



Scientific Equipment of the Photonics Laboratory

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www.photonics-lab.de

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General Remarks

This list shall give collaborators and interested persons an impression of some of the equipment available at the Photonics Laboratory. This list as well as information on current projects can be found at www.photonics-lab.de.

Lab Space

The photonics lab comprises of six lab rooms. All labs are in a modern building that is furnished with a recirculating chiller system for cooling of high power lasers. The seven optical tables are equipped with dust enclosures and laminar air flow boxes.

Optical Tables

Type	Manufacturer	Specifications
M-RS4000™	Newport	4200 x 1200 mm ² , 2 pcs.
RP Reliance™	Newport	4000 x 1500 mm ²
RP Reliance™	Newport	4000 x 1000 mm ²
RS 1000™	Newport	3000 x 900 mm ²
Standard	Melles Griot	3000 x 1250 mm ²
Standard	Newport	1000 x 800 mm ²

Lasers

Type	Manufacturer	Specifications
MIRA 900D V8XW	Coherent	1.0 W, 3 ps / 200 fs, cw tuning range 700 - 980 nm
Verdi V8	Coherent	8 W cw, 532 nm, single-frequency
Yb:YAG thin-disk laser, 1030 nm	Trumpf	620 W

Type	Manufacturer	Specifications
Yb:YAG thin-disk laser, 1030 nm	Trumpf	1000 W
Diode laser, 806 nm	LIMO	35 W, fibre-coupled, fibre dia. 0.1 mm
Pr:YLF, various wavelenghts	FH Münster	400 mW

Measurement

Type	Manufacturer	Specifications
Spectrophotometer Lambda 1050	PerkinElmer	range: 185 - 3300 nm, resolution: 0.05 - 5nm (UV/VIS) and 0.2 - 20 nm (NIR)
Scanning FPI BUR-20-00054 TL-0015-NIR	Burleigh	FSR: 15 - 1500 GHz, NIR
Elec. spectrum analyzer HP 70905A	HP	50 kHz - 22 GHz
Opt. spectrum analyzer HP 70950A	HP / Agilent	600 - 1700 nm, 0.2 nm resolution
Scanning Imaging Spectrograph/Monochromator HR 640	Jobin Yvon	0.64 m Czerny-Turner, range: 200 nm - 1500 nm, resolution: 22000
ShortPulse Autokorrektor	A•P•E GmbH	20 fs ... 3.5 ps, inkl. FROG
Photon counting head H7155	Hamamatsu Phot.	Spectral response: 300 - 650 nm
Photodiode InGaAs D400FC	Thorlabs	800 - 1700 nm, fiber-coupled, bandwidth: 1 GHz, , rise time 100 ps
Photodiode InGaAs FG01	Thorlabs	800 - 1700 nm, bandwidth: 1,2 GHz at 50 Ω rise time 300 ps
Photodiode Si PS0.25-5TO	First Sensor AG	400 - 1050 nm, bandwidth: 800 MHz at 50 Ω rise time 400 ps
Inspectis digital microscope F35s	Inspectis AB	35x motorized optical zoom, Full HD 1080p/60 frames per second
Camera SP932U	Ophir Spiricon	2048 x 1536 pixel, 72dB resolution, CMOS
Camera UI-3240CP-NIR-GL Rev. 2	IDS Imaging	1280 x 1024 pixel, 12 Bit, CMOS
Camera UI-3080CP-M-GL Rev. 2	IDS Imaging	2456 x 2054 pixel, 12 Bit, CMOS
Camera SCOR 20	Spiricon	14 Bit, digital CCD
Camera A631f	Basler	12 Bit, digital CCD, 3 pcs.
Integrating sphere UK 100	Reiche Optronics	Dia. 100 mm
Integrating sphere IS236A-4	Thorlabs	Dia. 51 mm, Si 350 - 1100 nm

Adaptive Optics

Type	Manufacturer	Specifications
Adaptive mirror	Diehl	copper-plate, driven by piezo-stack 2 models, round plate
Adaptive mirrors	TU Delft (NL)	SiN membrane, electrostatically driven, more than 10 models, round and rectangular, coatings for 1064 nm
Adaptive mirrors	FH Münster	unimorph design, several models: round, 4 μ m stroke
Spatial light modulator LC2002 (OptiXplorer)	Holoeye	resolution: 800 x 600, transmissive, design wavelength: 650 nm
Spatial light modulator HR LCoS P1920-1064-HDMI	Meadowlark	resolution: 1920 x 1152, high reflectivity, pure analog phase control, design wavelength: 1064 nm

Other

Type	Manufacturer	Specifications
Wedge & Ball Bonder HB05	TPT Wire Bonder	17 μ to 75 μ gold and aluminum wire, 25 μ x 250 μ ribbon, deep access wedge 16mm / ball 13mm

Software

Type	Manufacturer	Specifications
ZEMAX	Focus Software	ray tracing
LabVIEW	National Instrum.	data acquisition and control software
BeamAnalyser	TU Berlin, B. Eppich	M ² calculation
WinABCD	Ferd.-Braun-Institut Berlin, B. Eppich	Paraxial beam propagation with ABCD matrices
FlexPDE	PDE Solutions Inc.	FEM
Femlab / COMSOL	Comsol	FEM
MATLAB	The MathWorks	numerical computing
Quick Fringe	Diffraction Limited	wavefront analysis
SolidWorks	SolidWorks	CAD