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X'PRESS

HOW TO DEVELOP?

PANalytical
get insight

Meet PANalytical's **latest development**

Pieter de Groot
Corporate marketing director

Many of our customers, be it in industry or in research institutions, are involved in developments of new processes or products. In this phase they often approach our specialists for advice on how to get quick feedback on intermediates, easy verification of materials or a quality check of end products.

With these wishes in mind, PANalytical decided to develop a new small X-ray diffraction (XRD) system. It should not just be 'yet another benchtop' but should be well distinguishable from other benchtop systems on the market by its user-friendliness. Together with our customers, our product and marketing specialists defined the properties of this new instrument. These specialists were only one part of the large and multi-disciplinary development team consisting of people from many departments.

Think of a technical drawer and designer who takes care of the product design (the cover of this X'Press gives you an impression of their sketches). Purchasers need to find and secure a consistent supply of the machine parts, mechanical engineers are building and refining prototypes and at the same time software architects and engineers work at the software together with an interaction designer. During this entire development process we made sure that a review group of critical and enthusiastic users gave feedback to the architects to achieve a maximum of user-friendliness.

Early involvement of the engineers in the factory, of Customer Support and Supply Chain guarantees a high-quality product that can also optimally be supported in the field. Eventually the product undergoes severe testing for safety, quality, compliance and usability. People from Marketing and Application Support are involved in finding a name and producing informative and attractive advertising material to introduce the new product to our customers. I am very happy that we have reached this step now and that we are able to present Aeris to the public.

It never ceases to amaze me how such a complex process, which involves so many people from all parts of PANalytical results in a successful product, which in turn will help our customers with their own development processes.

The following pages also present other aspects of developments, be it at our customers' sites or inside PANalytical. I hope you enjoy our choice and wish you a good start of the next year. A year in which PANalytical and Malvern will join their forces to serve our customers in the best possible way.

With kind regards,

Pieter de Groot

LATEST NEWS

PANalytical and Malvern announce merger

Malvern and PANalytical are pleased to announce that effective 1 January 2017 they will be merging their activities. Both companies are owned by parent company Spectris plc and are operating companies within the Materials Analysis segment of Spectris.

The merger is based on the belief that there are clear benefits through this more collaborative relationship, leveraging the very strong brands and highly-skilled employees of the two companies, in order to deliver a more complete range of products, solutions and services to a broader set of markets and customers.

Both companies will be working together to ensure a smooth and effective integration guaranteeing our usual high level of support to all our customers. The combined group will continue to develop and invest in the Malvern and PANalytical technologies and the highly-talented workforce.

PANalytical
get insight

Malvern

Read the full announcement on our website

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Useful tips to prolong your tube's lifespan

1. Tidy sample preparation
2. Steady power supply to tube
3. Clean and uninterrupted flow of cooling water
4. Regular preventive maintenance

20 years and still powering on

When performing high-precision X-ray fluorescence (XRF) analysis, people tend to equip their laboratory with high-quality detectors or robust software. However, the core element of X-ray analysis – a reliable X-ray tube – is often taken for granted. A high-power XRF tube is a high-vacuum product operating under the most demanding conditions. It must maintain its vacuum for 10 years and more, be stable at voltages up to 90 kV, handle 3-4 kW of power and cope with anode and cathode temperatures above 800 °C. Material purity, geometric accuracy and high-vacuum joining technology determine a tube's quality and reliability.

In the heart of Sydney's University of New South Wales, the team of the X-ray Fluorescence Laboratory, comprising Sarah Kelloway, XRF Technical Officer and led by Senior Technical Officer, Irene Wainwright, conducts materials analysis on minerals, cements, glass and more. They use PANalytical's PW2400 XRF spectrometer equipped with a Rh X-ray tube tube as well as an Axios Advanced XRF spectrometer with the SST R-mAX tube. PANalytical's Customer Support team was recently on-site to certify a clean bill of health for UNSW's instruments and tubes.

The PW2400's X-ray tube celebrates an unprecedented 20-year tube life which breaks the record of a 13-year old PANalytical tube also found in Australia.

PANalytical is the only major analytical X-ray instrumentation supplier with its own X-ray tube factory. Located in Eindhoven, the Netherlands, the tube factory has a history of more than 40 years. It offers a wide range of X-ray tubes for X-ray fluorescence and X-ray diffraction analysis in addition to other industrial applications like inspection, non-destructive testing (NDT) and gauging.

The factory is able to customize X-ray tubes according to specific demands, for instance, tailoring to many anode types from Sc, Ti, Cr, Mn, Fe, Co, Cu, Mo, Rh, Ag, Gd, W to Au and more.

The University of New South Wales (Australia) is a public research university located in a suburb of Sydney.

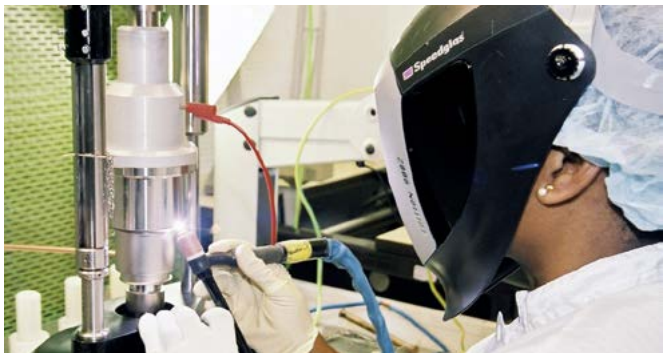
Established in 1949, it is regarded as one of the country's leading universities. Its nine faculties provide an inspiring environment for research and education for more than 50,000 students.

True to PANalytical's value of restless innovation, the company continues to improve tube functionality (power, intensity, soft X-ray output, spectral purity), stability (short- and long-term drift, flash frequency), reliability and lifetime. Development of new material combinations and design geometries has further optimized important properties such as thermal expansion, thermal conductivity, vapor pressure and adhesion increasing both cathode and anode lifetimes to more than 10 years.

Physical ageing and cathode evaporation have been reduced to the point that the initial X-ray output remains constant during the entire tube lifetime achieving optimal reproducibility, minimum (re)calibration and maximum uptime. This has been realized with the patented ZETA technology in all SST-mAX tubes and new robust anode technology in all SST R-mAX tubes.

"By having X-ray tube development and manufacturing under our control, we ensure continuous innovation and performance improvement of our tubes at competitive prices for our end users" says Maarten van Andel, director of PANalytical's X-ray tube factory. "PANalytical's newest Zetium XRF spectrometer, launched in 2015, features the revolutionary SST R-mAX tube whose performance remains consistent and drift-free even after 12,000 hours and beyond."

Gjalt Kuiperes, regional director for PANalytical's Asia Pacific region, adds "This is an important feature for our end users – to be able to trust in our instruments in delivering reliable results throughout the tube's entire lifetime".



Irene Wainwright (UNSW) with Gjalt Kuiperes from PANalytical

"We are very happy with the tube's performance especially since we're still getting consistent good results after 20 years of tube life."

- Irene Wainwright, Senior Technical Officer, University of New South Wales

Jan van Rijn, general manager X-ray systems and Harald van Weeren, product manager X-ray difraction about 'How to develop'

Redefining benchtop XRD

PANalytical's new Aeris X-ray diffractometer

During the last months, PANalytical continued to spread rumors about a new product to be launched. The customers' curiosity was finally satisfied in November with the introduction of Aeris, the new benchtop X-ray powder diffractometer. The editors of X'Press asked two of the major players in the development of the new system about the ideas that have driven the development of Aeris and their experiences during this process.

Harald, can you explain why PANalytical has chosen to develop a benchtop XRD system while there are already a few of those on the market?

It is simple; the demand for compact or benchtop analytical systems in general is increasing. We see this with our own X-ray fluorescence instruments, but also outside of PANalytical's market there is an increasing demand e.g. for compact electron microscopes. It is in fact the need for everyday and simple routine analysis that is increasing.

Although we always deliver best-in-class performance, this has not been the main focus of the development of Aeris. Instead we focused on simple routine analysis – we wanted to create a benchtop XRD instrument that is extremely easy to use. Insert your sample, press a button and get the results.

Additionally, Aeris is the first benchtop XRD that can be automated with a robot or a belt, which facilitates routine analysis even more.

Could you elaborate on the ease of use?

I would rather call this term intuitiveness. Apps are a good example of this intuitiveness. You see kids picking up an iPad and just using it without any preceding instructions.

Current X-ray diffraction instruments can, especially for new users, be rather daunting with their many different optical components and the wealth of options in the software. That's something we wanted to overcome with Aeris.

Its ease of use can be traced back to both the hardware and software design. For basic operation, you just put your sample on the external sample platform or sample changer without worrying to have to enter the optical path.

For the software design we have worked closely together with an interaction designer. Together with a broad set of people, from XRD specialists to those completely new to analytical instrumentation, we have created a user interface for Aeris that is truly intuitive and focused on learning while doing.

Jan, you are responsible for the technical development process. Could you tell our readers how such a process is set up?
The development of such an instrument always involves a large number of people from various departments who need to act as one team. In order to achieve this we made use of LEAN techniques, which had been successfully rolled out in our R&D department during the last year.
We also created a review group of enthusiastic pragmatic users whose input was fed back to our architects to generate a system design in which all stakeholders from users to service engineers, supply chain and manufacturing were heavily involved.
Personally I see the alignment of software and system development as the highlight of the innovation.
It resulted in early-stage First-Time-Right design concepts, which could be validated quickly in real applications.

Harald, Aeris is an interesting product name. Can you tell us how this was 'invented'?
Aeris is Latin for air or atmosphere. Both are pretty essential for life on earth and our benchtop XRD instrument is the essential tool for materials research. Additionally it is an essential tool to make the production of metals or cement as well as mining of minerals more efficient and environmentally friendly.

Not all of our readers might be familiar with X-ray diffraction. Could you explain the benefits of this technique?
X-ray diffraction gives information about the three-dimensional arrangement of atoms in crystalline materials. It is that crystal structure that defines the physical properties of a material. For example graphite and diamond are both made up of carbon atoms, yet their physical properties are completely different because of their different crystal structure. Graphite in a pencil easily leaves material on a piece of paper when you write, but diamond is extremely hard. Similar examples can be found in pharmaceuticals, building materials and in the metals industry. XRD easily identifies the different crystalline phases and gives precise information about the analyzed compound.

Jan, even though Aeris is very easy to use, there might be customers who need a bit of extra help with their application. Can PANalytical provide assistance?
Users will experience a clever user interface and an easy-to-use system. Besides that, every user, for every system, can rely on our comprehensive support network. The support we can deliver varies from training to addressing new applications with Aeris. In particular we see standardization in customer (multi-site) PC/QC (process control/quality control) as an increasing trend in which we can develop multi-site SOP's (standard operating procedure) and operator training in which systems perform according to strict internal performance requirements.

"I see the alignment of software and system development as the highlight of the innovation."

- Jan van Rijn, general manager X-ray systems at PANalytical

Harald van Weeren started his studies of Applied Physics at the University of Twente, the Netherlands, in 1996. In 2002 he finalized his studies with a Master's thesis on Nb_3Sn superconductors and started his PhD research on MgB_2 superconductors focusing on the material science as well as on the applicative aspects of this type of superconductor. After finalizing his PhD in 2007 he worked as a postdoctoral research fellow on cryogenic micro-coolers for space applications at the University of Twente.
In 2008 Harald joined PANalytical as product specialist for non-ambient X-ray diffraction. Currently he is product manager, focusing on X-ray diffraction for process control and market segment manager for the building materials industry.

Jan van Rijn has a Bachelor's degree in Chemistry, followed by a Master's degree in Engineering/Applied Physics from the University of Twente (the Netherlands).
He worked as a software engineer in Eindhoven (the Netherlands) followed by several positions at Philips in Almelo (the Netherlands), leading to R&D manager. After two years as R&D manager at Eaton (HOLEC) in Hengelo (the Netherlands) he returned to Philips Analytical X-ray as marketing and innovation manager.
When the company became PANalytical in 2002, Jan took the position of managing director of Europe, Middle East and Africa.
Since seven years he is managing director of PANalytical in Almelo where he is responsible for research & development, manufacturing and 2nd-line customer services.

"It's like making a cup of coffee…except it's even easier"
Watch our video on www.XRDisEASY.com

Meet Aeris

See how XRD is made easy

Have you always thought that X-ray diffraction (XRD) is a complicated technology for experts only? Then it's time to meet Aeris, PANalytical's new surprisingly simple benchtop X-ray diffractometer. With its intuitive user interface Aeris makes XRD measurements accessible for everyone and as easy as making a cup of coffee.

Exactly this ease of use combined with maximum benefits for the user have been our engineers' driving ideas during the development process. They designed for example the built-in touch screen, which directly displays all results you need for your analysis. In our interview on the preceding pages product manager Harald van Weeren tells us more about the ideas behind the development of Aeris.

Another benefit for the Aeris user is its low cost of ownership and the minimum of infrastructural requirements: just a single-phase power outlet is enough. It fits well in any lab and can be used by virtually anyone.

Aeris' performance, however, exceeds all expectations you would have for a benchtop system. The instrument incorporates proven technologies that have previously only been included with PANalytical's high-end systems. As a result, data quality and speed of analysis delivered by Aeris have so far only been realized on full-power systems.

Would you like to automate your XRD analyses? No problem with Aeris – it's the first benchtop XRD instrument, which can easily be incorporated in industrial production control. Our automation experts (see X'Press 2/2016) are always happy to help with a tailored installation.

During the coming months you will be able to meet Aeris all over the world at one of the numerous shows we will attend. Visit us and have a look at excellent X-ray diffraction for everyone.

"Aeris' ease of use together with its performance make it a perfect companion for anyone's everyday XRD analysis."

- Harald van Weeren, product manager X-ray diffraction at PANalytical

Aeris segment editions

Tailored for the needs of a specific market

Cement

The cement production process can profit considerably from reliable mineralogical feedback during the entire process. Whether it's raw materials, raw meal, hot meal, clinker, additives or cement – analysis of all these materials with the Cement edition of Aeris is quick and easy and allows fast process control and optimization for green and efficient cement production.

Metals

Characterization of iron ore, sinter and direct reduced iron is essential for a fast and reliable control of the metals production process. The Metals edition of Aeris easily takes care of the analyses of all raw materials and of quality control of the final products, delivering quick and precise quantification of metal phases such as retained austenite.

Minerals

Mining companies can profit from fast XRD analysis at every step of the mining process. Informed exploration, optimal recoveries, precise control of the required product quality and an efficient beneficiation process are some of the benefits which the Minerals edition of Aeris provides for the mining industry.

Research

The Research edition of Aeris provides fast, reliable and accurate materials analyses for all you needs. It is the workhorse for rapid phase identification and Rietveld analysis of powder samples. Due to its flexibility it offers possibilities for all sorts of XRD measurements and is an ideal tool for teaching X-ray diffraction.

Visit our new website XRDisEASY.com for product information, webinars, data sheets and more.

A ‘Christmas tree’ for the Imperial College London

The Department of Materials at Imperial College London (UK) is the oldest department of its kind in the United Kingdom and is currently ranked 3rd in the world for material science (QS World University Rankings 2016). Over the years it has earned a reputation for excellence in teaching at all levels to both undergraduates and postgraduates alike. The Department’s six research themes cover biomaterials and tissue engineering, ceramics and glasses, alloys and functional materials, nanotechnology and nanoscale characterization and the theory and simulation of materials with activities in all themes applied in a wide range of commercial sectors.

Imperial College London

To be able to deal with the challenges of such a wide variety of research themes, the Department of Materials decided in December 2015 to purchase an Empyrean X-ray diffractometer from PANalytical. Since its installation, the instrument is being used extensively within a multi-user environment made up of a large number of research staff and students. They primarily investigate thin films and particularly epitaxial layers by high-resolution measurements, rocking curve, X-ray reflectivity (XRR), reciprocal space maps (RSM), texture, residual stress, in-plane, glancing incidence measurements (GI-XRD and GI-SAXS), small- and wide-angle scattering (SAXS/WAXS) as well as non-ambient *in situ* studies.

Left to right: Terry Soteriou (PANalytical), Richard Sweeney (Imperial College London) & Dr. Paul O’Meara (PANalytical) by the Empyrean conducting a thin film experiment

To satisfy these numerous requirements the Empyrean has what is known as a ‘Christmas tree’, configuration including three- and five-position programmable cradles, various monochromators, the Bragg-Brentano^{HD} optical module for high-speed generation of high-quality data, the ScatterX^{78} SAXS/WAXS attachment, and the Domed Hot Stage DHS1100 for non-ambient experiments. PANalytical’s PIXcel^{3D} detector is taking care of recording the data, which can then be processed by one of the eight different software applications purchased with the instrument.

Mr. Richard Sweeney, Senior Research Officer at the Department of Materials X-ray Diffraction lab was impressed by the outstanding professionalism and thoroughness of the installation team. He stated: “The quality of the data produced by PANalytical from the Empyrean at the tender evaluation stage was very impressive and I’m happy to say that the Empyrean has certainly lived up to expectations. Switching between modes is straightforward and the ultra-fast reciprocal space mapping is truly remarkable, enabling us to quickly select only the best films for more detailed measurements”.

Mr. Richard Sweeney is particularly happy with the ScatterX^{78} attachment, which enables them to “easily obtain good-quality SAXS and WAXS data to characterize a range of nanomaterials without the need for a separate SAXS instrument”.

“I’m happy to say that the Empyrean has certainly lived up to expectations.”

- Mr. Richard Sweeney, Senior Research Officer at the Department of Materials X-ray Diffraction

Mars rover **operational strategies testing** at terrestrial analog sites

An extraterrestrial application for ASD's field-portable VNIR spectrometry

Returned Mars rover data can help us to attempt to reconstruct the geologic history of a region and identify biosignatures reflecting past life. The approaches used to robotically explore planetary field sites are an outgrowth of geologic fieldwork on Earth. A NASA-sponsored project seeks to test modes of rover operations and determine which mode provides maximum science return from a time- and resource-limited robotic mission on Mars. Real rovers are not used given the cost and technical /logistical constraints and because the tests are solely to test rover science methodologies and protocols; terrestrial analog rover simulations are used instead, and as a tool in refining Mars rover operational strategies.

Sarah Black, a University of Colorado PhD student in the Department of Geological Sciences participated in Mars rover analog field tests in remote Utah (US). In these tests, Sarah acted as a 'human rover' using an ASD TerraSpec Halo Mineral Identifier to simulate functionally-equivalent instruments available to the current rovers on Mars.

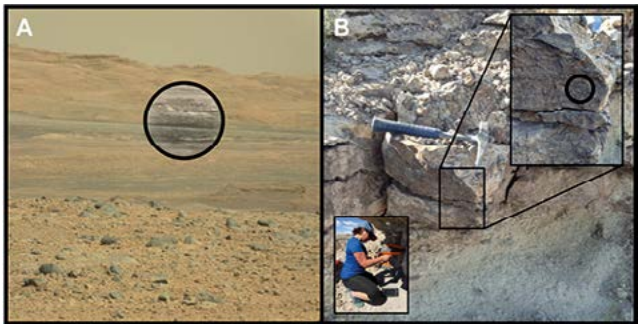
'Human rovers' were commanded by a separate science backroom (Mission Control). Mission Control told the rovers where to go and what data sets to collect at each stop. The data was then 'downlinked' to Mission Control, who used that data to plan the next targets of interest, and which data to acquire at those sites.

Visible near-infrared (VNIR) spectroscopy provides a wealth of compositional information, and is a valuable tool in planetary exploration. The portable spectrometer allowed for rapid data acquisition of *in situ* outcrops, similar to those data gathered Mars rovers, and allowed the instrument operator to rapidly traverse the field site, maximizing the number of data points gathered for the science teams.

The use of field-portable VNIR as an analog for rover instrumentation was sufficient for science team operations; the teams were able to efficiently conduct their site investigation and analysis of operational methods using terrestrial analog instrumentation. The result of this study will feed directly into the Mars rover Curiosity's operational planning to maximize the science return from Mars.

Figure A. A ChemCam Remote Micro Imager (RMI) scene (CR0_439663426PRC_F0240312CCAM02475L1; NASA/JPL-Caltech/LANL) superimposed on a MastCam image (0475MR0018870000302888E02_DXXX; NASA/JPL-Caltech/MSSS) of the base of Mount Sharp, Gale Crater – acquired on sol 475 of the Curiosity Rover mission. VNIR reflectance of the area within the circle was sampled via ChemCam's passive function.

Figure B. Sampling site with the field-portable VNIR spectrometer. Sampled area is within the circle. Inset: The ASD TerraSpec® Halo field-portable spectrometer in action.



Reference:
Black, S.R., Yingst, R.A., Hynek, B.M. (2016). Spectroscopy, 31, 29-35

Empyrean Nano edition for advanced SAXS/WAXS experiments and more

This year's Denver X-ray Conference was the stage for the launch of PANalytical's Empyrean Nano edition. Attendants of the event in Rosemont (IL, USA) were introduced to this new hybrid laboratory instrument that offers a unique combination of various advanced X-ray scattering techniques on a single platform. From the experimental data researchers can deduce information not only about nanoscale structures and dimensions but also about order and disorder on the atomic level and about structural features in the range of several hundred nanometers.

The Empyrean Nano edition is an X-ray scattering platform with small-angle X-ray scattering (SAXS) being the main application. To ensure maximum flexibility, it is based on the same goniometer platform and on the same concept of pre-aligned X-ray modules as PANalytical's proven XRD flagship, the Empyrean.

Similarly as with dedicated SAXS instruments, it uses a focused X-ray beam and an evacuated beam path. Scattered intensities are measured with PANalytical's high-end GaliPIX^{3D} or PIXcel^{3D} hybrid pixel area detectors, which excel by their high spatial resolution and a high sensitivity. Users can easily switch between setups for isotropic and anisotropic materials (1D or 2D collimation). A temperature-controlled sample stage is available for experiments on soft matter.

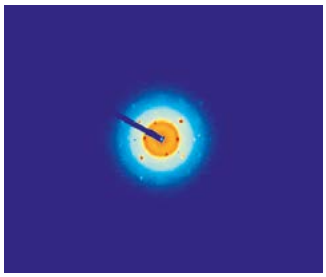
"With the unique combination of USAXS, SAXS, WAXS and PDF measurements on a single platform, the Empyrean Nano edition enables the analysis of multi-level structures."

- Jörg Bolze, market segment manager, PANalytical

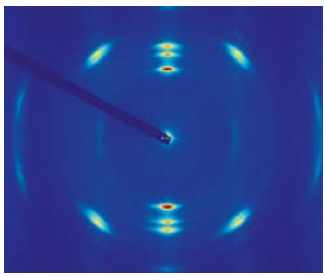
Due to its good sensitivity even for very weakly scattering samples, the instrument is also suited for the bio-SAXS application, as a tool in structural biology and biological drug development for the analysis of protein molecules in dilute solution.

Besides SAXS measurements, the Empyrean Nano edition also allows wide-angle X-ray scattering (WAXS) experiments up to angles as high as 78 °2Θ. At the opposite extreme, measurements can be extended to ultra-small angles, down to 0.005 °2Θ (corresponding to a Bragg spacing of 1700 nm). The resolution with such a USAXS setup is up to ten times higher as compared to what can be achieved on a conventional SAXS instrument. Using hard radiation in combination with the GaliPIX^{3D} detector, the platform additionally allows for fast total scattering experiments. This technique, also known as nanocrystallography, is used for the determination of the atomic pair distribution function (PDF).

"Compared to single-purpose instruments the Empyrean Nano edition is highly cost-effective. Users are not bound to a limited set of applications", says Jörg Bolze, market segment manager for PANalytical's nanomaterial analysis solutions. "The Empyrean Nano edition not only offers the unique combination of USAXS, 1D and 2D SAXS/WAXS and total scattering techniques but gives the possibility to add e.g. powder diffraction, thin film analysis or computed tomography (CT), at any point in time."



2D SAXS pattern of a colloidal crystal



2D WAXS pattern of polypropylene fiber

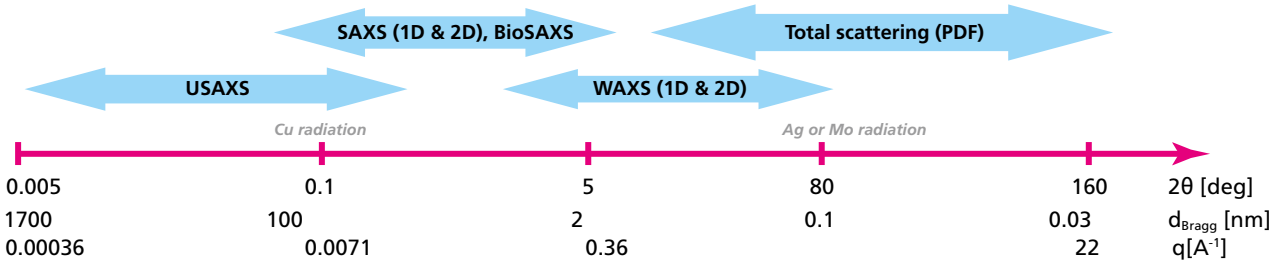
Small-angle X-ray scattering **(SAXS)** is used for the analysis of nanoscale structures and dimensions in e.g. colloids, polymers, protein solutions, liquid crystals, surfactants, nanopowders and other types of nanomaterials. The scattering of X-rays is recorded at very low angles (typically from below 0.1 up to 5 °2Θ). By extending the measurements to ultra-small angles in a **USAXS** experiment, larger length scales in the range of hundreds of nanometers can be probed.

In wide-angle X-ray scattering **(WAXS)**, scattering intensities are measured at larger angles to yield complementary information about e.g. the nanocrystallite size, the crystalline phases, or the crystal lattice orientation in anisotropic materials.

Total scattering experiments are used to determine the atomic pair distribution function (PDF) that gives information about local order and disorder in the arrangement of the atoms.

The structrual information that is gained from X-ray scattering experiments can often be correlated with the material's macrosopic properties. The Empyrean Nano edition thus contributes to the rational design of new and advanced materials with tailored properties.

Nanomaterial analysis on multiple length scales



Like no other lab instrument on the market, the Empyrean Nano edition covers Bragg spacings from sub-Ångströms to micron(s) and a scattering vector q-range spanning almost five decades – without any gap.

New developments in the fight against Zika and Dengue

Zika and Dengue are viral diseases that infect well over 400 million people each year. In humans, infection by the Dengue virus results in fevers, headaches, rashes and severe joint and muscle pains. Infection by the Zika virus typically causes a mild illness known as Zika fever. More significantly, prenatal Zika infection has been associated with microcephaly and other serious birth defects. Both viruses are transmitted by mosquitoes of the Aedes species.

Numerous studies have shown that infecting these mosquitoes with a targeted strain of the Wolbachia bacterium greatly reduces the likelihood that the mosquitoes carry the Zika or Dengue virus. Wolbachia-infected mosquitoes spread rapidly and can infect over 80 percent of the local mosquito population.

In order to judge the effectiveness of a release program of infected mosquitoes, wild mosquitoes must be trapped and screened for the presence of the Wolbachia bacterium. Dr. Maggy Sikulu-Lord, from QIMR Berghofer Medical Research Institute in Brisbane, Australia, and colleagues have developed a method for rapidly screening Wolbachia infection in mosquitoes based on near-infrared (NIR) spectrometry. Using ASD's field portable LabSpec NIR analyzer, the researchers have been able to distinguish between infected and uninfected mosquitoes with 85-95% accuracy, enabling them to rapidly determine the effectiveness of the program.

Dr. Sikulu-Lord states: "A study nominated for an award by Combating Zika and Future threats, funded by USAID, and led by Dr. Sikulu from the University of Queensland, will investigate the ability of NIR as a rapid technique to detect Zika and Dengue infections in the principal mosquito vector Ae. aegypti in Rio de Janeiro, Brazil. We will use a Labspec 5000 NIR instrument from ASD PANalytical to develop models that can be used to rapidly detect Zika and Dengue transmission hotspots in Brazil. This non-destructive technique is faster than the standard polymerase chain reaction diagnostic techniques. It requires little sample processing and does not consume any reagents."

Brent Olsen, VP & GM of ASD is pleased that "our solutions have the ability to help make a difference in the fight against Zika and Dengue. This is well in line with PANalytical's mission to create a better world by helping people to analyze materials that matter to them and the environment."

A happy anniversary

Congratulations to Claisse®, the First and Finest in Fusion, who is celebrating its 40th anniversary this year! Glenna Keating, XRF Technologist at the Ontario Ministry of Northern Development and Mines in Sudbury (Ontario Canada) and long-term Claisse customer shares her experiences with Claisse consumables:

"I've been using Claisse® consumables since 1986, and I've always been very satisfied with their fluxes and platinumware. Consistency, quality and ease of use are the words that come to mind to describe the products offered by Claisse, especially their fluxes. I've never had any issues with contamination, their fluxes are easy to store and they retain their flow properties very well.

The high-quality platinumware available at Claisse is durable and is certainly key to providing excellent XRF analyses for our researchers. I can depend on Claisse because their products are reliable and tailor-made. It is very reassuring and convenient to deal with a company that is so responsive to my needs for XRF analysis!"

CLAISSE
THE FIRST AND FINEST IN FUSION®

Events calendar 2017

The list shows a selection of events during the next few months where you will find us. Please come by and visit us when you attend any of these events.

5 – 9 February	AXAA	Melbourne, Australia
15 – 16 February	CBI Brazil (LATAM)	São Paulo, Brazil
19 – 22 February	SME Annual Conference	Denver, CO, USA
6 – 9 March	Pittcon	Chicago, IL, USA
21 – 23 March	Frontiers of Characterization and Metrology for Nanoelectrics	Monterrey, CA, USA

www.panalytical.com/events

A large variety of solutions for the mining industry

September and October were busy months for PANalytical's mining specialists who attended two very successful events in South America. The 2nd Ore and Minerals (OMA) workshop was organized by Vale together with PANalytical in September in Nova Lima (Brazil). Here, more than 100 participants not only enjoyed presentations and demonstrations from all of PANalytical's product lines but were witnesses of the first worldwide prelaunch of Aeris, the new benchtop XRD system (see pages 8&9).

A sneak preview of Aeris was also presented in October at the 24th World Mining Congress (WMC) in Nova America (Rio, Brazil) where numerous participants queued for more information about PANalytical's solutions for the mining industry at the booth.

The 3rd OMA meeting will be held on 14 December 2016 in Lima, Peru and another successor has been planned for 2 – 5 May 2017 in Belém, Brazil.

PANalytical solutions at OMA (left); teaching future customers at WMC (right)

Colophon

Please send your contributions, suggestions and comments to the following address.

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