

## ScatterX78



### **Technical description:**

The ScatterX78 chamber allows simultaneous measurement in a SAXS and WAXS vacuum. Measurement is possible for object sizes from 1 nm in 1D and 2D dimensions. Additionally, the proposed extension of the research

equipment allows for conducting research using the diffraction method at a constant angle of incidence of radiation (GIXD). The attachment allows the non-destructive analysis of material properties, geometry and arrangement of objects (amorphous, crystalline) in the nanoscale in the form of liquids, gels, powders, solids (including porous), or multilayer systems with a thickness of the order of nm. What's more, it can be used to determine the details of the crystalline structure of polymers, identify polymorphs, and track the transition from one crystallographic type to another caused by various factors. The systems analyzed with the SAXS / WAXS methods include, among others nanoparticles, nanoparticles, nanoparticle solutions (semiconductor, magnetic, etc.), plastic hybrid systems with nanoparticles.

**Trade name:** ScatterX78 chamber - Retrofitting the X-ray diffractometer with a compact SAXS / WAXS chamber

**More details:** </equipment/komora-scatterx78-doposazenie-dyfraktometru-rentge/>

**Access type:** External

**Type of accreditation / certificate:** Not applicable

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**Responsible body:** Academic Centre for Materials and Nanotechnology

**Group / laboratory / team:** Department of Materials Engineering

**Last update date:** Nov. 28, 2024, 10:48 a.m.

**Year of commissioning:** 2022

**IDUB research areas:**

(PRA 4) Technical solutions: from fundamental research, through modelling and design, to prototypes. The application of mathematical, information technology, and electronics tools to macro-, micro-, and nanoscale problems

(PRA 5) Materials, technologies, and processes inspired by nature: biotechnology, bioinspirations in engineering and materials science, biosensors, bioenergetics, biocatalysis, biocomputers, and biocomputation

(PRA 7) Design, production, and testing of modern materials and the technologies of the future based on a multidisciplinary approach combining materials engineering with chemistry, physics, mathematics, and medicine

**Research capabilities:**

XRD (w tym GIXD), SAXS, WAXS

**Conditions for providing infrastructure:**

Apparatus made available on the terms resulting from the Regulations for the Use of ACMiN Research Infrastructure.