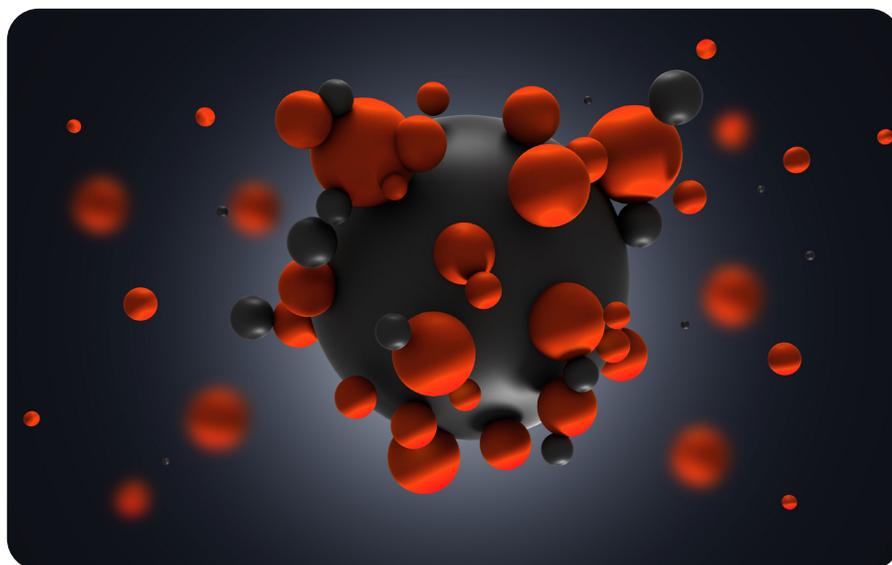
The PALS technique does not require the application of large electric fields which may result in unwanted sample heating or degradation. During a PALS measurement, the particles only need to move a fraction of their own diameter to yield good results. In salt concentrations up to 3 M and with field strengths as low as 1-2 V/cm, enough movement is induced to get quality results.

Core Functionalities		
Particle Sizing		No
Zeta Potential		Yes (PALS)
Scattering Angles		15°

Key features of Phase Analysis Light Scattering (PALS)

- » For proteins, peptides, antibodies, nucleotides, and other biological samples
- » For high salt, organic solvents & viscous media
- » 1000x more sensitive than other techniques*
- » ELS can resolve simple multimodal distributions
- » Can extrapolate Isoelectric Point from pH titrations

* sample dependent



Key Features & Specifications

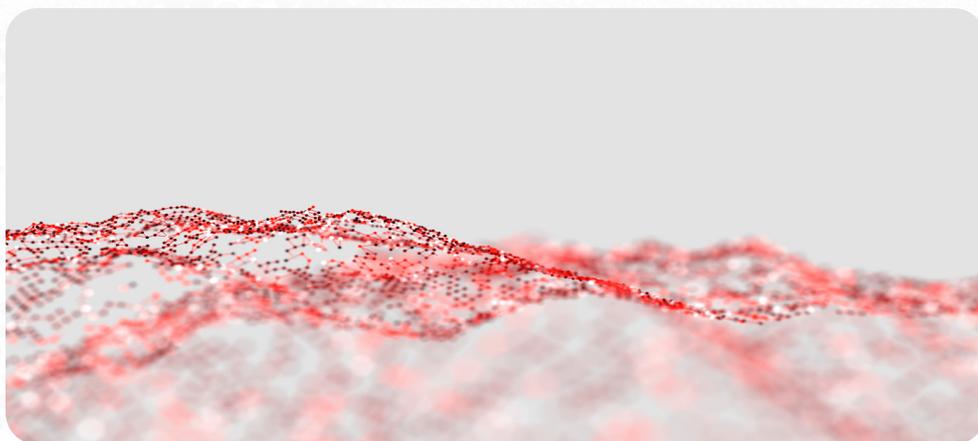
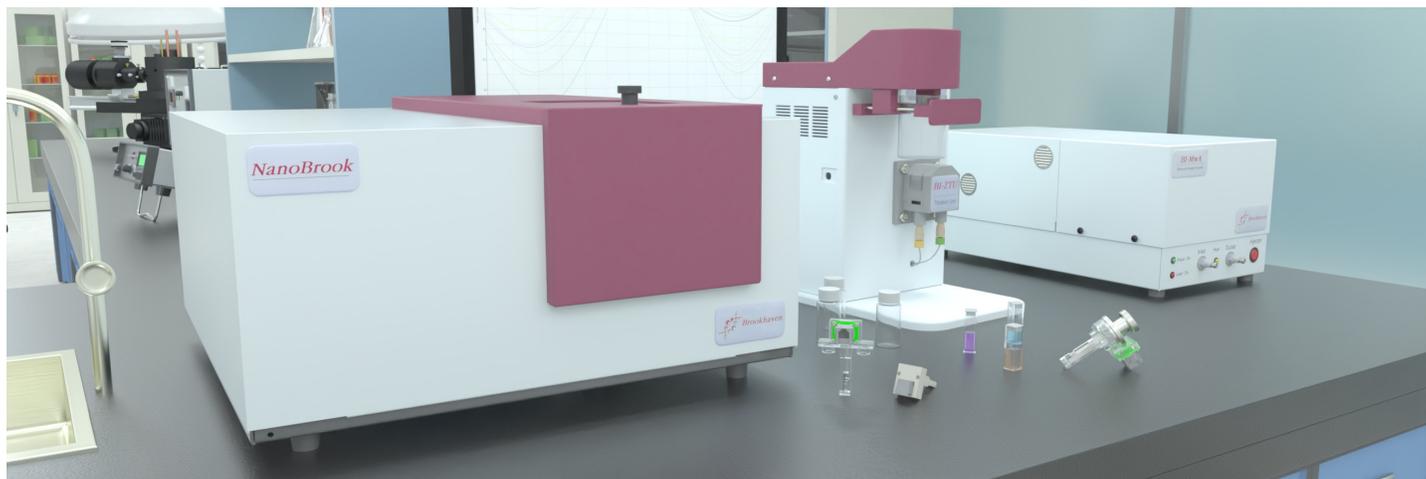
Mobility Range	10 ⁻¹¹ to 10 ⁻⁷ m ² /V•s
Zeta Potential Range	-500 mV to 500 mV*
Technique	Brookhaven's "True PALS" Phase Analysis Light Scattering, Electrophoretic Light Scattering (ELS)
Maximum Sample Conductivity	220 mS/cm, covering saline and PBS solutions for proteins*
Detection Angle	15°
Data Presentation	Doppler Frequency Shift or Phase, electrophoretic mobility, zeta potential using Smoluchowski, Hückel, or Henry

* sample dependent

About Brookhaven Instruments

Our talented team of scientists and engineers is dedicated to delivering the most accurate, reliable, and easy-to-use particle characterization instruments on the market. Our modular instrument design allows us to fully customize every aspect of our products, ensuring that our customers receive precisely what they need to meet their research goals. We are continuously improving our products based on feedback from customers, building on our legacy of innovation in particle science.

We strive to act as partners with our customers to ensure they get the most benefit and maximum value from their Brookhaven equipment. We offer extensive post-sale support to educate and empower customers. Whether you have questions about a specific function or are trying to set up a new experiment, our experts will be there to help you every step of the way.



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