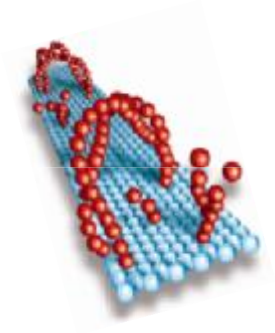


*Ana*Light® Quantum

Nanotechnology

"Affordable, High-Resolution Thin Film Analysis"

High-resolution characterisation of thin films and nanosurfaces revealing interfacial mass and structural changes

Measure film thickness, optical density (RI) and mass loading simultaneously in real time

Data analysis with minimal assumptions and no modelling

Dynamic structural behaviour of polymers, surfactants and biomaterials (soft surfaces)

Quantitative analysis of molecular adsorption, absorption and desorption processes as they happen

In simple terms, the Quantum is a *'molecular microscope'* whose quantitative structural measurements can be compared directly with complementary techniques such as neutron reflectivity and ellipsometry, whilst also being capable of mass measurements at higher sensitivity than first-generation optical or acoustic sensor technologies.

The *Ana*Light® Quantum System for Nanotechnology and Surface Science brings Dual Polarisation Interferometry's (DPI) high-resolution measurement performance into an entry-level system for research and development facilities.

The Quantum provides interfacial structural and behavioural measurements in a convenient benchtop package suitable for a range of nanotechnology, surface science and thin film metrology applications.

Key Applications in Nanotechnology and Surface Science

Surface Science and Interfacial Studies

FMCG Product Research and Development

Nanotechnology and Surface Assembly Studies

Bionanotechnology and the Study of Biomolecules on Surfaces

Biocompatibility Studies at the Molecular Level

The unique, absolute measurements from the Quantum help researchers to question and understand the dynamic behaviour of thin films and nanosurfaces to an extent not previously possible with a laboratory-based technique.

Visit www.farfield-scientific.com/nano_apps.asp to view the full range of applications for the Quantum

Key Features

Uncompromised DPI performance for single sample analysis

Software provides comprehensive data handling and analysis

Single channel direct sample injection, high-performance syringe pump included

Open access fluidics for flow-through or static sample measurement

Simultaneous reference measurement gives confidence in data integrity

Wide dynamic range (RI 1.0 to 1.49) extends solvent and buffer handling capabilities

Accurate temperature control (20-40°C +/- 0.002°C) and rapid temperature stabilisation

Flexible range of *Ana*Chip™ surfaces available to suit all applications

Real-time display of all measurements for rapid data analysis and streamlined method development

Key Functions

Instantaneous, quantitative measurement of thickness, optical density (RI) and mass

Absolute measurements traceable to international standards

*Ana*Light® software provides comprehensive analysis of surface mass changes, interactions and structural behaviour in quantitative units

Measures structural changes in thin films and nanosurfaces as small as 0.1 Ångstrom as they happen, with or without any mass change

Measures mass changes as low as 0.1 picogram/mm^2 in real time, giving class-leading sensitivity

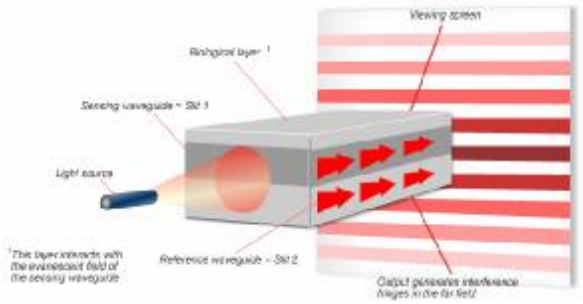
Provides a unique information set on the behaviour and interactions of nanosurfaces and thin films with industry-leading resolution

Automated *Ana*Chip™ and solvent calibration protocols ensure ultimate measurement accuracy

Proven DPI performance in an economical, entry-level system

Dual Polarisation Interferometry (DPI)

The DPI technique forms the basis for Farfield's *Ana*Light® instrument range. DPI uses polarised light from a laser passing down stacked waveguides. These waveguides are incorporated into the structure of our *Ana*Chip™ range. The molecules under study are immobilised physically or chemically onto one of a range of AnaChip™ surfaces. The evanescent field emanating from the top waveguide interrogates the immobilised molecules. Changes in the resulting optical interference pattern are caused by changes in the structure and/or mass of the immobilised molecules. DPI provides the exquisite sensitivity to give previously unavailable insights into the structural changes taking place in molecular systems as they function and interact.



As an interferometric technique, DPI has a wide dynamic range so can accommodate a broad range of typical solvents, buffers and additives. Experiments can be run under conditions of choice rather than those dictated by the limitations of other techniques.

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