Xeuss 3.0

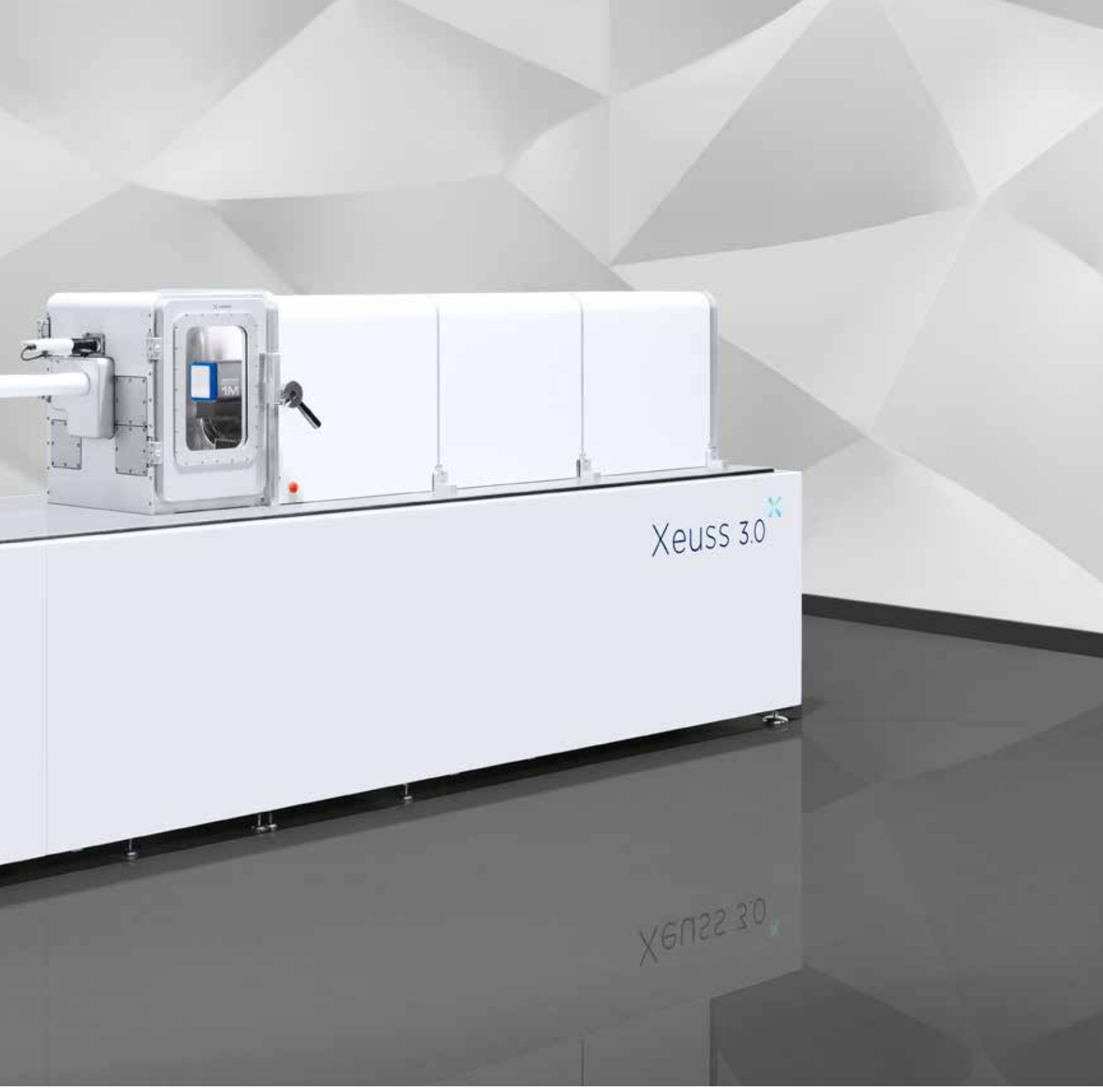
The Next Generation (GI-)SAXS/WAXS/USAXS beamline for your laboratory

xenocs
Exploring the very small

Xeuss 3.0

Access the nanoscale

Developing new materials and products with specific properties and functions requires deep knowledge of materials at the nanoscale.
The Xeuss 3.0 accelerates your research by rapidly providing structural information from the atomic- to nano-scale in your lab, when you need it.



Embedding 20 years of breakthrough innovation and of evolution based on feedback from our worldwide user community, the Xeuss 3.0 is the Next Generation X-ray scattering instrument for your lab.

Xeuss 3.0

One instrument, many applications

The Xeuss 3.0 enables the nanostructure characterization of soft matter and nanomaterials. It allows users to explore a wide range of applications.

With the Xeuss 3.0 you can perform Small- and Wide-Angle X-ray Scattering (SAXS/WAXS) measurements in transmission or in Grazing Incidence (GI-SAXS/WAXS) as well as Ultra-SAXS measurements to provide comprehensive structural information on all types of samples.

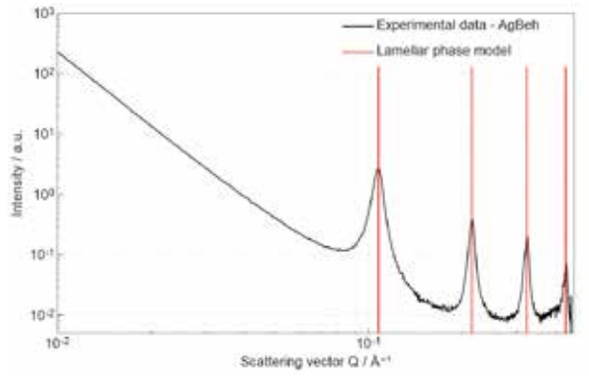
The Xeuss 3.0 is the perfect tool to make your lab a multi-user research center platform and initiate new collaborations.

Typical measurements with the Xeuss 3.0 include:

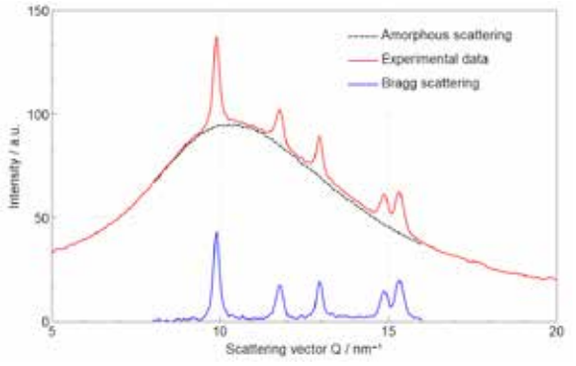
- Particle size distribution ranging from a few nanometers to more than 300 nm in diameter (or up to few microns with USAXS)
- Crystallization rates and lamellar structure of semi-crystalline polymers
- Size and shape analysis of surfactants or proteins and other macromolecules in solutions
- Organization and orientation of nanomaterials at the atomic- or the nano-scale, in bulk or at surfaces
- Phase segregation studies of alloys
- *Operando* and *in situ* studies
- See more on www.xenocs.com/characterization/

Examples of measurements with the Xeuss 3.0

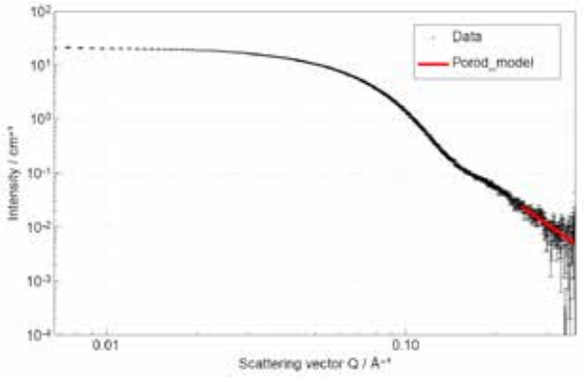
Phase identification



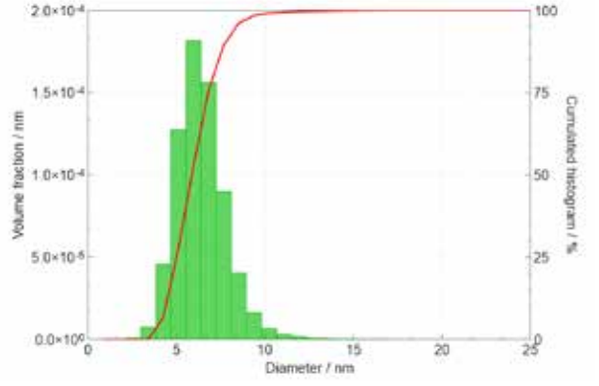
Crystalline fraction



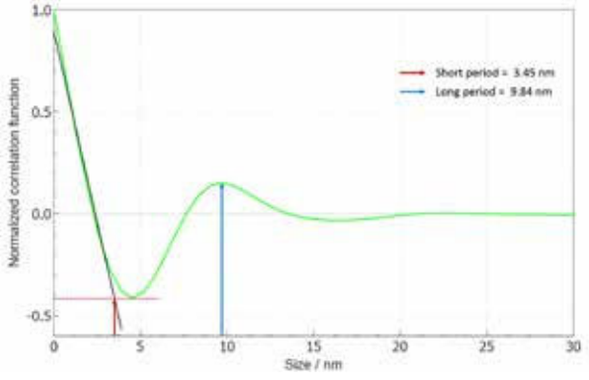
Specific surface area



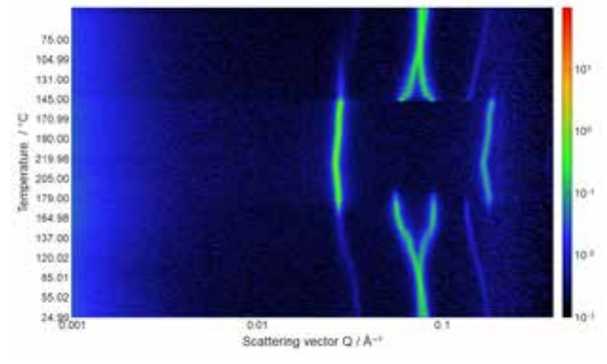
Particle size & size distribution



Lamellar structure



Phase transitions



The Xeuss 3.0 performs measurements with maximum flexibility, at the highest level of performance and with plenty of space for sample environments.

Xeuss 3.0

Maximum flexibility

Explore any sample over a unique range of length-scales

Advanced nanomaterials research & development requires characterization over a large range of length scales.
With the Xeuss 3.0, you can characterize structure from atomic scale up to a few microns through the automatic change of instrument configuration.
This can be done remotely, for a single sample or batch processing.

The Xeuss 3.0 is available in several versions with a choice of measurement capabilities, sources, detectors and sample environments, making it possible to configure the ideal platform instrument for your research.

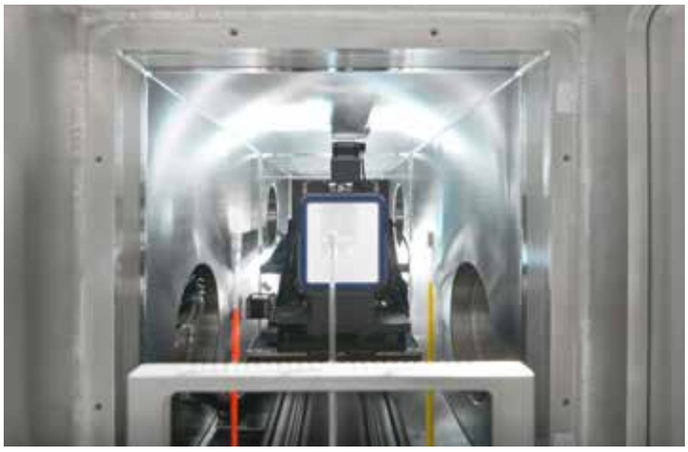
Modules for extended measurement capabilities

The Xeuss 3.0 integrates several options for extended measurement capabilities. Create the instrument you need for your research.

Motorized Bonse-Hart USAXS module

Characterize structure at length-scales as large as 4.5 microns together with nanoscale information.
Automated in and out movable crystal monochromator and analyzer are used to measure USAXS on the same sample sequentially to transmission SAXS and WAXS.

With the Xeuss 3.0, any measurement configuration from SAXS to WAXS is possible, all by computer control.



Q-Xoom detector travel

Benefit from the flexibility of a full-range computer-controlled detector travel in vacuum giving you access to all configurations for SAXS and WAXS measurements.

Advanced control software and live data

Optimize your experiments and instrument use with a Graphical User Interface and macro mode. Enjoy full remote operation with live data display in both 2D and 1D.

Multi-energy source

Optimize your experiment on any type of sample with up to 3 radiation sources (Cu, Mo, Cr, Ga Kα).
The change of source is motorized with automatic instrument alignment.

Movable 4-axis WAXS detector

Get access to atomic scales with very large scattering and azimuth angles around Ewald sphere. Ideal to select the proper angular range window to run time-resolved simultaneous SAXS and WAXS experiments.

Xeuss 3.0

Ultimate performance

Get the best possible data quality from any type of sample

To ensure the best quality of X-ray scattering data, the Xeuss 3.0 embeds key technologies and features which are the fruit of more than 20 years of breakthrough innovations, backed up by several patents.

High quality data with Clean Beam technology

A unique combination of high useful flux and high resolution in a low background camera to optimize results, including on dilute or low contrast samples.

20 years of innovation

2000

Creation of Xenocs, spin-off from Institut Laue Langevin.

2003

FOX3D

X-ray optics.

2006

GeniX

Micro-focus X-ray beam delivery system.

2008

Xenocs scatterless slits

First hybrid single crystal slits for SAXS. For synchrotron and lab.

2010

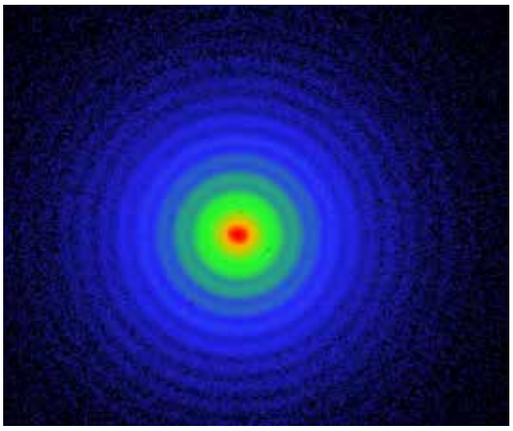
GeniX 3D

2nd generation microfocus X-ray beam delivery system.

2011

Xeuss

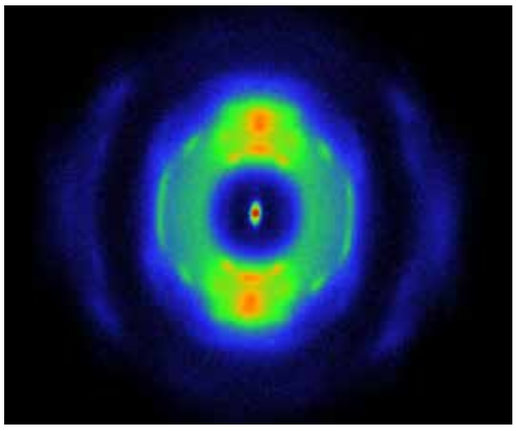
First lab SAXS/WAXS/GISAXS beamline, with microfocus source, 2D scatterless collimation, motorized in-plane 2D HPC detector.



SiO_2 Nanoparticles SAXS data

High dynamic range data with beamstopfree data acquisition

No parasitic scattering from beamstop edges or a detector window allows noise-free scattering detection at low *q*. The direct beam is recorded simultaneously with the sample scattering during acquisition for accurate absolute scattering intensities.



Stretched PET WAXS data

Large surface of detection with virtual detector in Q-Xoom

Included with the Xeuss Q-Xoom, the virtual detector offers a very large surface of detection with automatic data reconstruction, movable all the way from WAXS to SAXS extreme positions.

2013

Dual microfocus source

Triple source in 2014.

SWAXS Module

Simultaneous SAXS & WAXS with two HPC detectors.

Low Noise Flow Cell

In-vacuum flow cell with SiN low scattering windows.

2014

Xeuss 2.0

The SAXS/WAXS/GISAXS laboratory beamline. With Xenocs Clean Beam technology.

Nano-inXider

SAXS made easy.

2016

Acquisition of SAXSLAB by Xenocs

Bonse-Hart USAXS

BioCUBE measurement cell

Down to 5 µL sample consumption.

2017

Xeuss 2.0 with Q-Xoom

Full travel in-vacuum motorized HPC detector as embedded in SAXSLAB's Ganesha instrument since 2011.

BioXolver

Accelerate your biostructural research.

2019

Xeuss 3.0

The Next Generation SAXS/WAXS/USAXS beamline for the laboratory.

Xenocs XSACT Software

X-ray Scattering Analysis and Calculation Tool.

2020

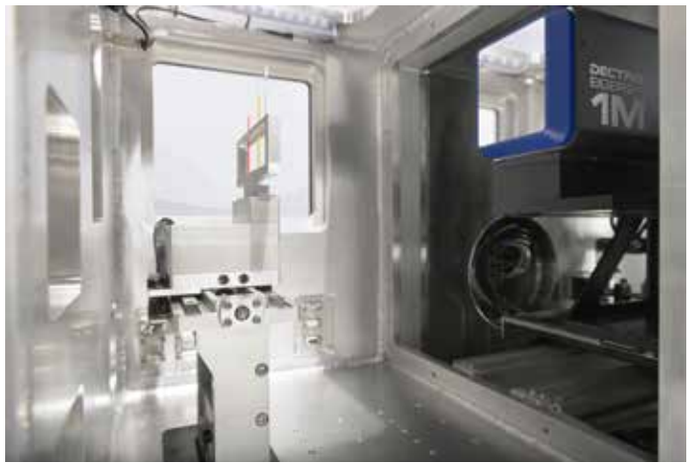
Much more to come...

Xeuss 3.0[X]

Dream the future

with a modular instrument that adapts to your future needs

Besides its maximum flexibility and unique performance, the Xeuss 3.0 offers plenty of space for sample environments. The combination of these three assets makes it the ideal tool for your research today and for many years to come.



Enjoy working with space

The spatious sample vacuum chamber of the Xeuss 3.0 makes experiments easy and fun to run.

Some of Xenocs sample environments

Gel and powder capsule holder for all applications involving gel & powders studies

Wide choice of sample holders and environments

Standard stages are provided with each system. In addition, a wide range of specialized sample holders and sample environments are available with the Xeuss 3.0 to measure samples under ambient and non-ambient conditions.

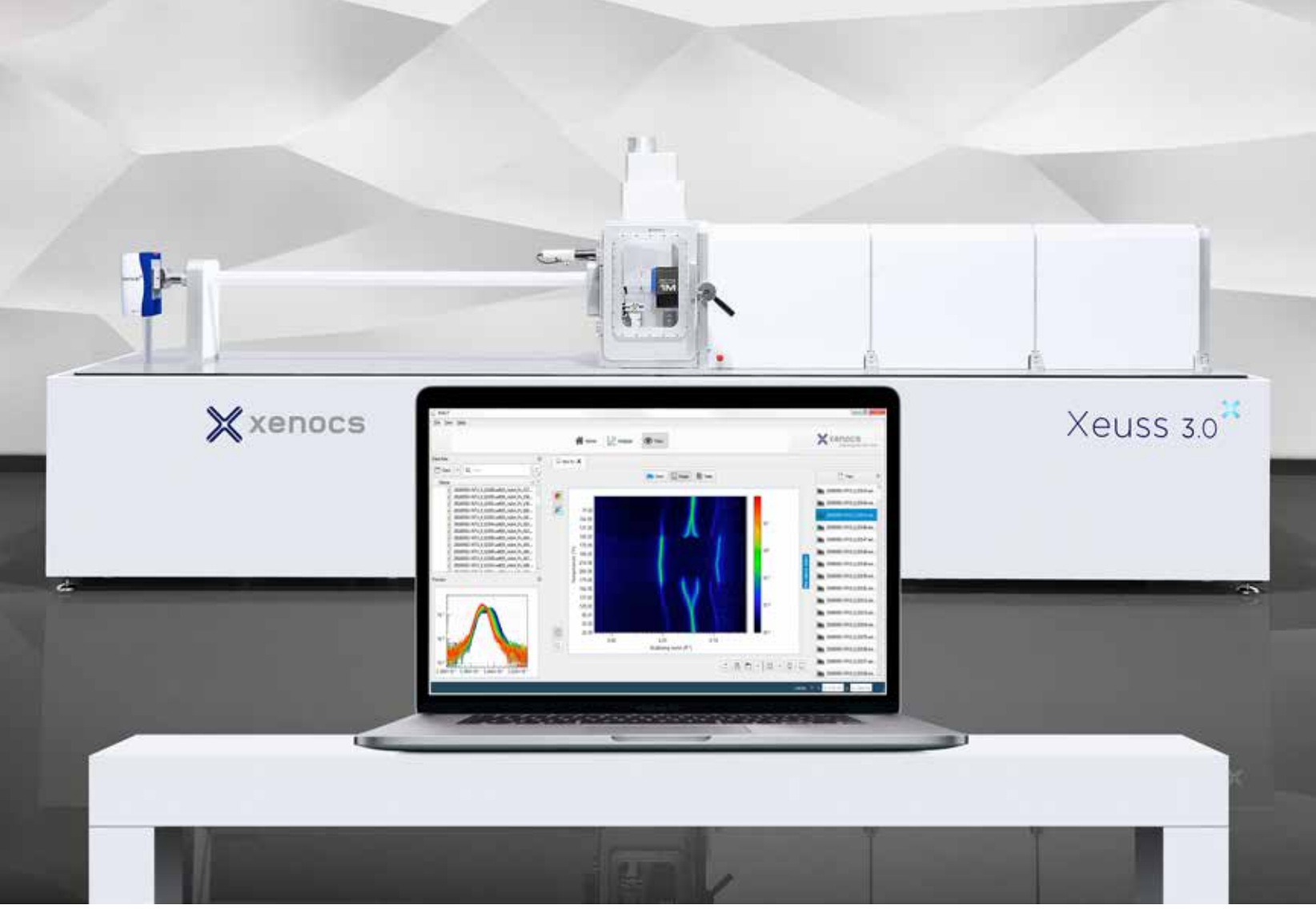
Openness for future needs

Advanced materials research and characterization often requires integration of specific or customized sample environments in air or in vacuum. With its large chamber and its unique sample positioning, the Xeuss 3.0 is the X-ray scattering platform instrument for now and the future.

Low noise flow cell

Advanced GISAXS

Multipurpose temperature stage for dynamic studies

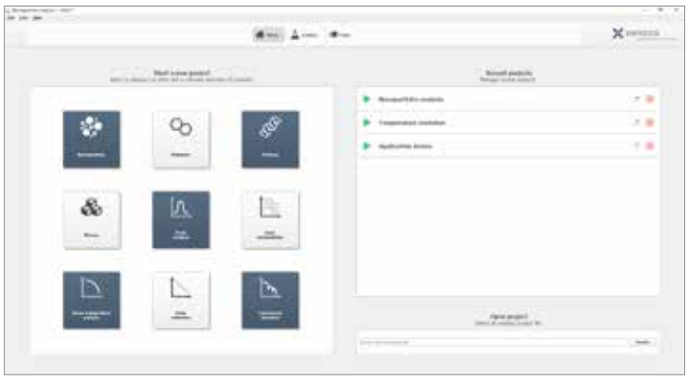


Xeuss 3.0

Xenocs XSACT Software suite

Convert measurements into high quality results with Xenocs XSACT integrated analysis software

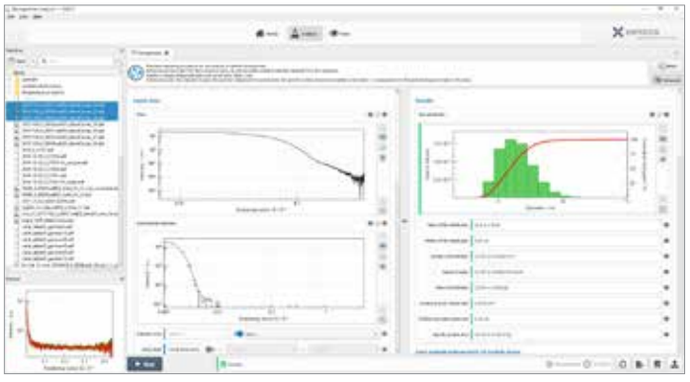
Xenocs XSACT is a powerful software suite with fast data treatment and integrated analysis software.



Smart workflow and user experience

With XSACT enjoy:

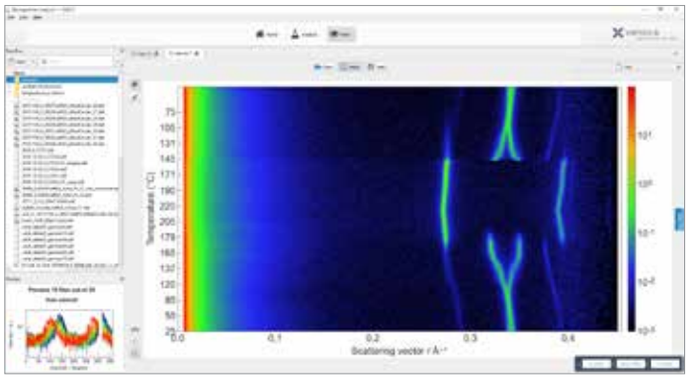
- Fast data treatment with integrated data reduction
- An easy-to-use analysis software
- A software suite suited for beginners and experts alike



Extensive and powerful suite of data analysis algorithms

The XSACT software package contains key analysis functions for the analysis and interpretation of SAXS data:

- Extensive suite of available modules
- Unique capability for particle sizing
- Measurement data simulator



High quality and publication-ready figures

With XSACT you get:

- Highly customizable data visualization
- Easy export in multiple formats
- High quality data with vector graphics

Xeuss 3.0

Expertise & services

The Xeuss 3.0 is supported by a comprehensive service offer in order to help our customers worldwide take full benefit of the instrument during its complete lifetime.

Installation and training

Our team of installation engineers ensures a smooth installation of your Xeuss 3.0. Operational and scientific training is delivered by one of our experienced application scientists at installation time and at any time afterwards both on-site and online, to ensure the transmission of experience and knowledge to our customers worldwide. Xenocs offers a choice of comprehensive training programs, from introduction training on the use of SAXS for your research and good laboratory practices, to advanced scientific training on data analysis.

Customer support

Customer support is managed by our central facilities in collaboration with our team of local agents for first level of support. All are supported by Xenocs corporate service, product or application experts according to our support and maintenance programs and standards.

Xenocs user community

With more than 100 major research labs as customers and more than 1100 publications published(*), the Xenocs user community is growing rapidly. Our dedicated on-line forum is available for our users to facilitate interactions and the sharing of experience.

(*) by Jan. 2020

Xeuss 3.0 in your lab ?

Our aim is to provide you with the best for your research. Let our experts work with you to understand your needs and advise you on the best solution for your research.

Contact us and visit our lab to try out the Xeuss 3.0!
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Exploring the very small

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