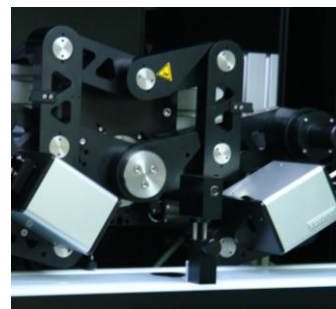


NANOPTICUM

NEW VARIABLE ANGLE OF INCIDENT UV/VIS REFLECTION SPECTROMETER

- New Product: nanofilm_refspect^{va}
- High spatial resolution label-free detection of antigen-antibody binding on patterned surface by imaging ellipsometry
- Theses on Brewster angle microscopy and UV/VIS reflectometry: Molecular organization of Langmuir films. Computer simulation studies and application to organic light emitting devices



In detail: new variable angle of incident UV/VIS reflection spectrometer

Dear Sir/Madame,

One technical focus in this issue is our new variable angle of incident UV/VIS reflection spectrometer. The development was initialised by the working groupe of Prof. Luis Camacho Delgado, especially by María Teresa Martín Romero.

The view on literature highlights a paper from the working group of Haoli Zang at Lanzhou University. They used an imaging ellipsometer for high spatial resolution and large area thickness mapping of label-free protein microarray under optimized conditions, like four-zone nulling and the use of BSA regions as an internal reference to obtain the relative thickness change.

We continue the series on thesis based on products from Accurion with the work of Dr. Juan J. Giner-Casares. In his work, he investigated the molecular organization of Langmuir films. He used experimental methods such as Brewster angle microscopy and UV/Vis reflectometry as well as computer simulations studies for application to organic light emitting devices.

Please enjoy our new Nanopticum.

Best regards

Yours,

Accurion team

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Dec 8-10, 2012, ICANN-2011, Guwahati, Indi

www.iitg.ernet.in/icann2011/

March 5-7, 7th Workshop Ellipsometry, Leipzig, Germany

polariton.exphysik.uni-leipzig.de/wse2012/

May 13-18, 2012, IACIS 2012, Sendai, Japan

res.tagen.tohoku.ac.jp/~iacis/

NEWS:

Movie introducing the nanofilm_ep4model



NEW PRODUCT: NANOFILM_REFSPEC2VA

The variable angle RefSpec2 VA it allows to study orientation effects and optical dichroism in absorbing thin films even at the air/water interface. It offers precision motorized angle-of-incidence adjustments and motorized polarizer and analyzer (p8s polarization flip). The instrument is designed to work for Langmuir and LB films, using precise calibration methods and a cooled back-thinned CCD detector to achieve the required sensitivity. It is equipped with a Xe-light source and may be operated in the range from 240-980nm. Interfaces to NIMA or KSV troughs allow fully automated measurements at preset surface pressures or molecular area.



- The nanofilm_sprmicrofluidic with templat for the microfluidic, one current development in the field of *in situ* imaging ellipsometry. [learn more ...](#)

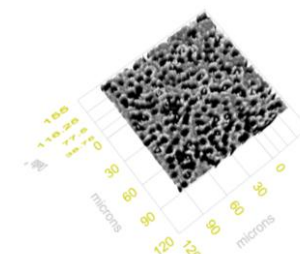


- The new nanofilm_refspect_va [learn more ...](#)

VIEW ON LITERATURE: HIGH SPATIAL RESOLUTION LABEL-FREE DETECTION OF ANTIGEN-ANTIBODY BINDING ON PATTERNED SURFACE BY IMAGING ELLIPSOmetry

Microarray immunosensors based on antibody-antigen binding are of great scientific interest due to their potential applications in life science, healthcare, and environmental control. Chang et al. show that appropriately optimized IE could be used as a highly sensitive and high throughput label-free technique for studying surface antigen-antibody recognition in sub-40 μm scale.

They achieved high spatial resolution and large area thickness mapping of label-free protein microarray using imaging ellipsometry (IE) under optimized conditions. The protein patterns with feature sizes down to 8 x 8 μm² were readily imaged, and the binding between the surface immobilized antigen and the antibody was monitored. Quantitative thickness analysis of antibody-antigen binding on the 32 x 32 μm² micron spots was successfully performed, and they have obtained a limit of detection as low as 1.2 pg/spot.



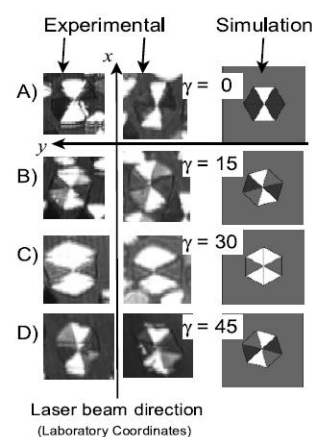
- Image of the month: Delta map of a Si/SiO₂ surface, modified with APTES

Chang M.J., Pang C.-R., Liu J., Bai H., Deng J., Xu Z.-G., Zhang H.-L. (2011) High spatial resolution label-free detection of antigen-antibody binding on patterned surface by IE, J. Coll. Sc. 360, 826-833

[\(Download\)](#)

THESES ON BREWSTER ANGLE MICROSCOPY AND UV/VIS REFLECTOMETRY: MOLECULAR ORGANIZATION OF LANGMUIR FILMS. COMPUTER SIMULATION STUDIES AND APPLICATION TO ORGANIC LIGHT EMITTING DEVICES.

Organic dyes as relevant building blocks in a number of current research foci like organic solar cells, liquid crystals, OLEDs and general optics. Such 2D ordered films of organic dyes can be achievable by Langmuir technique. Juan J. Giner-Casares investigated the molecular organization in dye containing mixed monolayers. He combined experimental methods like in situ BAM and UV-VIS reflection spectroscopy with theoretical methods and models in order to explain the molecular organization of the systems by means of computational methods. From the practical point of view, the aim of the work is to prepare and characterize white light organic light-emitting devices (OLEDs).



- Comparison of the simulated with the experimental domains (BAM images) of the mixed DMPA:MB = 1:1 monolayer [Giner-Casares JJ, 2009].

Giner-Casares J.J. (2009) Organización molecular en películas de Langmuir Estudios por simulación y aplicación en dispositivos orgánicos electroluminiscentes. Tesis Doctoral, Universidad de Córdoba