

PolyX at SOLARIS: layout and specification

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PolyX beamline for X-ray microimaging (spatial resolution 200 nm – 2 μm) and scanning microspectroscopy (spatial resolution 2 μm – 200 μm) is under construction at National Synchrotron Radiation Centre SOLARIS. Start of operation is expected in 2023. In this Contribution, we will present the layout of the beamline and describe optical, detection and acquisition systems at PolyX. The most important predicted parameters and components of PolyX are summarized in Table 1.

Table 1 PolyX beamline specification

Source	Bending magnet (critical energy ~2keV)
Beamline length	~15 m
Energy range	4 – 15 keV
Operation modes	“White beam”: 10 ¹³ ph/s/mm ² “High flux”: double multilayer monochromator (DMM): 10 ¹¹ ph/s/mm ² (@8 keV), BW 1-2% “High resolution”: double crystal Si(111) monochromator (DCM): 10 ⁹ ph/s/mm ² (at 8 keV), BW 2×10 ⁻⁴
Max. beam size	20 mm (H) × 3 mm (V)
Min. focus size	Polycapillary: 8 μm – 200 μm Monocapillary: 2 μm
Max. flux in 10 μm focal spot @ 8 keV	DMM: 10 ¹¹ ph/s DCM: 10 ⁹ ph/s
Sample environment	Air, helium, low vacuum + user setups
Main techniques	X-ray microimaging and μCT (absorption and phase-contrast), μXRF, μXAFS, Non-routine: confocal μXRF, μXRF tomography, μXRD + user ideas
Detectors	Two 80 mm ² Vortex SDD, 1M Hybrid pixel detector (Eiger 1M), x-ray microscope (Optique Peter with PCO), ionization chambers, PIN diodes

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