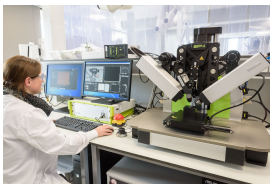
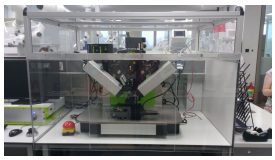
Spectroscopic Imaging Nulling Ellipsometer

https://search.researchequipment.wur.nl/SearchDetail.aspx?deviceid=74b94a65-c5c2-489d-b139-2db7a22dbc0e





Brand

Accurion

Type

EP4

Contact

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Organisation

Agrotechnology & Food Sciences Group

Department

Shared Research Facilities

Description

Ellipsometry is a non-destructive optical method for determining film thickness and optical properties. It measures the change in the state of polarization of the light reflected off the surface.
The imaging ellipsometer EP4 operates on the principle of classical null ellipsometry and real-time ellipsometric contrast imaging. Elliptically polarized light is reflected off the sample and imaged onto a CCD camera through a long working distance objective.
The EP4 can be used for the analysis of the thickness and optical properties of thin films on both solid and liquid interfaces with a lateral resolution down to the single micron level. By varying the angle of incidence and/or the wavelength of the incident light, a lot of information can be acquired in a short time.

Technical Details

Light source
• Xe lamp;
• spectroscopic filter wheel with 46 filters;
• wavelength range 360 – 1000 nm.
Optics
• objectives: 2x, 5x, 10x, 20x, 50x;
• focus scanner for focussed images at any angle of incidence;
• monochrome CCD camera as detector;
• knife edge illumination for transparent substrates.
Sample handling
• automatic XY stage, travel range 100 mm;
• automatic sample alignment relative to plane of incidence.
Additional features for liquid interfaces
• Langmuir-Blodgett trough for liquid-air interfaces

• 580 x 145 x 4 mm3dipping well;
• temperature bath;
• trough top for liquid-liquid interfaces;
• light guide for perpendicular transmission.
• active vibration isolation.

Applications

Ellipsometry has found applications in various fields, ranging from biological research to the semiconductor industry. Systems and processes that can be studied include:
• polymer films;
• self-assembled monolayers;
• lipid bilayers;
• protein adsorption;
• layer-by-layer adsorption.