

# Unique Surface Sensing Symposium

## Surface Interaction Technologies from Farfield/Q-Sense/BioNavis



Registration + Program

23 - 27  
Aug  
2010

### Symposium Details

ATA Scientific would like to invite you to a symposium showcasing

### Advanced Analytical Techniques for the study of Nanoscale Surface Interactions

Overseas speakers will include specialists in three different measurement techniques namely, Dual Polarisation Interferometry (DPI), Surface Plasmon Resonance (SPR) and Quartz Crystal Microbalance (QCM-D). Talks will focus on the capabilities of surface measurement instrumentation and the range of possible applications. Discussions on the three measurement techniques will be followed by presentations given by our leading researchers who use one or more of these techniques.

The symposium is intended to provide an educational opportunity for scientists and post grad students to hear first hand about what surface and interfacial characterisation techniques and instrumentation are available.

### Location Time 9am to 12pm

Date	Location	Venue
Mon 23	Brisbane	University of Queensland
Tue 24	Sydney	Sydney University
Wed 25	Wollongong	University of Wollongong * * Overseas Speakers only
Thur 26	Melbourne	Monash University
Fri 27	Adelaide	University of South Australia

### Keynote Speakers

**Dr Janusz Sadowski, Managing Director, BioNavis Ltd.**  
Janusz received his PhD degree in physics from the Department of Technical Physics at the Helsinki University of Technology in Finland. He worked at Warsaw University of Technology (1979-82), University of Joensuu (1982-88), VTT - Technical Research Centre of Finland (1989-2006), and now is the Managing Director of the BioNavis Ltd Company. His areas of expertise are in the fields of biosensors, with emphasis on optical detection methods, mainly the surface plasmon resonance phenomenon. He is an author of several scientific publications and patents.

**Ms Jennie Wikström - Applications Specialist, Q-Sense .**  
Jennie is working with support and application development. She did her Master of Science in Bioengineering at Chalmers University of Technology. Afterwards she worked with QCM-D at the biotech company Nanoxis, focusing on membrane proteins immobilized on surfaces. Q-Sense develops and markets research instruments based on the patented QCM-D technology. Q-Sense instruments are found in over 35 countries world-wide and there are currently over 600 publications citing the use of the QCM-D technology.

### Keynote Speakers

**Dr Gerry Ronan - Managing Director, Farfield Group.** Gerry is a Fellow of the Institute of Physics and has spent 25 years designing and commercialising physics-based scientific instrumentation for life science, medical, nuclear and industrial applications. He is currently Managing Director of Farfield Group which was acquired by Biolin Scientific in 2010 and has previously worked in a variety of instrumentation businesses such as Thermo Electron, Malvern Instruments and several start-up companies.

### Seminar Program

**9am Welcome**  
**9.10am Keynote Speakers**

**Dr Janusz Sadowski, Managing Director, BioNavis Ltd.** SPR is already recognised as a standard tool in real-time, label-free monitoring of molecular interactions, with applications in almost all fields of bio- and nanotechnology. BioNavis Ltd was established to develop, manufacture, supply and support SPR based instruments and sensors for research and to offer broader application fields than presently available through instruments on the market. The BioNavis' instruments are mainly, but not only, targeted to research of molecule/molecule and surface/molecule interactions, and are used by researchers in physical chemistry, biochemistry, pharmaceuticals, biotechnology, medical diagnostics and material sciences. A short introduction to theory of SPR will be given and will be followed by application examples in a broad spectrum of fields related to bio-physics and material sciences. Finally, main features and examples of performance of the SPR-Navi 200 instrument will be given.

**9.50am Ms Jennie Wikström - Applications Specialist, Q-Sense.** QCM-D monitoring is a surface sensitive technique which provides real-time information on mass and viscoelastic properties of thin films. Application areas include protein adsorption and conformational changes, biomaterials, polyelectrolyte multilayers, biosensors, nanoparticles and interaction studies to mention a few. The possibility to work with a variety of different surfaces together with a wide range of possible samples, results in a huge number of potential applications. This presentation will give an introduction to QCM-D, the basic principle and the possibilities. Many application examples will be given and it will be discussed how QCM-D can be combined with other techniques, such as SPR, DPI and ellipsometry, in order to get complementary data and a better understanding of the studied system.

**10.30am Dr Gerry Ronan - Managing Director, Farfield Group.** Farfield's core technology, Dual Polarisation Interferometry is a label free optical platform which uniquely allows the direct measurement of the dimensions (thickness of molecular layer), refractive index (fold density) and mass of captured molecules at sub atomic resolution. DPI provides a unique perspective of the conformational relevance of a biochemical event. The technology behind this analytical instrumentation will be briefly described together with its relevance to the measurement of biochemical activity and how it complements other techniques such as QCMD, SPR and ellipsometry. In closing, a few examples will be shown of how DPI is being used to measure conformational changes and how Farfield's latest product, the AnaLight® 4D Workstation, is being used to measure the interaction of proteins with lipid bilayer surfaces.

### 11.10 am Local Researcher Presentations

Presenter	Current Institution	Talk Location
Dr Megan Lord	UNSW, Graduate School of Biomedical Engineering	Uni of Qld/ Sydney
Prof Mibel Aguilar	Monash Uni, Dept of Biochemistry and Molecular Biology	Monash University

### 11.40 - 12pm Q&A Forum / Closing Remarks

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## SURFACE PLASMON RESONANCE

### CONTAMINATION FREE

The **SPR 200** has been developed for advanced surface analysis, expanding the use of SPR from bio-molecular interaction to new applications such as nanoscale film characterization. The increased angular scan range allows simultaneous characterisation of surfaces in gas and/or liquid.

#### Design Features:

- Dual measurement channels
- Simultaneous determination of RI and mass



SPR 200

- High-accuracy sensogram (kinetic) measurements
- Simultaneous characterisation of surfaces in gas & liquid
- Contamination-free index matching with a proprietary optical gel

## Q - SENSE QCM-D

### THIN FILM INTERACTIONS

**Q-Sense** is the sole manufacturer of the patented QCM-D technology. **The Q-Sense E4** is able to measure the mass of thin films and simultaneously enables real time observations of molecular interactions with functionalised surfaces and biomaterials.

**QCM-D** can be combined with

- **Light Microscopy** for studies of light-induced reactions and cell adhesion
- **Electrochemistry** to provide a stimulus or information about interfacial charge transfer
- **Ellipsometry** to monitor changes in the solvent content of thin films and other structural changes



Q-Sense E4

## STRUCTURE AND FUNCTION

### DUAL POLARISATION INTERFEROMETER

**DPI** has the sensitivity to detect the binding of small molecules, whilst simultaneously measuring conformational changes. This provides a unique insight into molecular structure, function, and mechanism.



Analight@4D Workstation

- Observe conformational changes in real time as proteins function.
- Differentiate between specific and non-specific binding.
- Detect molecules <50Da binding to 100,000Da proteins.
- Wide range of immobilisation surfaces including for His-tag and Glycoproteins.

#### Course Details:

Please tick the Venue/s you wish to attend .  
Exact venue details will be confirmed following registration.

Monday 23 Aug, Uni of Queensland

Tuesday 24 Aug, Sydney University

Wednesday 25 Aug, Uni of Wollongong

Thursday 26 Aug, Monash University

Friday 27 Aug, University of SA

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Presented by



Farfield

q.sense

BioNavis

#### Registration Details:

**Please note registration should be received one week prior to commencement of the symposium**

Name:

Organisation:

Department:

Phone number:

Dietary Needs:

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Please forward completed forms to:

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