Nano-inXider[✗]
Smart nanoscale characterization

xenocs
Exploring the very small

Nano-inXider ✕

Your gateway to the SAXS/WAXS technique

WAXS signal

SAXS signal

X-ray beam

Au NPs
exposure time = 600s

Hard sphere model
Ra = 3.415 nm
σ = 2.8%

Integrated intensity (a.u.)

q (nm^{-1})

Measurement ＞ **Recorded signal on the detector** ＞ **Material structure determination via dedicated software**
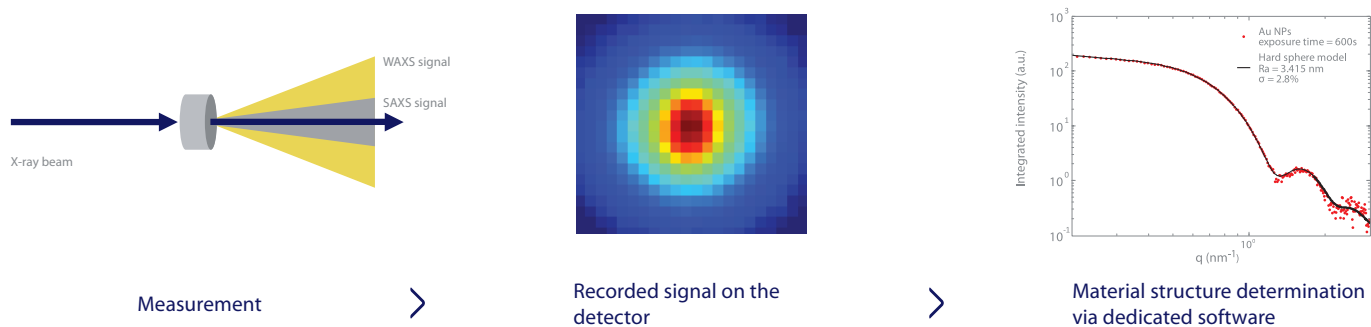
1. Principles

SAXS/WAXS, or Small and Wide Angle X-ray Scattering is a non-destructive technique that provides structural information on materials from few hundred nanometers down to the sub nanometer scale.

This technique uses the scattered X-rays from a sample at different angles to provide information about its structure at the nanoscale.

The collected scattered signal at very low angles (typically between 0.05 to 10 °) will give information on the structure of the material at a scale between 1 to few hundred nanometers, whereas the signal collected at wider angles (> 10 °) will provide information about the crystalline phase of the material.

With SAXS you can determine the size, size distribution, shape & surface-to-volume ratio of nanostructures up to few hundred nanometers
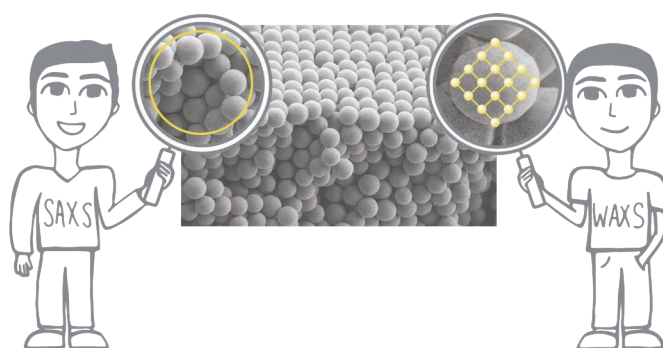
With WAXS you can get information on the crystalline phase of materials.

2. Advantages

Running a SAXS/WAXS experiment requires minimal sample preparation.

Measurements are easily performed on solids, liquids (even real processed objects or systems in native conditions such as proteins in solutions). *In situ* measurements of samples under variable conditions such as temperature or tensile stress are no problem for the Nano-inXider.

The SAXS/WAXS technique will provide you with statistically relevant information about the probed volume of sample, making it an ideal complement to other techniques which provide only localized information (such as electron microscopy).

With the Nano-inXider you take full benefit from the SAXS/WAXS technique.

Nano-inXider^x

Your window to the most hidden face of materials

The Nano-inXider is a comprehensive solution for the characterization of nanomaterials.
Benefiting from the unique technology developed by Xenocs through many years of experience, the Nano-inXider features unparalleled performance and ease of use in a compact package for simple integration into any lab environment.

1.
Easy to use

Large sample environment for easy access and sample manipulation. Automatic alignment and change of settings.

2.
High performance

Unique proprietary clean-beam-technology from Xenocs. Advanced in-vacuum hybrid pixel detection from Dectris.

3.
Compact design

All-in-vacuum vertical-beamline architecture. Smallest footprint on the market.

4.
Adapted to your application

A wide range of sample environments available.

SAXS/WAXS measurements have never been as easy as with the Nano-inXider.

The Nano-inXider finds its roots in the unique clean beam technology developed by Xenocs over the years. Making this technology available in such a compact system represented a major challenge to our team.

But at the end of the day, the technology is not what matters, but what the system can offer to the user and how easy it is to operate.

We can proudly say that with the Nano-inXider we have been able to achieve a unique combination of performance, ergonomics, compactness and ease of use.

Blandine Lantz
Product Manager

Nano-inXider✕

Comprehensive and easy to use software

The unique performance of the Nano-inXider is enhanced by a comprehensive and easy to use software suite for data acquisition, processing and analysis.

> *The quality of data processing is a key step in the performance of a SAXS/WAXS measurement. Nano-inXider relies on advanced data processing algorithms that were developed in the synchrotron environment. Thanks to the beam architecture of the Nano-inXider, no desmearing post treatment is necessary, avoiding any loss of information and thereby providing more accurate data.*
>
> *Predefined acquisition and data processing routines, easily controlled through the intuitive graphical user interface, help the user to easily access key information about their samples.*

Dr. Manuel Fernández
SAXS R&D Scientist and former Post-doctoral researcher at ID02 SAXS beamline at the European Synchrotron Radiation Facility (ESRF)
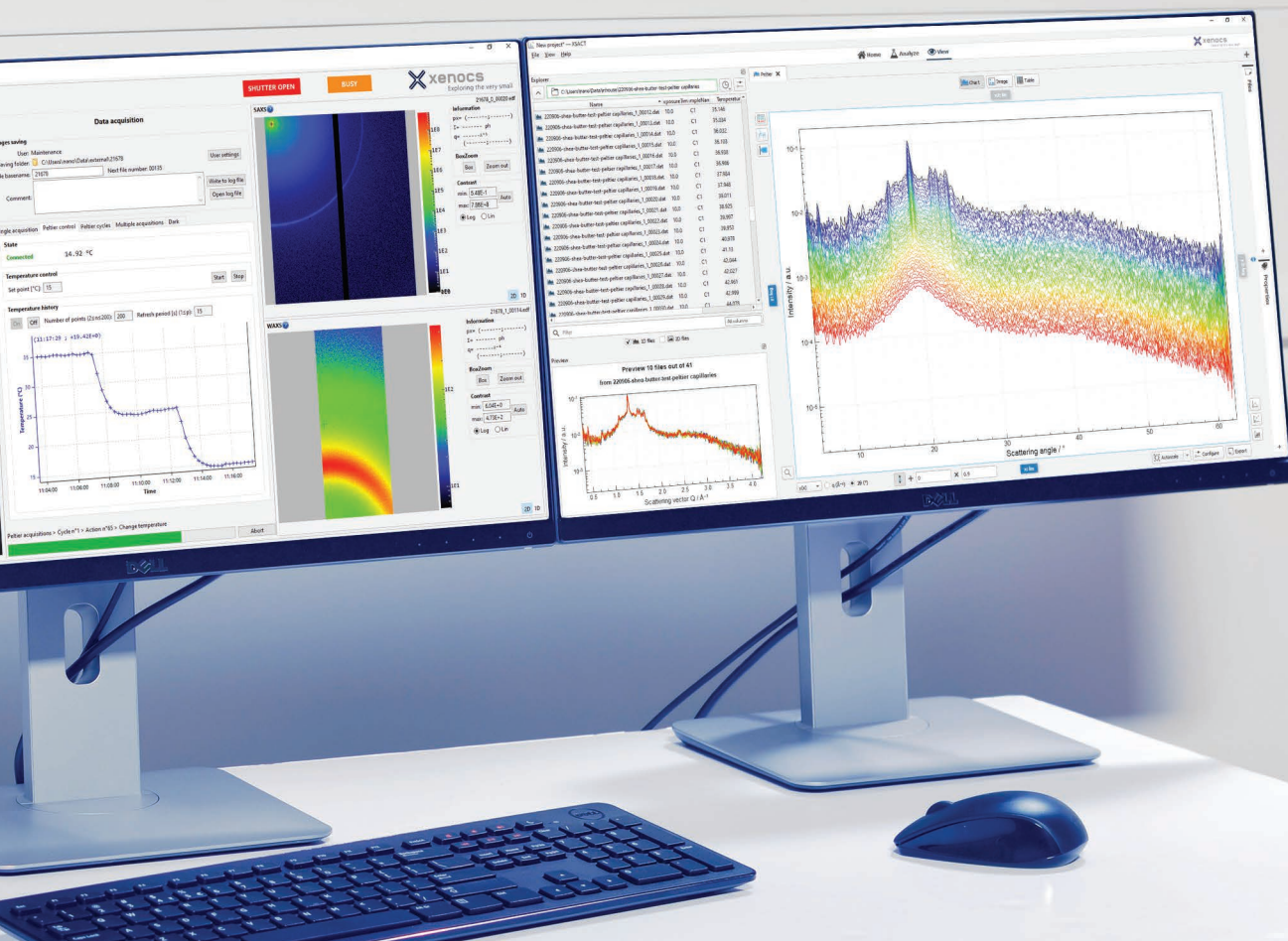
System control and data acquisition software

The Nano-inXider control and data acquisition software features an intuitive graphical user interface for ease of system operation.

The software enables the complete monitoring of data acquisition parameters. Acquisition in single or batch mode can be controlled in just a few clicks.

2D raw images as well as 1D reduced curves are automatically saved for each acquisition.

Auto alignment of the complete system, automatic change of measurement settings and control of various sample environments are all available.

With comprehensive features and advanced ergonomics, the Nano-inXider control and data acquisition software ensures maximum measurement throughput.

Xenocs XSACT data processing and analysis software

The Nano-inXider is delivered with Xenocs XSACT software package. This X-ray scattering data processing and analysis software contains key analysis functions for the processing and interpretation of SAXS/WAXS data. These include size distribution and specific surface area determination of nanoparticles, determination of the mass concentration of a suspension, size and molecular weight of proteins in solution, degree of crystallinity in mixed amorphous/ordered materials and structural evolution as a function of an external parameter.

The Nano-inXider offers automatic 2D data reduction into a 1D scattering curve in quantitative units to facilitate the subsequent analysis. For samples requiring specific representation and study of 2D scattering data such as anisotropic samples or thin films studied in grazing incidence, XSACT represents the data in reciprocal space with no information loss, and provides all the tools for quick orientation analysis and display.
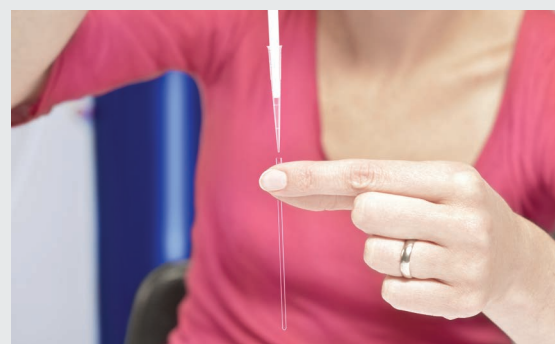
Nano-inXider×
The right solution
for your application

The Nano-inXider brings new characterization capabilities
in the lab, opening new perspectives in many research fields.

Low noise flow cell for diluted systems

Capillaries

With the Nano-inXider
you can look at:

Nanoparticles & colloids

Polymer research

Drug development & formulation

Cosmetics & consumer care

Oil & gas

Food science

Renewable energy

Inorganic materials

Nano-inXider

Temperature stage

Multiple sample holder for solid samples

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Comprehensive service for quick access to the SAXS/WAXS technique

New to the SAXS/WAXS technique? We are here to help. The Nano-inXider is supported by a comprehensive training and application consultancy team, that will work with you to ensure that you are able to realize the full potential of the system.

Onsite installation and commissioning

Our team of engineers works in close collaboration with each customer together with our local agents to ensure smooth installation and quick start of the system.

Operational training & scientific support

Comprehensive operational and scientific training programs both on-site and online are available to get you up and running quickly, provide continuous support and guidance with data analysis.

Customer support

A large choice of customer support programs are available to ensure that each customer is able to take full benefit of the system.
Direct support from Xenocs engineers through our hotline for both software and hardware issues coupled together with regional support by our local agents enables us to provide a 24 hour response time.

> *Our mission is to ensure our customers full satisfaction for the complete lifetime of the system.*
>
> *The Nano-inXider was designed as a low maintenance, and highly reliable instrument simplifying SAXS/WAXS experiments with maximized uptime.*
>
> *As an ISO9001 certified company, we have implemented a customer support policy based on reactivity, comprehensive explanation, and regular follow-up.*

Liem Pham-Gia
Customer Support Engineer
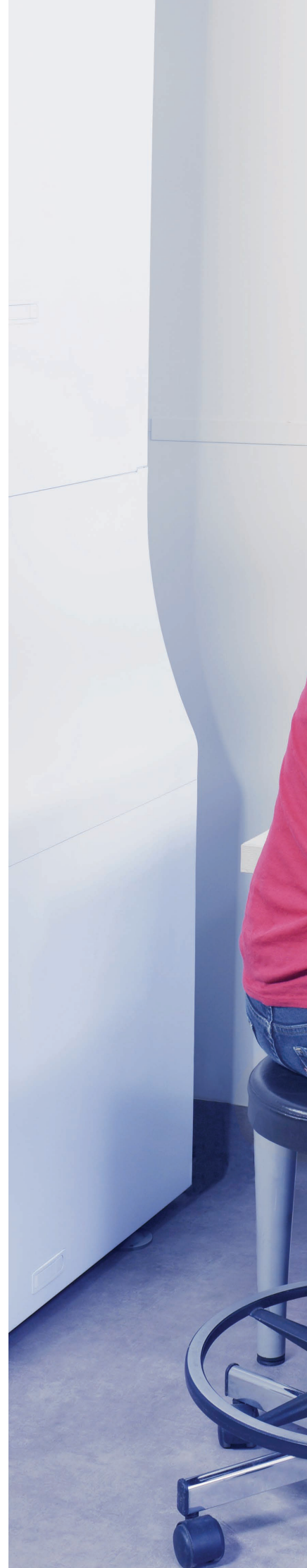
For all inquiries, please contact:

sales@xenocs.com

Xenocs SAS
1-3 Allée du Nanomètre
38000 Grenoble
France
T. +33 (0)4 76 26 95 40

Xenocs Inc
4 Open Square Way
Suite 101
Holyoke, MA 01040, USA

Xenocs Inc – West Branch
351 Paseo Nuevo, Floor 2
Santa Barbara, CA 93101, USA

Xenocs China
Room 225, Guo Feng Building, No.5
Fengti North Road,
Fengtai District 100166,
Beijing P.R., China

Xenocs Asia Pacific Pte. Ltd.
541 Orchard Road, #09-01
Liat Towers, Singapore

Xenocs Nordic ApS
238881Diplomvej 381
2800 Kgs. Lyngby, Denmark

Xenocs local representation
www.xenocs.com/contact/

www.xenocs.com

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