Nano-inXider

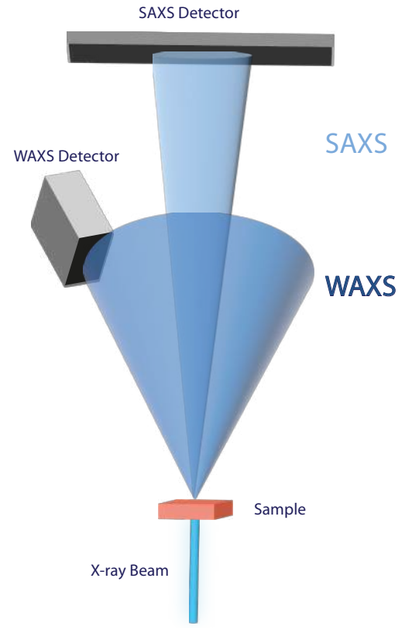
Smart nanoscale characterization

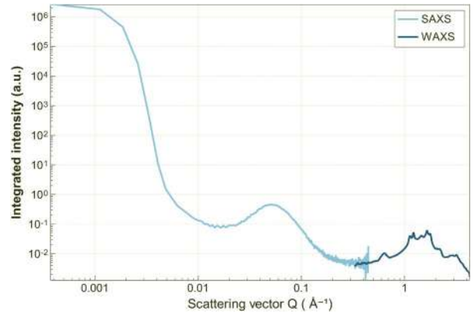
xenocs
Exploring the very small

Nano-inXider

Multi-scale material characterization in your lab

Simultaneous SAXS/WAXS for a multi-scale analysis





1. Measurement

2. Material structure determination via dedicated software

Enabling advanced structural analysis with SAXS/WAXS

Small- and Wide-Angle X-ray Scattering (SAXS/WAXS) are complementary, non-destructive techniques that unlock a detailed view of how materials are organize, from the arrangement of atoms to structures hundreds of nanometers in size.

When a finely focused X-ray beam interacts with a sample, some photons are scattered from their original path. The angles at which this scattering occurs reveal the size, shape, the spatial arrangement and periodicity of structural features.

SAXS measures scattering at very small angles (≈ 0.05°–10°), giving access to nanostructures with characteristic dimensions from ~1 nm to several hundred nanometers.

WAXS explores larger scattering angles (> 10°), providing insight into atomic-scale order and crystalline phases.

Together, these techniques provide a comprehensive picture of a material's structure across multiple length scales, essential for understanding and optimizing its properties.

Key benefits of SAXS/WAXS for material characterization

Multi-scale structural analysis

Simultaneously access information from the atomic scale to hundreds of nanometers in a single experiment. For example, determine both the crystalline phase of a polymer and the size and arrangement of its lamellar domains. The Nano-inXider's combined SAXS/WAXS configuration makes this analysis straightforward in a single measurement.

Quantitative and statistically representative

Probe large sample volumes to obtain reproducible, statistically relevant data, ideal for heterogeneous materials such as composites, emulsions, or powders, where microscopy might capture only local variations.

Versatile sample compatibility

Suitable for solids, liquids, gels, powders, or suspensions, often with minimal or no preparation. Applicable to fields as diverse as life sciences, nanomaterials, and polymer engineering, from proteins in solution to nanoparticles in colloids to fibers embedded in composites

Dynamic and in-situ capability

Monitor structural evolution in real time under controlled environmental conditions such as temperature changes, humidity, mechanical deformation, chemical reaction, or flow.Track processes like crystallization, aggregation, swelling, degradation, or phase transitions as they happen.

Nano-inXider

High-performance made accessible

The Nano-inXider makes high-quality structural characterization more accessible than ever. Its compact design and fully integrated workflow let you go from sample to insight quickly, without compromising accuracy or reliability. Buit for both cutting-edge research and demanding industrial environments, it supports everything from exploratory studies, in fields ranging from materials science to life sciences, to routine quality control.

1.
Compact SAXS/WAXS system

Vertical, all-in-vacuum beamline delivering simultaneous SAXS/WAXS measurements with the smallest footprint on the market.

2.
Multi-scale structural insights

Capture structural features from atomic to nanoscale in a single exposure using dual-detector technology.

3.
High sensitivity and data quality

Beamstop-less acquisition and Clean Beam Technology ensure exceptional signal-to-noise, even for weakly scattering samples.

4.
Easy operation for daily use

Automated beam and detector alignment, along with easy sample access, support efficient, routine operation with minimal setup time.

5.
Built for research and industry

Supports a wide range of sample types across materials science, life science, and industrial applications, from R&D to quality control.

6.
Integrated acquisition and analysis software

User-friendly acquisition and analysis doftware designed for efficient use by both experts and non-specialists.

Nano-inXider

The right solution for your application

Whether you are uncovering fundamental structure–property relationships, optimizing formulations and processes, or validating product performance, the Nano-inXider delivers reproducible, high-quality SAXS/WAXS data that gives you clarity, confidence, and control at every step.

Extensive selection of sample holders and environments

Nano-inXider offers a full suite of sample holders and environments designed to accommodate virtually any type of sample under the precisely controlled thermal, mechanical, or ambient conditions.

Go from one experiment to the next in minutes, with automated alignment ensuring accuracy every time. From routine measurements to complex in-situ studies, the Nano-inXider provides the flexibility required to meet your experimental objectives.

Solid sample holders: analyze powders, pellets, thin films, and bulk samples, including large formats.

Capillary and flow cells: measure liquids, dilute solutions, and weak scatterers, with options for continuous flow.

Temperature-controlled stages: study crystallization, melting, and phase transitions from cryogenic to 1000 °C.

Mechanical testing stage: monitor structural evolution under controlled strain in real time

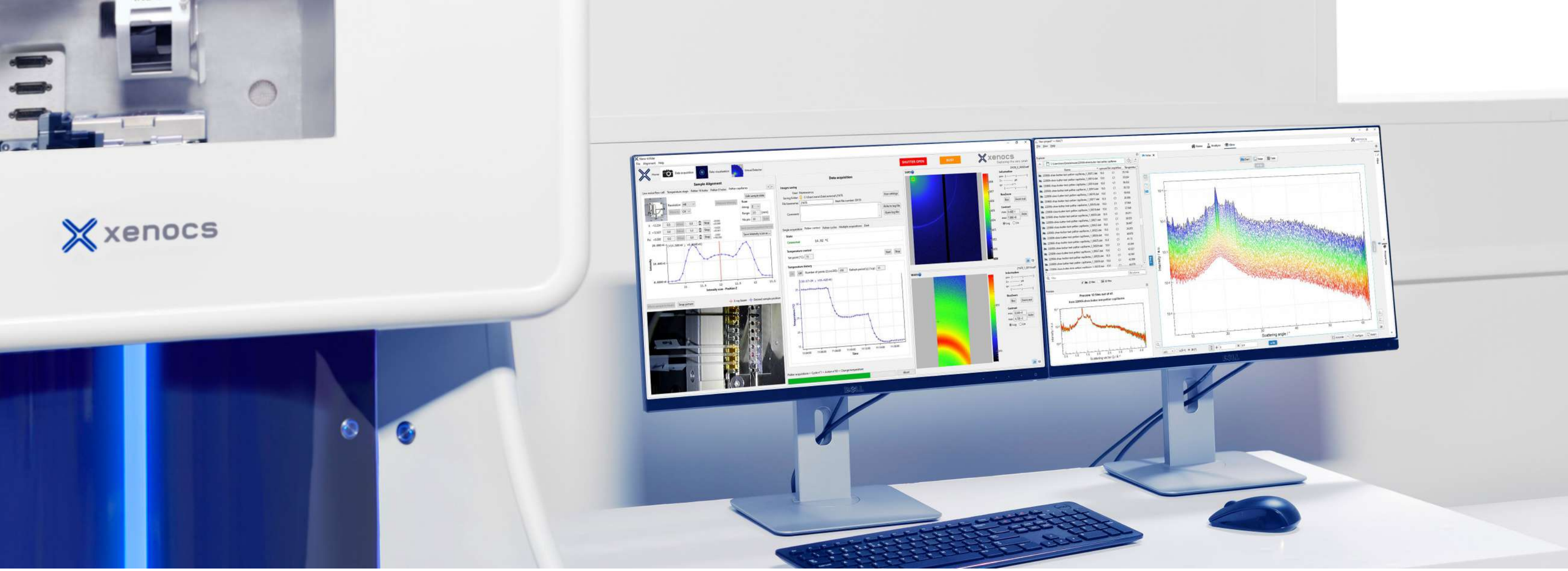
GISAXS stage: investigate nanoscale ordering and interfaces in thin films and surfaces

Diverse applications

From designing next-generation polymers to optimizing drug formulations and engineering high-performance energy materials, Nano-inXider empowers you to uncover the structural information that drives innovation.

Its simultaneous SAXS/WAXS measurements capture nanostructure morphology, crystalline phases, and mesoscale organization in a single exposure — delivering a complete, multi-scale picture of your material to guide discovery and development.

- Polymer research
- Pharmaceuticals
- Food science
- Semiconductors
- Oil & gas
- Nanoparticles & colloids
- Renewable energy & storage
- Cosmetics & consulmer care
- Biostructural research
- Inorganic materials



Nano-inXider

Intuitive software for comprehensive insight

The unique performance of Nano-inXider is complemented by an integrated software suite that lets you control experiments, process scattering data, and extract key structural parameters, all in a single, efficient workflow.

System control and data acquisition software

The Nano-inXider control software features a clean, intuitive interface that makes operation straightforward for both new and experienced users.

Complete experiment control: monitor and adjust acquisition parameters in real time, with automatic logging of conditions for full traceability.

Flexible acquisition modes: run single measurements, batch sequences, or mapping experiments in just a few clicks.

Automatic data handling: 2D raw images and reduced 1D curves are saved for every acquisition and scaled to absolute units for reproducible, comparable results.

Optimized workflow: automatic alignment, rapid change of measurement settings, and full control of sample environments maximize throughput.

Xenocs XSACT Pro data processing and analysis software

The performance of the Nano-inXider is complemented by the Xenocs XSACT Pro software that transforms SAXS/WAXS data into clear, actionable insight.

Comprehensive analysis: quantify key parameters such as particle size distributions, surface area, concentration, protein properties, and crystallinity, and track structural evolution under varying conditions.

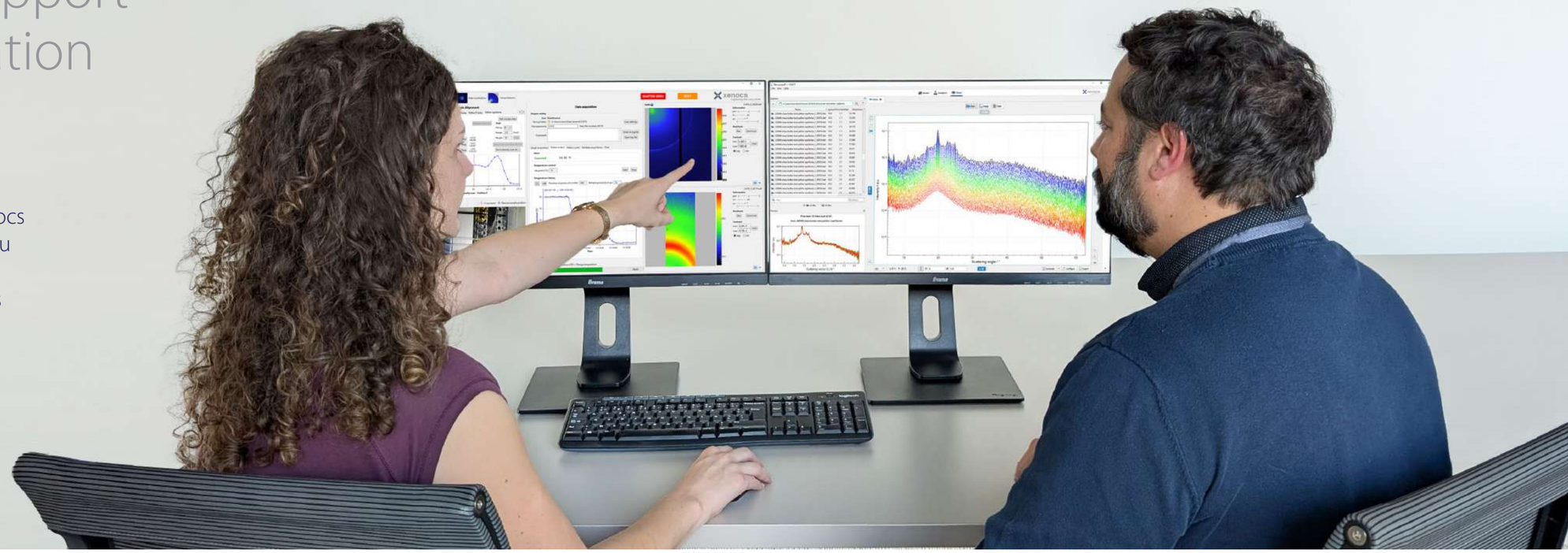
Specialized modules: use AI-based classification to identify the most probable particle shapes in your sample, and apply model fitting to compare data with theoretical models for a complete structural picture.

From raw data to results: go from 2D images to calibrated curves and publication-ready figures — all within one software.

Nano-inXider

Expertise and support for every application

Whether you are new to the SAXS/WAXS technique or applying it in advanced research or industrial environments, Xenocs offers the training and expert support you need to use the Nano-inXider with confidence and turn your measurements into meaningful results.



Expert installation & commissioning

Our dedicated team of Xenocs field engineers, working closely with our local agents, ensures smooth installation and seamless integration of the Nano-inXider into your workflow from the very first day.

Operational training

Structured training programs, delivered both onsite or online, equip your team with the skills and confidence to use the system effectively and independently.

Technical support

With a global network of service engineers and local partners, you always have expert help within reach. From troubleshooting to preventive maintenance, we provide responsive support that minimizes downtime and keeps your system running at peak performance.

Scientific support

With dedicated analysis software and support from specialists across multiple applications, you gain in Xenocs a partner who works with you to transform structural information into solutions.

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