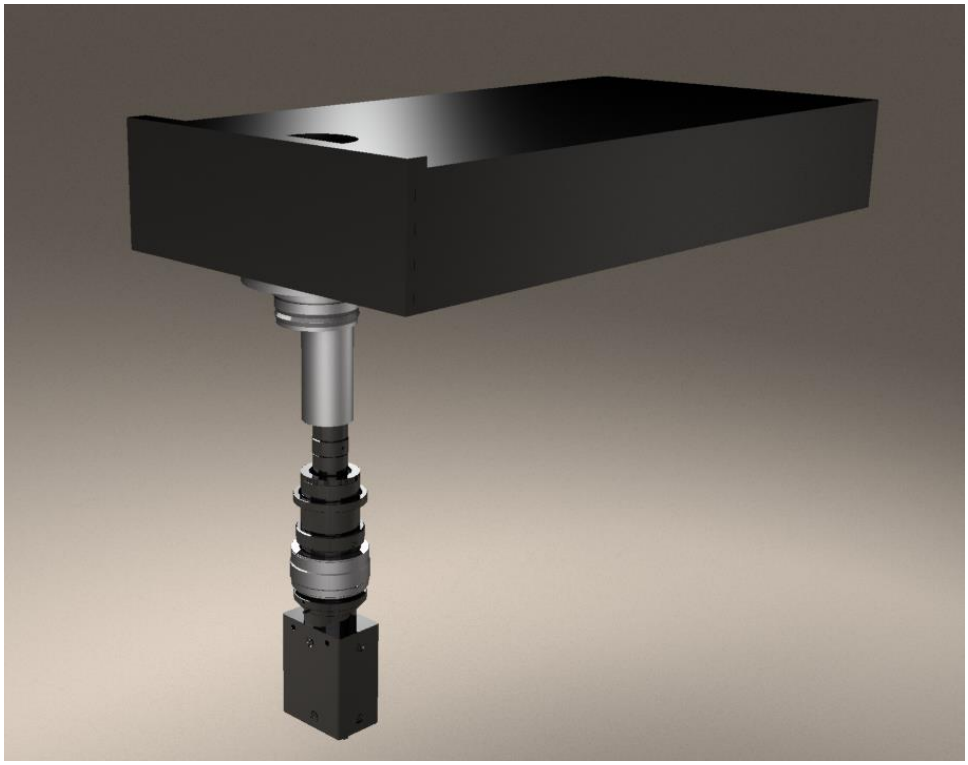


SALSq05 device adaptable to Kinexus NETZSCH (ex Malvern) Rheometer

FORTH SALS

General Description

SALSq05 is a device that performs Small Angle Light Scattering (SALS) measurements, using polarized (VV) or depolarized geometry (VH), combined with rheology. The novel optical design of the device enables wide modularity. ***SALSq05*** *is* a compact device that covers a scattering angle range of ~2^o to ~30^o, corresponding to a *q* vector range of 0.4 μm^{-1} to 6.2 μm^{-1} with an angular resolution of 0.2^o. With the use of a polarizer and an analyzer, that can be set as required, both polarized and depolarized SALS measurements can be conducted. This model is adapted as a modular accessory to the Kinexus rheometer (NETZSCH Instruments), performing rheology combined with SALS measurements. Moreover, with the addition of an extra optical component, the system is utilized as a microscope. In this mode, the setup images the sample and can be used to conduct Bright Field Microscopy (BFM) and enhanced contrast microscopy. Furthermore, the device is ready, to accept additions (such as PMTs and digital correlators) that will enable Diffusing Wave Spectroscopy (DWS), Dynamic Light Scattering under shear and LS-echo measurements of a sample loaded on the rheometer.

The same device can be easily adapted on a separate specifically designed board to enable stand-alone SALS (and/or MSDLS/DWS) measurements in square cell cuvettes (A Peltier controlled temperature controlled holder may be additionally provided)

This multi-functionality allows a single instrument to probe a wide variety of samples (transparent and opaque) using different light scattering and microscopy techniques during rheological measurements and stand alone.

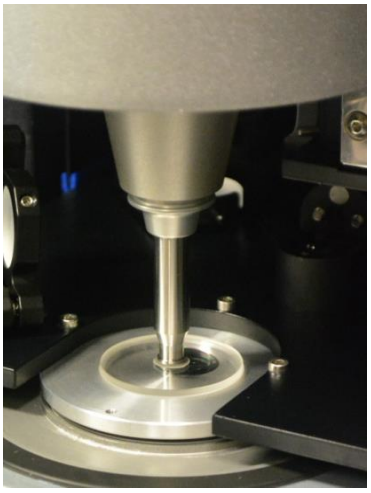
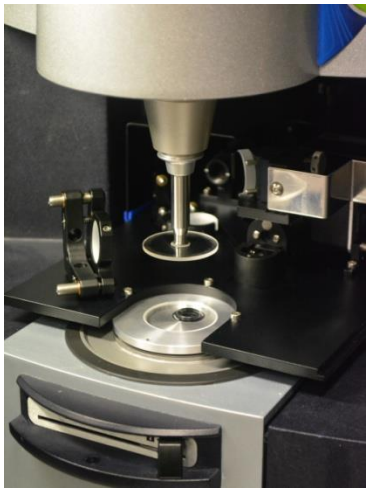
Specifications

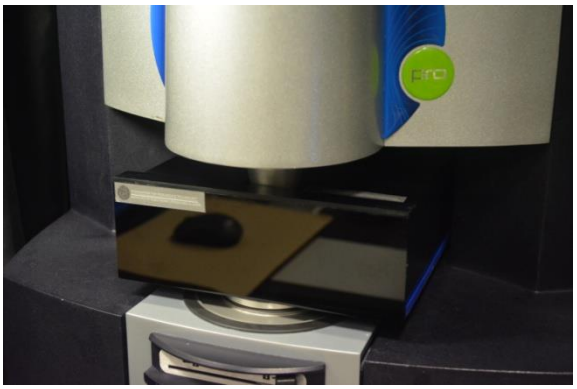
LASER	Laser Wavelength	532 nm
	Laser Power	50 mW (optically filtered to 1 mW)
	Power Stability	<2% RMS over 4 hours
	Mode Quality, M2	<1.2
	Power Requirement	85-264VAC
	Beam Diameter	1.2 mm
	More Information	https://www.edmundoptics.eu/p/532nm-50mw-low-cost-turnkey-laser/4112/
CAMERA	Camera Brand	FLIR
	Camera model	GRAS-14S3M-C
	Camera Dynamic Range	14bit
	CCD sensor resolution	1384 x 1032
	Pixel size	4.65 x 4.65 μm
	Sensor size	6.435 x 4.798 mm
	Connection	FireWire 1394b
	More Information	http://www.ptgrey.com/support/downloads
SALSq05	Scattering angles (air)	3^o – 30^o (0.061^o/px)
	Imaging magnification	≈ x4.2 (1,11 μm/px)
	Modes	SALS, DLS, DWS, DDM, IMAGING

Requirements

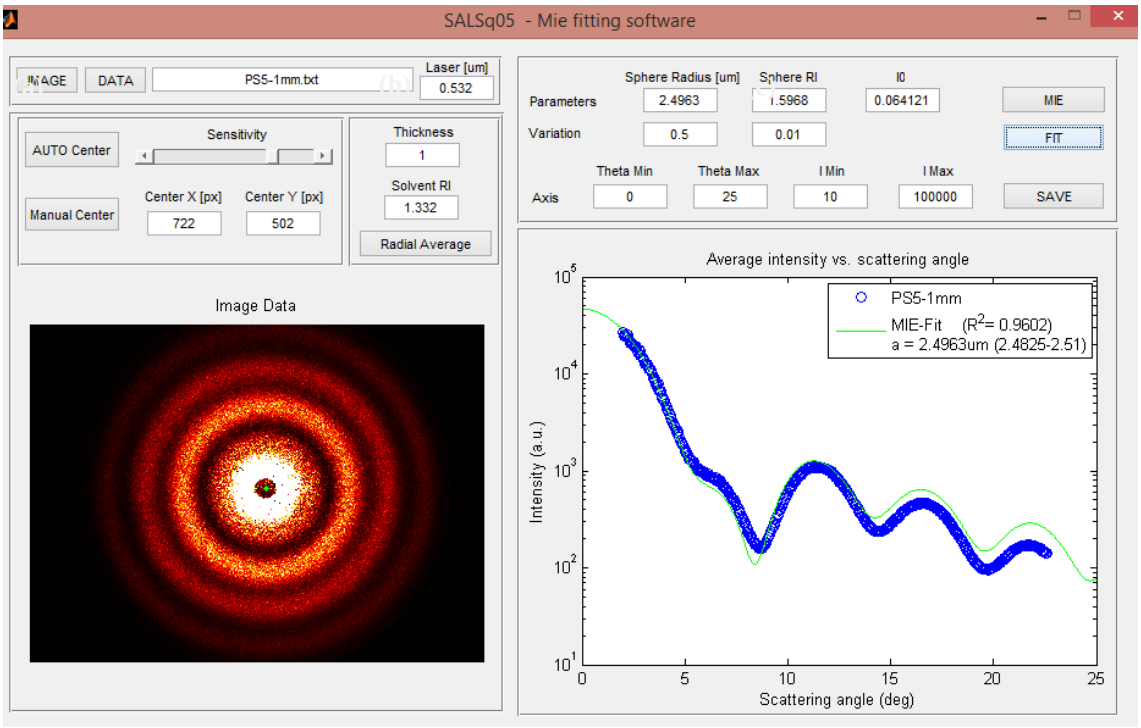
Rheometer	**MALVERN NETZSCH rheometer**
PC Operating system	**Windows OS**
PC - Camera connection	**FireWire 1394b**

- Some Images of device on KINEXUS

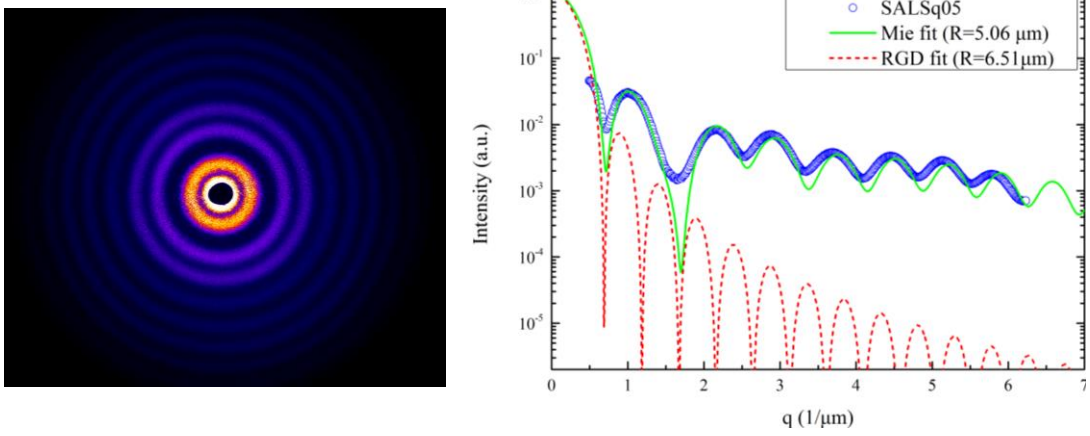





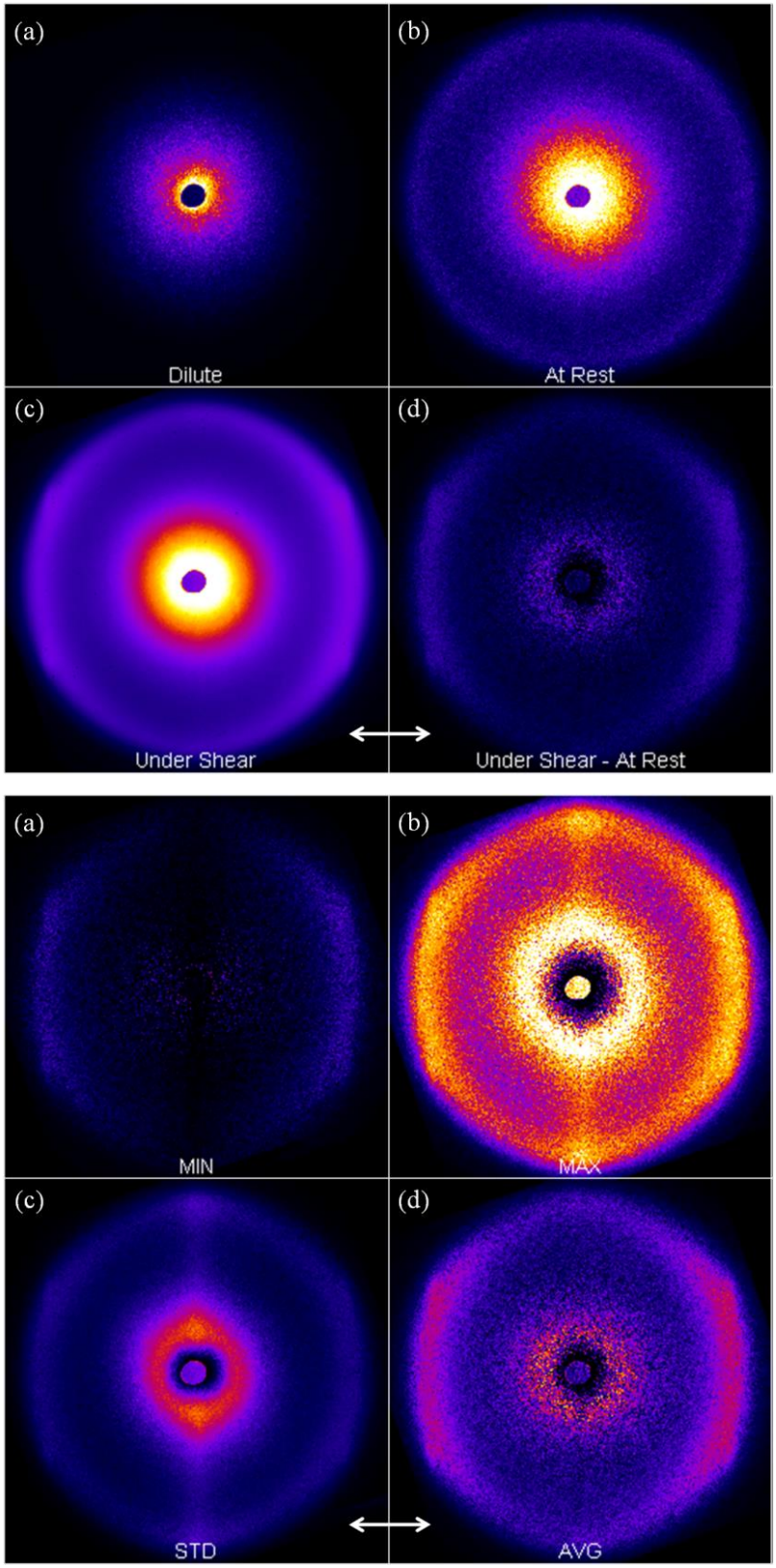
Analysis Software



PS10 – R = 5.06 μm

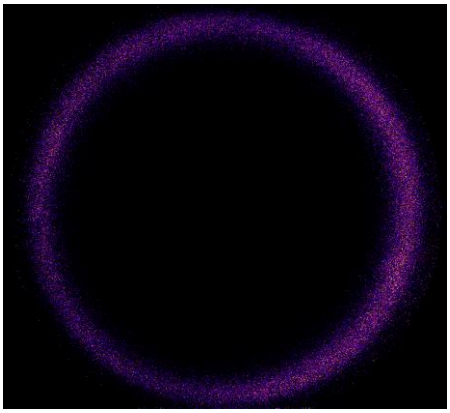


Some Measurements Under Shear

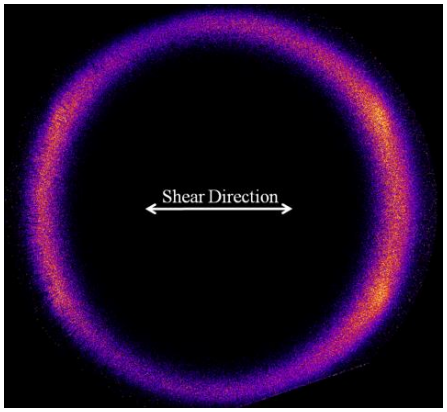


Structure Factors

At Rest



Under Shear



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