

Laserpower Measurement Tutorial

Instrument & measuring mode

- Use Powermeter PT 9610
- **Primary switch on** is at the top side of device (On/Off-slider)
→ After use you always to switch off the primary switch in order to avoid a shift in instruments precision!
- **Secondary switch on** at the bottom of control panel (On/Off-pushbuttons)
- Measure in RMS L Mode X
- Set mode by using buttons: **RMS** and **HF/LF/WB**
- List the upper value in the spreadsheet
- The measuring field on the detector head is the white spot, try to center the beam in it

General

Always use the same 10x objective (Olympus) or the 10x/0.3 (Zeiss) for measurement. Lasers should be switched on at least 1 hour before measuring to warm up. Set the argon laser emission to approx. 30% for warming up. For measuring boost emission up to 100% (especially important for the argon laser).

Adjust the detector head with a weak laserline (like 458nm) with approx. 30-50% emission. The measuring field is the white spot on the head. Don't forget to switch the different wavelengths on power meter, too (arrow keys). **Avoid outside light sources** because they will falsify the measurements. Record the values when they are stable.

Measurements are to list in the spreadsheet of the particular microscope.
URL:

docs.google.com

Measurements at Zeiss LSM UV,Meta,405/594, DuoScan

1 hour before measurement

- Start system via switching on remote control and computer according to the start routine

NOTE: on **UV** the Water cooling unit first

- start **Zeiss Confocal Software** and click **Start Expert Mode** → take care that Scan New Image is clicked
- choose **Laser** and turn on the Laserlines

NOTE: Argon and UV Laser should be in Stand-by Mode

Microscope settings - **Meta**

- Pull out the slides of the scan-visual-camera-switch on right hand side of microscope

Detector head

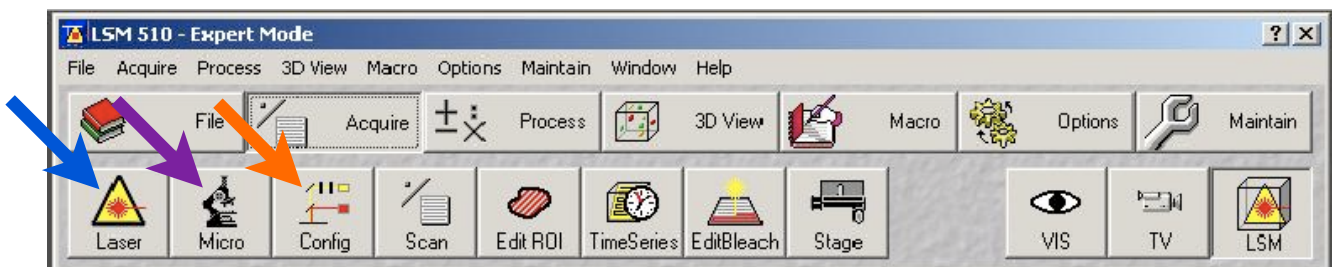
- Place detector head with measuring field to the objective on slide holder
- While maximizing first laser emission (later in procedure) center the beam in scan field
- Therefore use a low wavelength with approx 50% emission

Directly before measurement

- in Laser menu turn argon emission up to a tube current of ~ 8A
- if warning appears, click ok

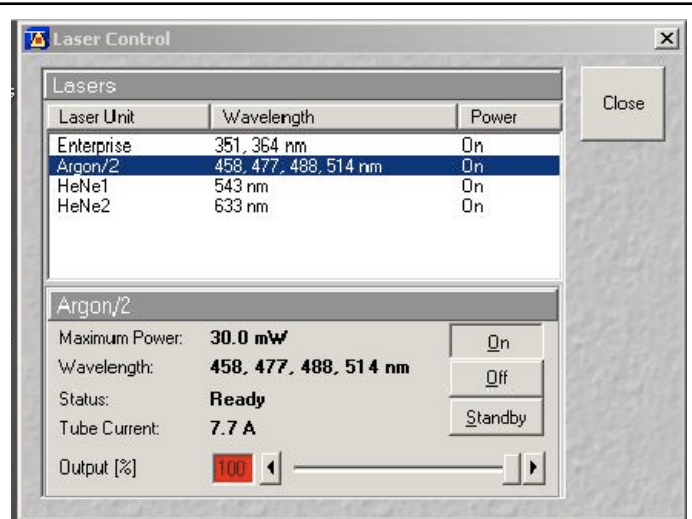
Software settings

control the software settings



Laser

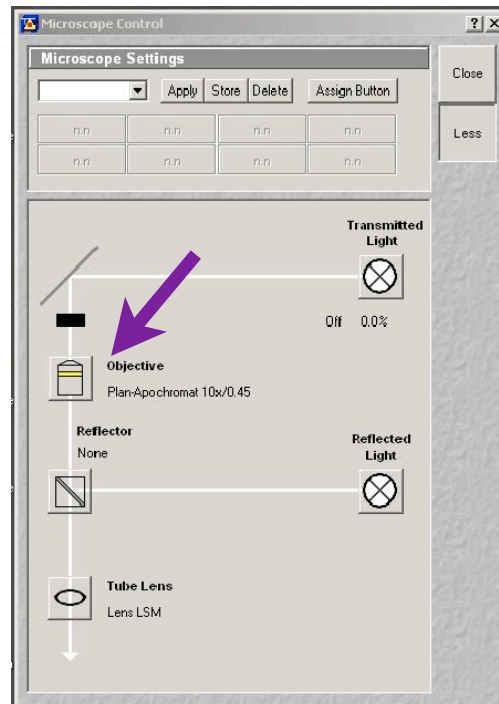
- switch from 'standby' to 'on'
- increase argon laser output, until tube current shows 8 A (or max.)



Micro

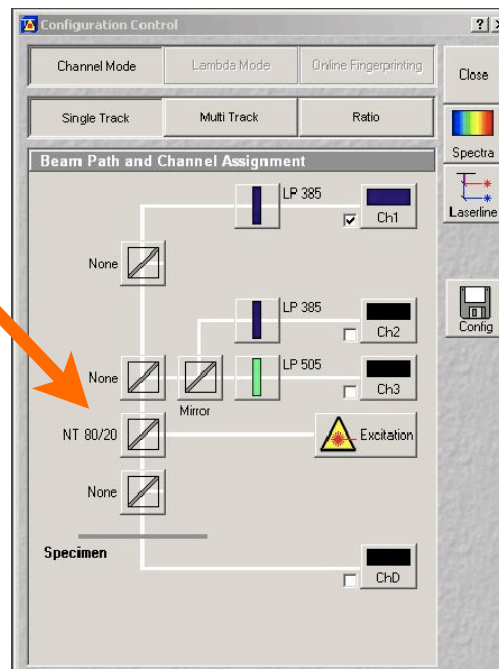
- check that the correct objective is chosen

→ use **Plan-Apochromat 10x/0.45** (only software)

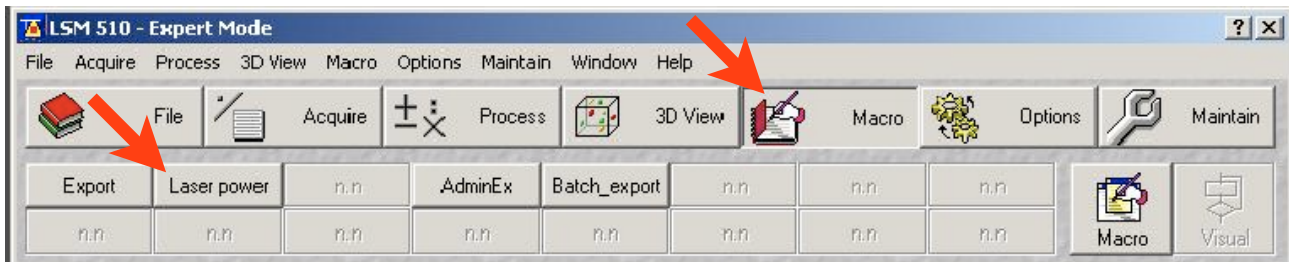


Config

- set the main beamsplitter to **NT 80/20**



start laserpower measurement



- choose Macro in task-menu
- click on the LPM-Macro

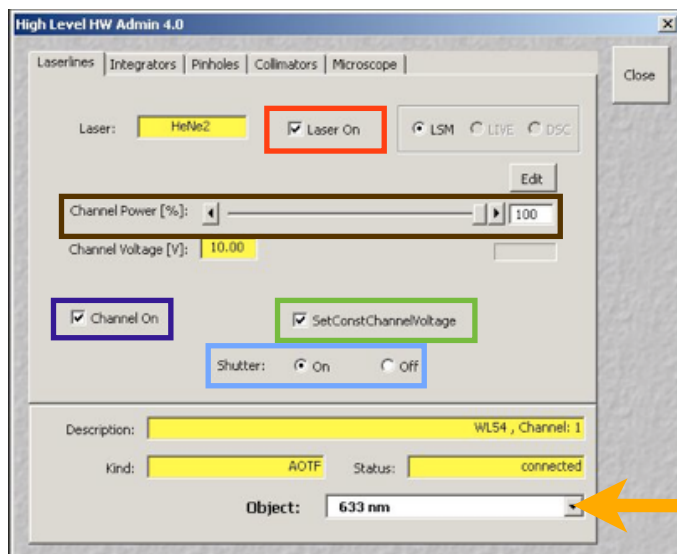
NOTE: the name of the lpm macro vary from system to system

- **UV:** Laser Power
- **405/594:** HW Admin Ex
- **Meta:** Laser Power
- **DuoScan:** HW Admin Ex
- password: service

measure Laser Power on **UV, Meta** and **405/594**

- make sure that the **laser is on**

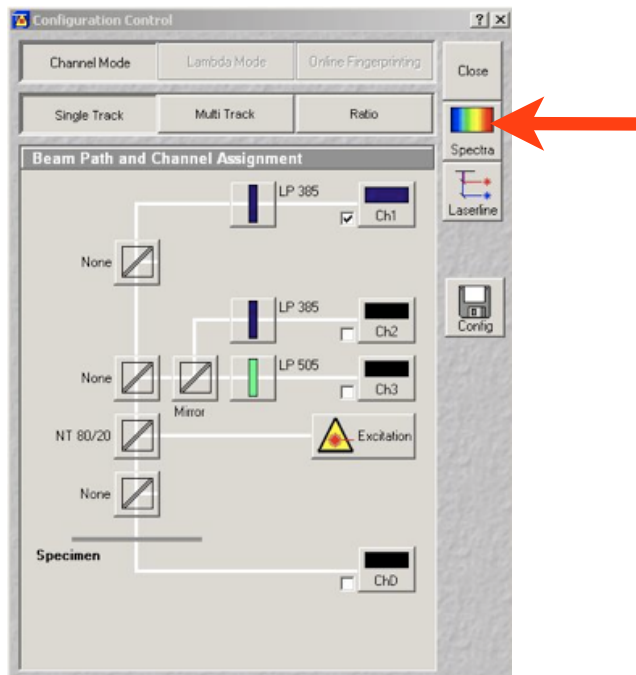
1. choose **wavelength**
 2. check **SetConstChannelVoltage**
 3. check **Channel On**
 4. set **Channel Power** to **100%**
 5. switch **Shutter** from off to **on**
- to measure the next wavelength,
switch off laser emission while
going from step 5 to 1
→ proceed also if you want to
leave



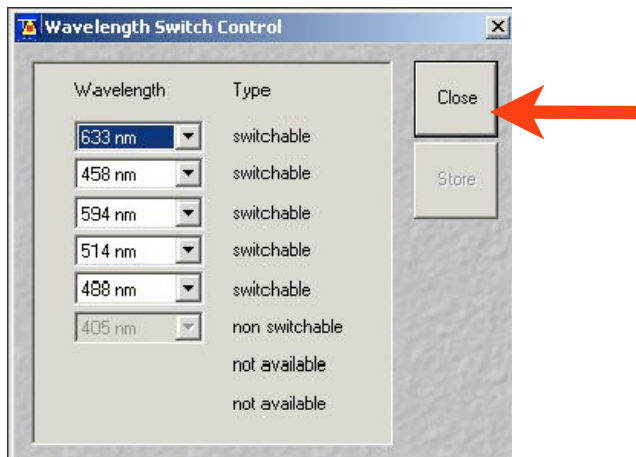
NOTE: on **UV** and **405/594** you can't choose all laserlines in the Macro → you have to switch between the available laser lines

To switch the available laserlines:

- choose **Aquire** in task menu
- choose **Config**
- click on **Laserline**



- switch a switchable line to the wavelength you need
- **press store**
- the window closes automatically
- **after measuring switch this laserline back**

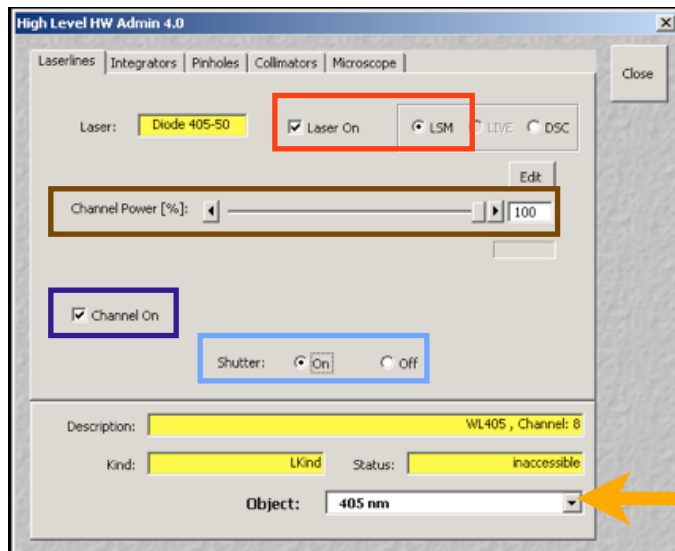


measure Laser Power on **DuoScan**

- make sure that the **laser is on** and the **LSM** field is **marked**

1. choose **wavelength**
2. check **Channel On**
3. set **Channel Power** to **100%**
4. set **Channel Power** to **100%**
5. switch **Shutter** from off to **on**

to measure the next wavelength, switch off laser emission while going from step 5. to 1.
→ proceed also if you want to leave



After measurement – shutting down routine

What to do when last user/ not last user

- last user
 - turn Argon emission back to 25%
 - turn off all lasers (first 'standby' if possible - then 'off')
 - close all windows and close the program
 - wait 5 min for cooling down the Argon laser
 - shut down the computer
 - switch off remote control
 - on **UV** switch off water cooling unit (last step)
- not last user
 - turn Argon emission back to 25%
 - close all windows and close the program
 - log off Windows account