

attoCFM I

low temperature confocal microscope, highly modular and flexible



Microscope Configuration

confocal unit	modular beam splitter microscope head outside of the cryostat, excitation and collection port fully adjustable, free beam optics, optional polarizer and retarder possible
pinhole configuration	two pinholes (fiber apertures), adjustable in x-, y-, z-direction, different illumination and collection wavelength possible, standard configuration for connection of optical fibers

Illumination

excitation wavelength range	400 .. 1500 nm (see objectives description)
light source	fiber coupled laser, typically 635 nm
light power on the sample	typically 1 pW .. 500 µW
port specification	FC/APC-connector for single mode fibers (other connector types on request)

Detection

detection mode	e.g. reflection, luminescence, fluorescence, ...
detection wavelength	detector on user's choice, typically Si detector (coupling of the light to other detectors possible, e.g. spectrometer, APD, ...)
port specification	FC/APC-connector for single mode fibers (other connector types on request)
options	low temperature compatible detector below the sample for transmission measurements (intensity), polarizer and retarder, filters

Optical Parameters

pinhole size	dependent on fibers, typically 3 .. 9 µm mode field diameter
spot size	diffraction limited
compatible objective systems	systems A, B, or C (for details please refer to the objective systems table)
lateral resolution	see specifications of the objectives
Solid Immersion Lens (SIL)	higher optical resolution possible with SIL

Imaging Modes

single optical sections	xy scans
time lapse imaging	xyt scans
z series and 3D imaging	xyz scans

Sample Positioning

positioners and scanners	coarse positioners ANPxyz101 with piezo scanner ANSxy100
step size	0.05 .. 3 µm @ 300 K, 10 .. 500 nm @ 4 K
coarse range	5 x 5 x 5 mm ³
step scan range	any size; e.g.: 200 x 200 µm ²
fine scan range	40 x 40 µm ² @ 300 K, 30 x 30 µm ² @ 4 K
sample monitoring	sample / focus monitoring via CCD camera

Operating Conditions

temperature range	1 .. 300 K (dependent on cryostat)
magnetic field range	0 .. 15 T+ (dependent on magnet)
operating pressure range	1E-6 mbar .. 1 bar (designed for exchange gas atmosphere)

Cooling Specifications

bore size	designed for a 2" (50.8 mm) cryostat/magnet bore
cryostat	LTSYS-He4

Scan Controller and Software

ASC400 SPM controller	for detailed specifications please see attoCONTROL section
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