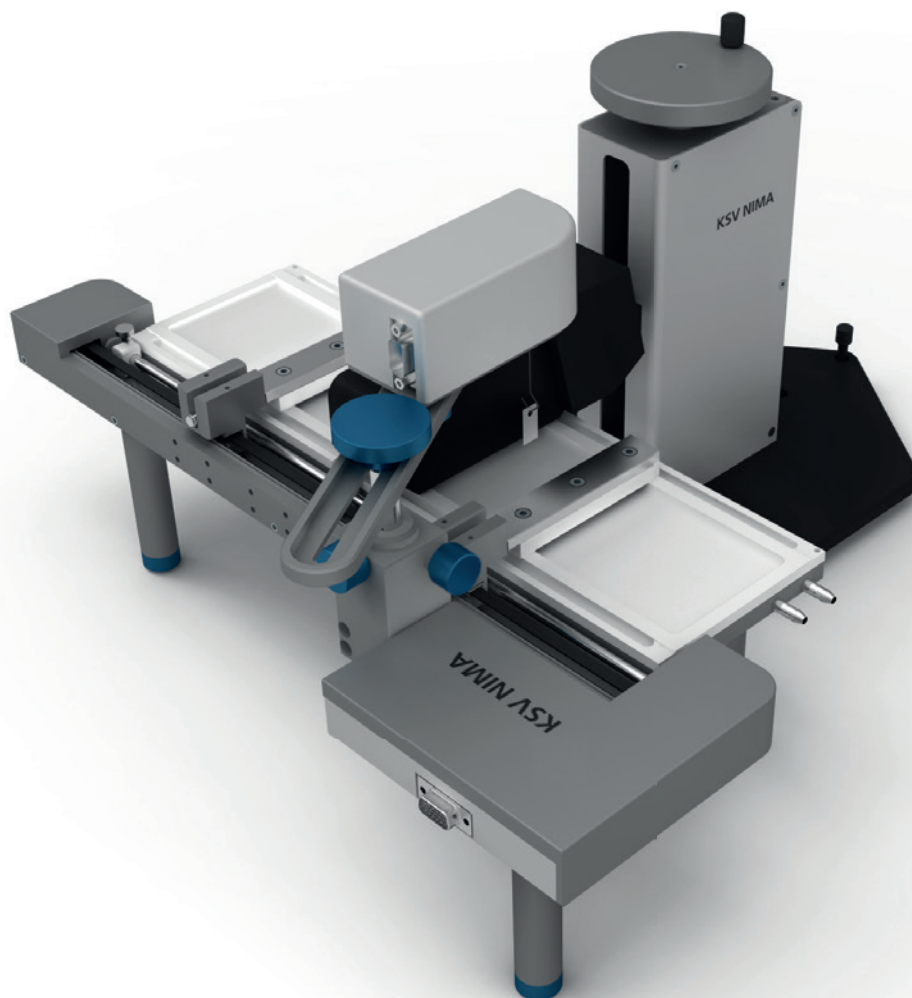# MicroBAM – Brewster Angle Microscope
## Visualize your monolayer

MicroBAM – Brewster Angle Microscope

Brewster Angle Microscopy (BAM) enables visualization of monolayers, typically at the air-water inteface in a Langmuir Trough.

By detecting changes in the refractive index of the water surface in the presence of surfactant molecules, BAMs provide information on homogeneity, phase behavior and film morphology label free.

LANGMUIR TROUGH

BAM

water

FILM
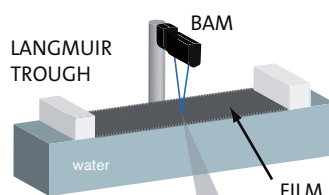
· Polarized light is introduced to a pure subphase surface
· At Brewster angle no reflection occurs
· When laser hits monolayer an image is reflected to detector
· Changes in monolayer can be observed in real time during the measurement

RI n_1 air

$\alpha = 53°$

no reflection

$\alpha = 53°$

reflection

FILM

RI n_2 water
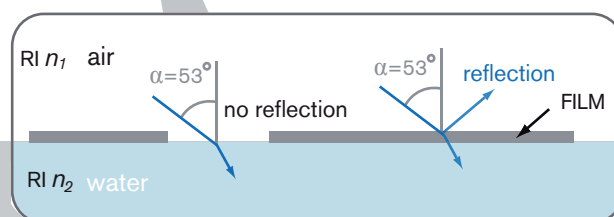
[APPLICATIONS]

[WORKING PRINCIPLE]

Pre-deposition Langmuir-Blodgett layer quality check

Monolayer/film homogeneity - When combined with a KSV NIMA L&LB Trough, observation can be performed during compression/expansion at known surface pressures. Verifying the homogeneity of the monolayer already prior to deposition will speed up the research considerably.

Optimizing the deposition parameters - For a high quality LB coating, the measurement parameters such as compression speed, waiting times, temperature and subphase content need to be optimized. With MicroBAM it is easy to study the effects of these parameters and choose the optimal conditions.
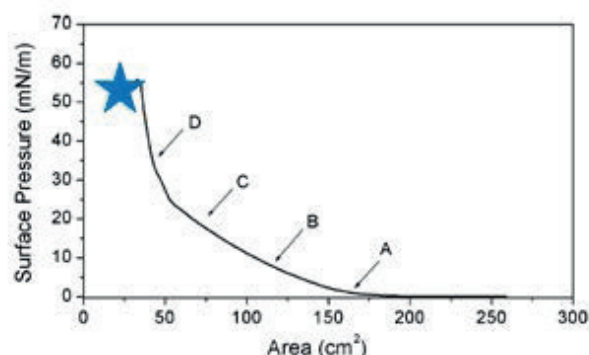
Homogeneity of magnetic nanoparticle layer prior to deposition.

Langmuir layer structure and behavior studies

Monolayer/film behavior - It is possible to observe phase changes, phase separation, domain size, shape and packing.

Monitoring of surface reactions - For example, photochemical reactions, polymerization reactions as well as enzyme kinetics can be followed in real-time.

Monitoring and detection of surface active materials - For example protein adsorption and nanoparticle flotation.
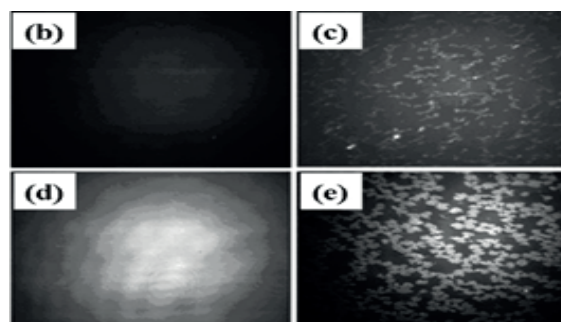
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Quantum Design

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MicroBAM – Brewster Angle Microscope
Monitore your Langmuir layer in real time

The KSV NIMA MicroBAM is easy-to-use instrument for non-invasive imaging of monomolecular layers at the air-water interface. The good image quality and lateral resolution make it an ideal instrument for the visualization of morphological film parameters (e.g. compressed film homogeneity, domain size, shape and packing). Real-time observation and recording of film structure enables dynamic activity to be captured.

The KSV NIMA MicroBAM can be used with most KSV NIMA Langmuir and Langmuir-Blodgett Troughs, to provide real-time image measurements as a function of time or surface pressure. The KSV NIMA MicroBAM connects directly to the computer via USB making it remarkably easy to setup and use.
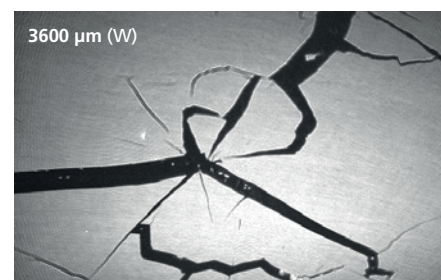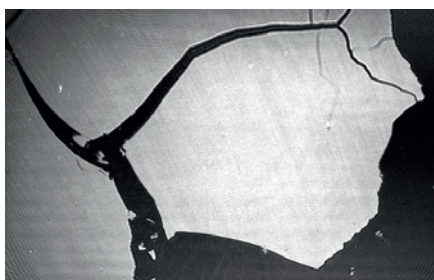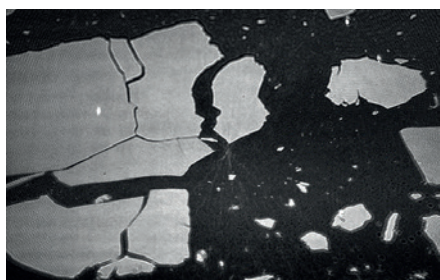
KSV NIMA MICROBAM IMAGES: Skin lipid layer formation during compression.

Product benefits:

- Good resolution and large field of view for film homogeneity and domain size studies
- Capture and save still images of monolayers
- Can be set to take pictures automatically as a function of time or surface pressure
- Compact design, small footprint
- Simple, intuitive operation
- Compatible with most Langmuir troughs and Langmuir-Blodgett troughs
- Optimal for routine LB film homogeneity check prior to deposition
- Part of the high-value KSV NIMA Thin Film Coating Package

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MicroBAM – Brewster Angle Microscope Specifications

	KSV NIMA MicroBAM
Angle-of-incidence range in (°)	53, fixed
Light source power (mW)	50
Light source wavelenght (nm)	659
Image resolution (µm)	12 (horizontal image direction, centre) according to Rayleigh's criterion
Field of view (µm)	3 600 x 4 000
Polarizer	Integrated (p-polarisation of the incident beam)
Analyser	Integrated
Camera	USB camera providing 640 x 480 pixels, 30 fps, adjustable exposure time and gain
Image processing	Various dedicated image processing functions: resizing, contrast profile, filtering, particle size determination
Dimensions (H x L x W, cm)	Instrument: 40,2 x 22 x 27,7 Measuring head: 7.2 x 5.7 x 16.2
Power supply	100-240 V, 50/60 Hz.
Compatibility with L &LB Troughs	KSV NIMA L & LB Trough Medium, Large, High Compression and Alternate
Weight (Kg)	10

Specifications and appearance are subject to change without prior notice. Biolin Scientific shall not be liable for any errors in this document.

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