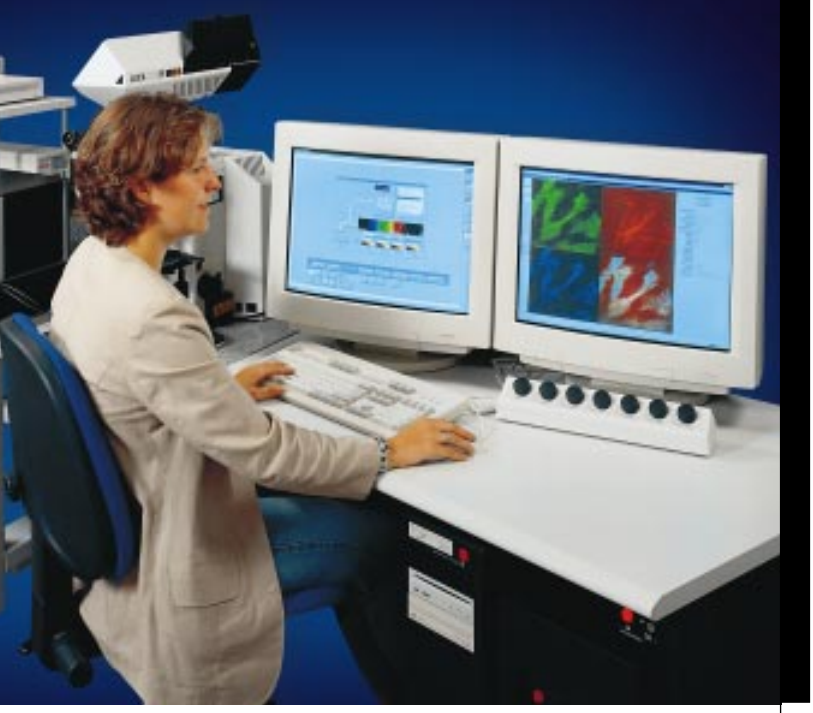


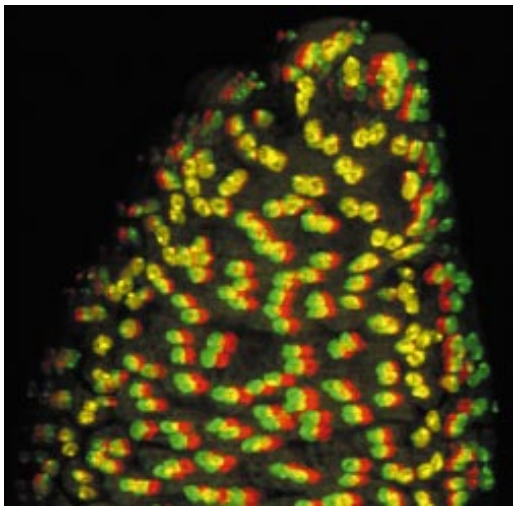
Leica TCS MP

Two Photon Imaging System

Leica

Two Photon Microscopy

The combined energy of 2 photons is stimulating fluorescence excitation at half of the wavelength.



Two-photon red-green stereo image of Drosophila Testis, nucleus staining (DAPI)

Two Photon Microscopy improves live and fixed cell imaging. Advantages include long cell lifetimes, deep sample penetration, the ability to release caged compounds and elimination of photo-bleaching of structures above and below the plane of focus.

The Leica TCS MP is ideally suited for multi-user core imaging environments. When combined with the Leica TCS SP Spectral Confocal Microscope, it provides a broad range of multi-dimensional imaging functions.

Fluorochromes usable with Leica TCS MP (partial list):

AMCA
Calcium Green
Calcofluor White
CY2
DAPI
DiI-Cm(3)
DiO-Cn(3)
Ethidium Bromide
Feulgen
FITC
Fluorescein Di Acetate
Fura 2
GFP Mutants H9/P4/P9/P11/W
GFPuv
Hoechst
Indo 1
Lucifer Yellow
Nile Red
Propidium Iodide
Rhodamin 123
S65T
Texas Red
TRITC
Wild Type GFP

System features

The Leica TCS MP uses a pulse width of 1.2 ps. This pulse width has several advantages:

- Reduced pulse peak power compared to femtosecond excitation (80-150 fs), high threshold for cell damage
- Fewer detrimental 3-photon absorption effects than with femtosecond excitation.
- Long fiber coupling of laser without tuning-sensitive dispersion compensator.
- System can be transferred from upright to inverted microscope by the user without alignment.
- Easy wavelength tuning with single adjustment.
- Nearly full preservation of pulse width in microscope optics.
- Efficient fluorochrome excitation. No damaging heat effects in non-absorbing specimens.

The TCS MP exemplifies Leica Microsystems' commitment to innovation and is based on an exclusive license of U.S. Patent #5,777,732 Haenninen and Hell, covering pulsed picosecond Two Photon Microscopy.

Specifications:

(with Spectra-Physics Millenia V-P 93950-M/Tsunami Ti:Sapphire Lasers)*

Wavelength ranges:	720-900 nm
Average laser power:	approx. 600 mW
Pulse repetition rate:	82 MHz
Laser pulse width:	1.2 ps
Coupling to microscope:	fiber 1.5 m
Spectral bandwidth:	1 nm
Object pulse width:	1.3 ps
Max. power at sample:	120 mW
Scanner system:	Leica TCS NT/SP, full single photon confocal and 2-photon modes
Microscopes:	Leica DM RB/Leica DM IRB/ Leica DM LFS (Nov. 1998)

Non-descanned transmitted and reflected light detectors (in preparation)

* other lasers on request

System requirements

Power:

Power supply pump laser	110 VAC/10 A | 220 VAC/6 A
Water chiller	110 VAC/10 A | 220 VAC/6 A
Microscope system	230 VAC/ 10 A
ArKr/Kr laser	230 VAC/ 16 A
Mains frequencies	50/60 Hz
Mains frequency fluctuation	±10%

Heat load max.:

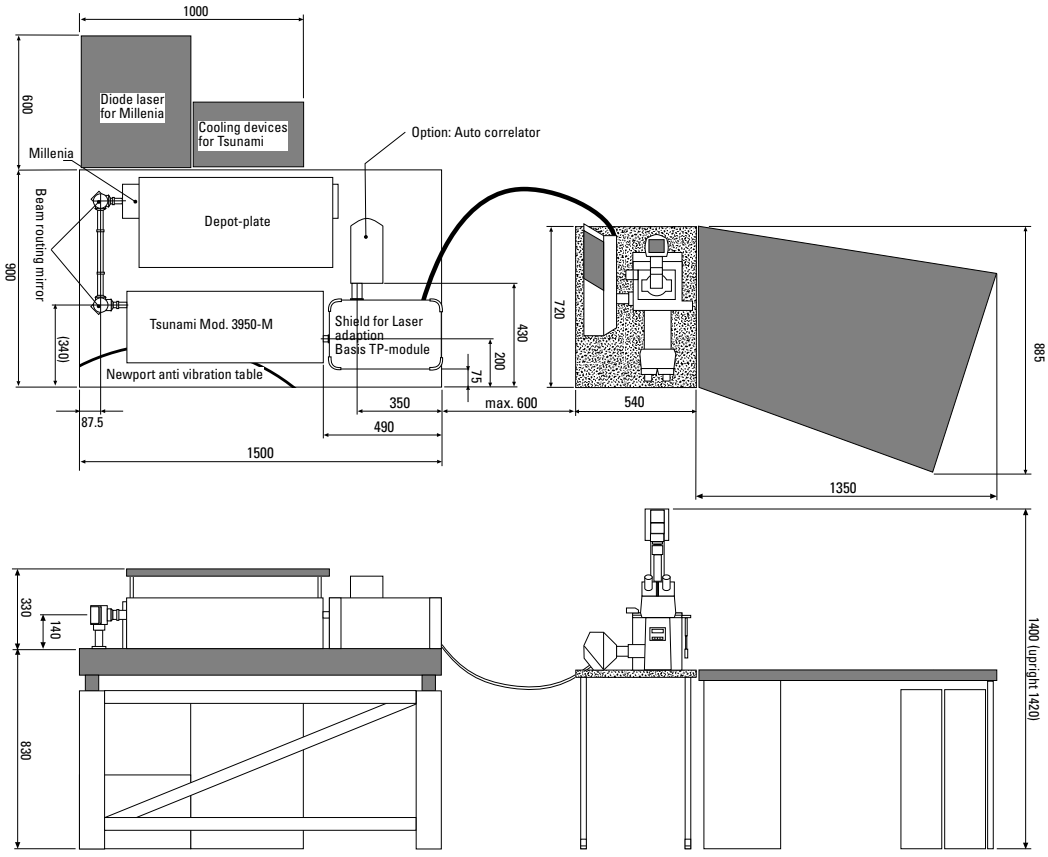
Microscope system	5 kW
2-photon laser system	1.5 kW

Room:

Humidity of environment	no special demands (standard laboratory conditions)
Air conditioning	18-22°C, ± 2°C
Air cleanness	low particle content
Optical table	anti vibration control (passive)
Weight	2-photon laser, power supply and chiller: 410 kg microscope system: 320 kg

Safety:

Laser safety	Laser Class IV



All measures in mm

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