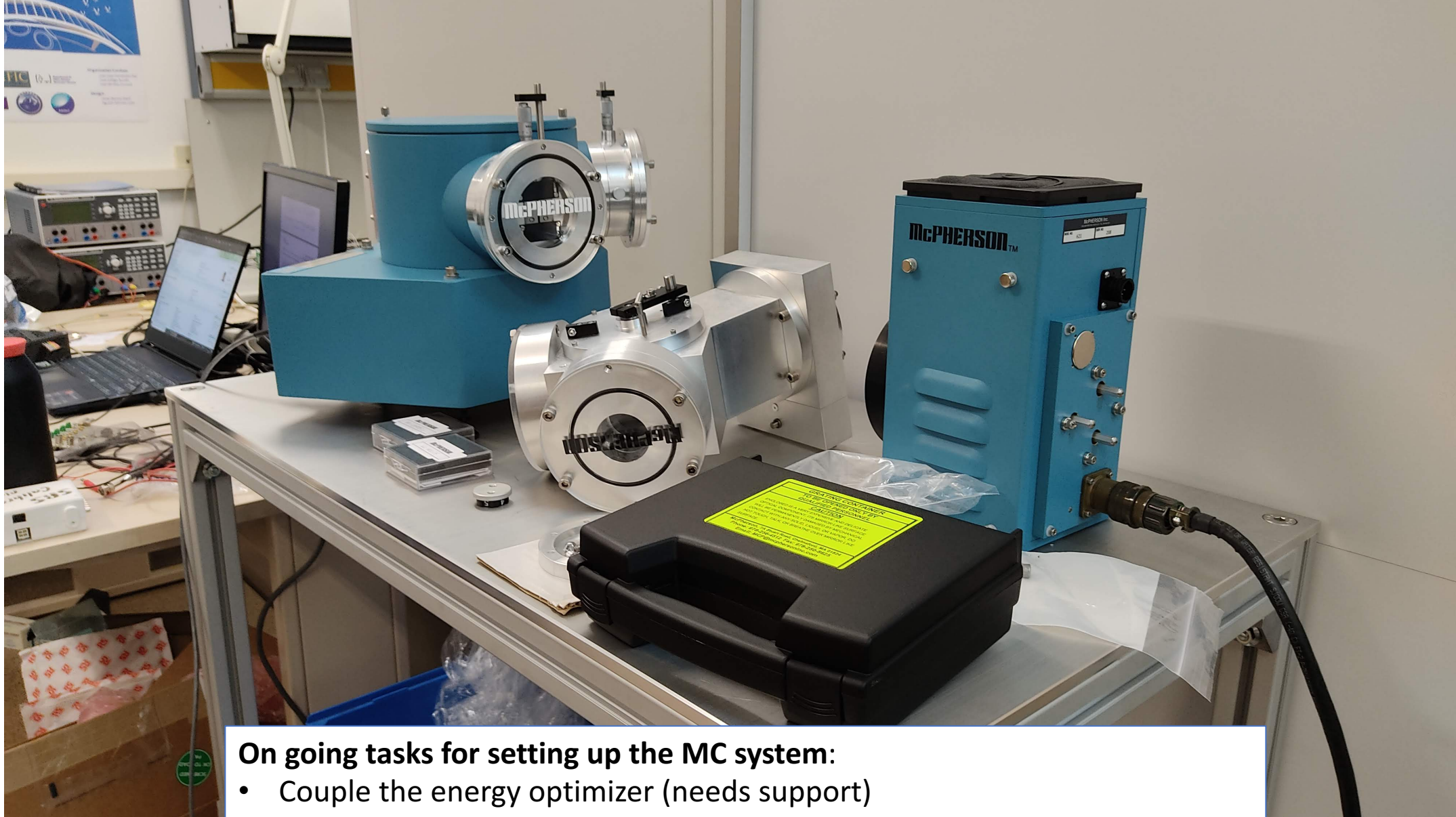




Monochromator Setup Components & Measurements - 5

Nadia Yahlali

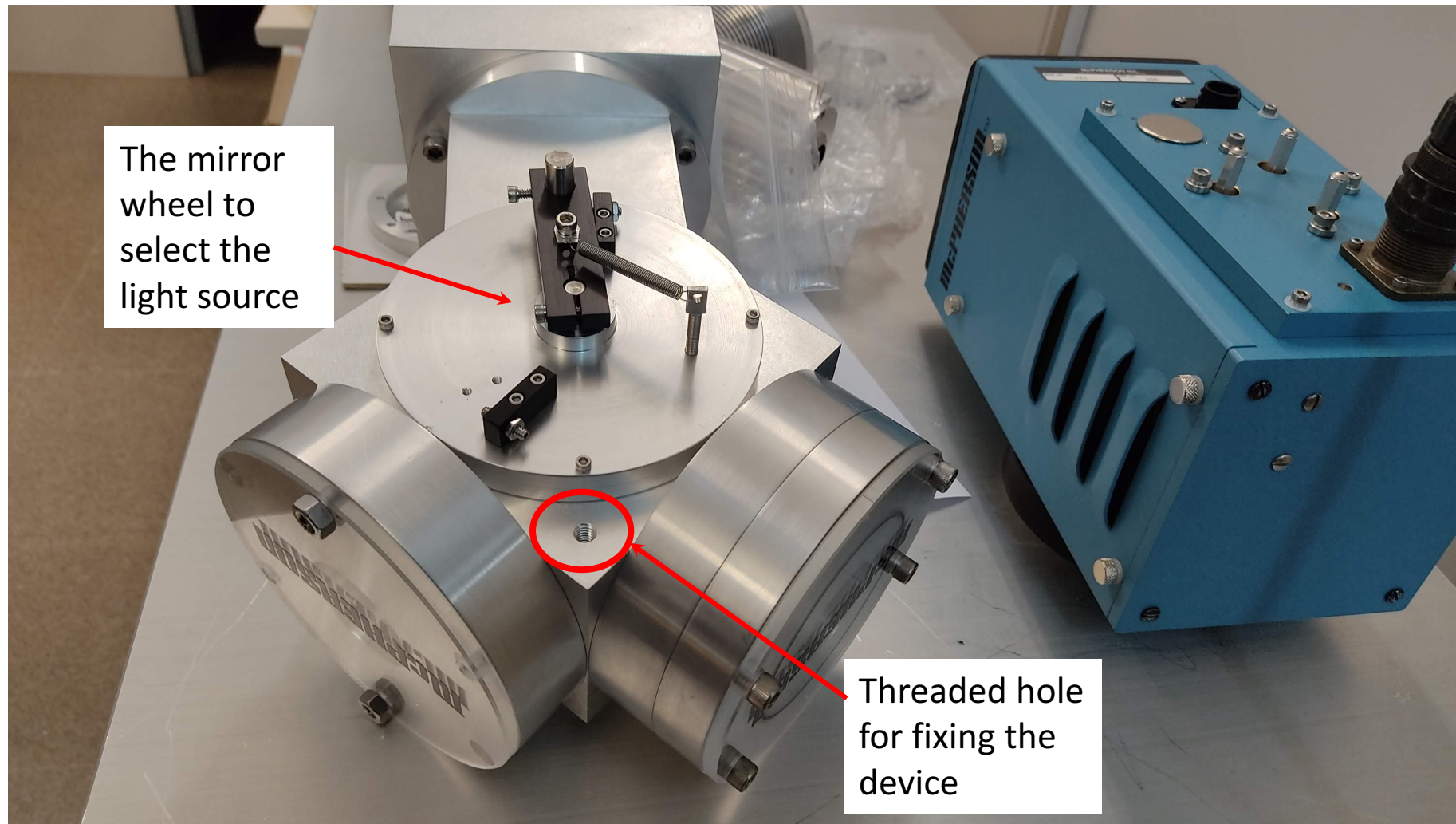
23/02/2022



On going tasks for setting up the MC system:

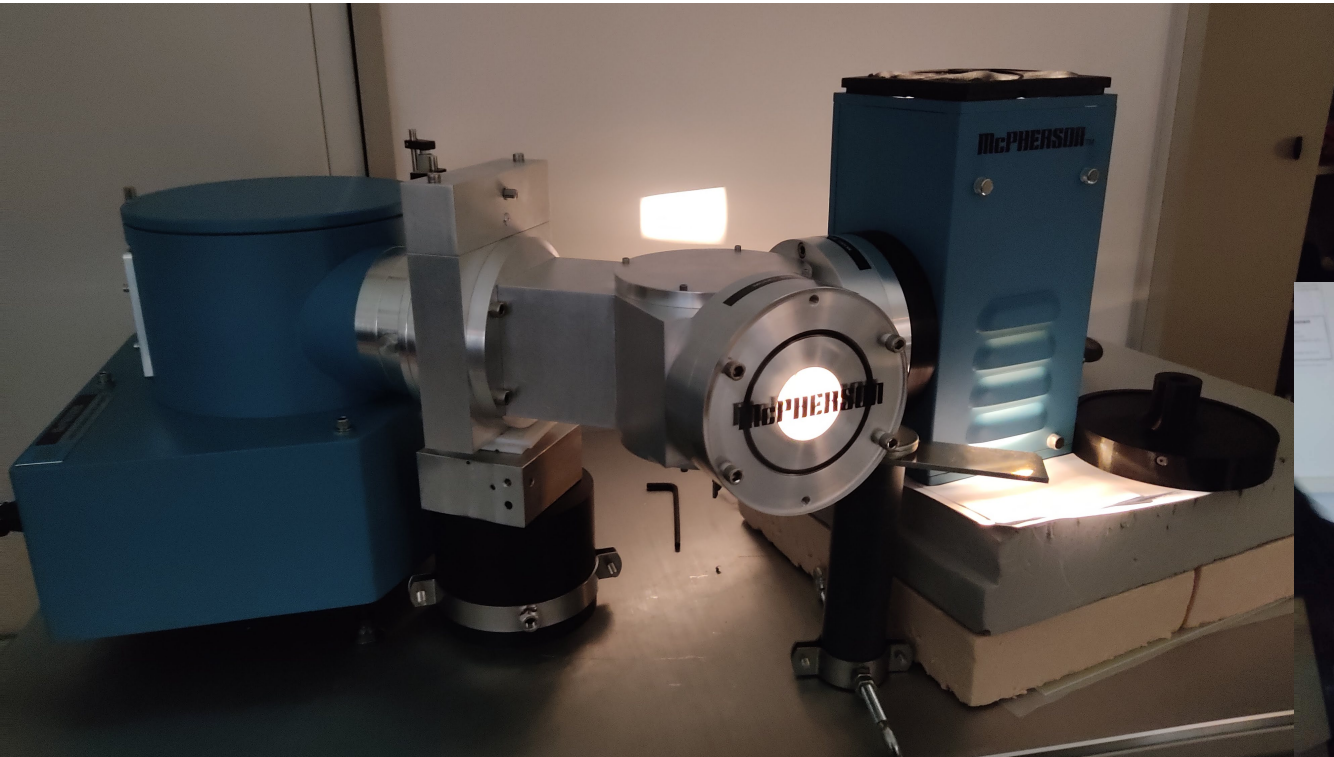
- Couple the energy optimizer (needs support)
- Fix the whole system on a plate (drawing by Josevi)
- Manufacture the MgF2 window flange
- Install the controller + driver
- Manufacture a small PMMA test box to couple to the MC output flange

Energy optimizer



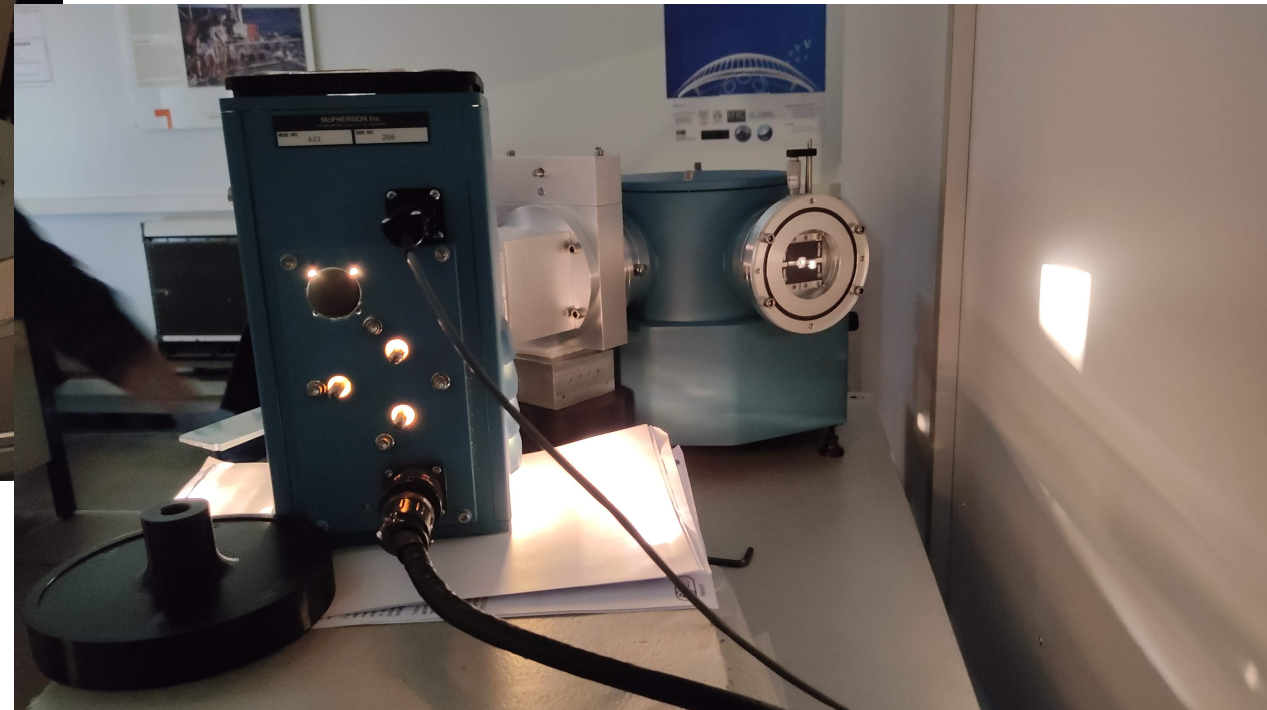
The device is put upside down in the foto .

Setting up the MC system (provisional)

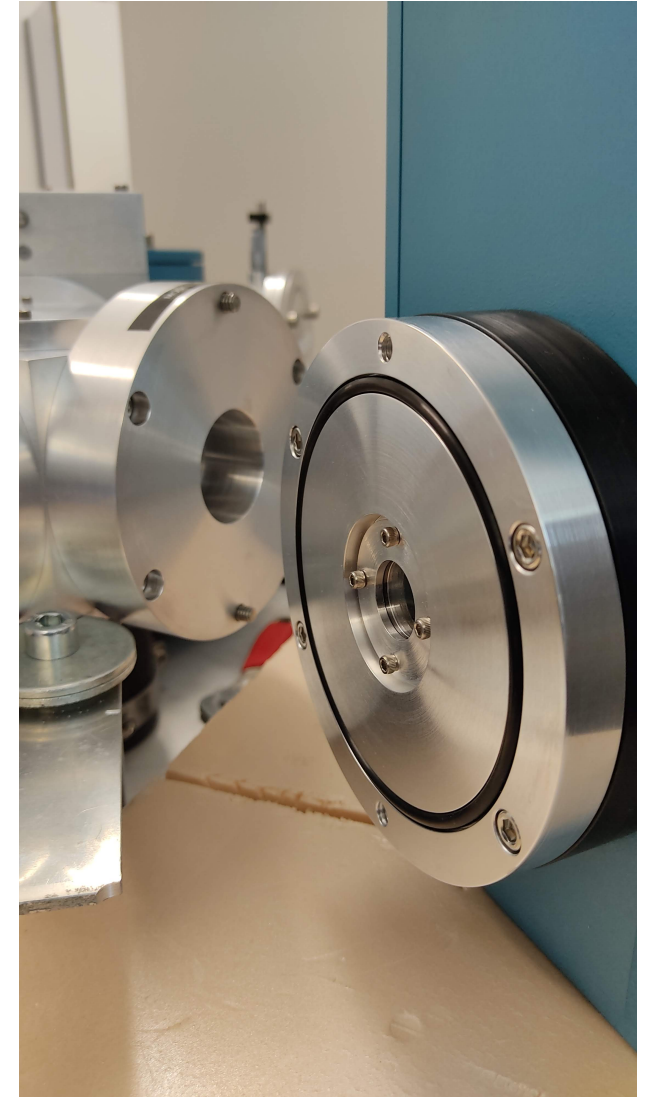
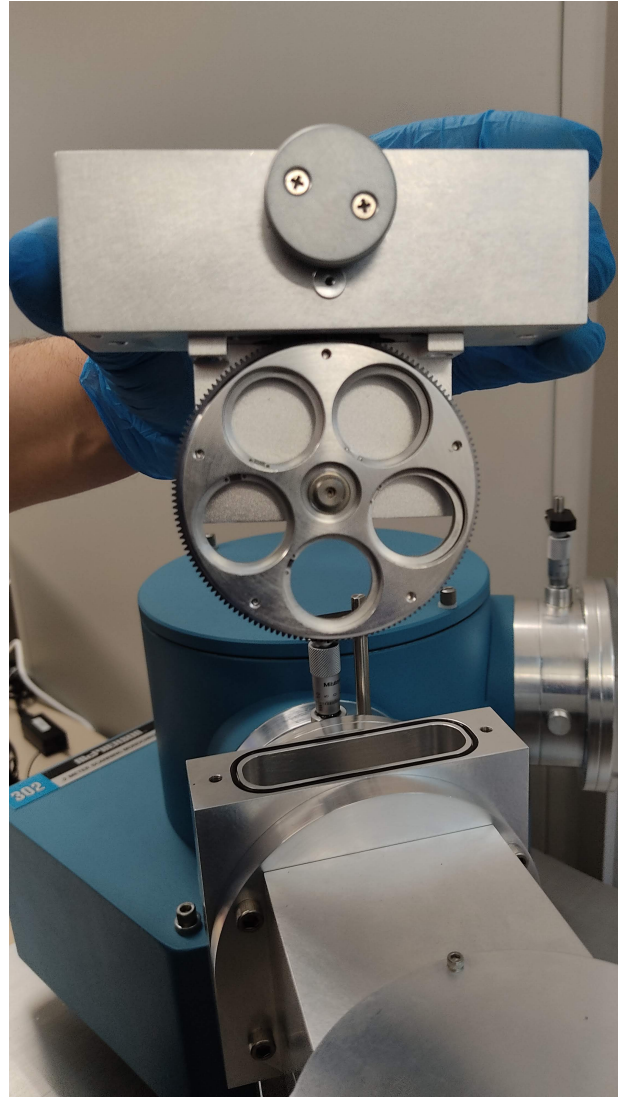
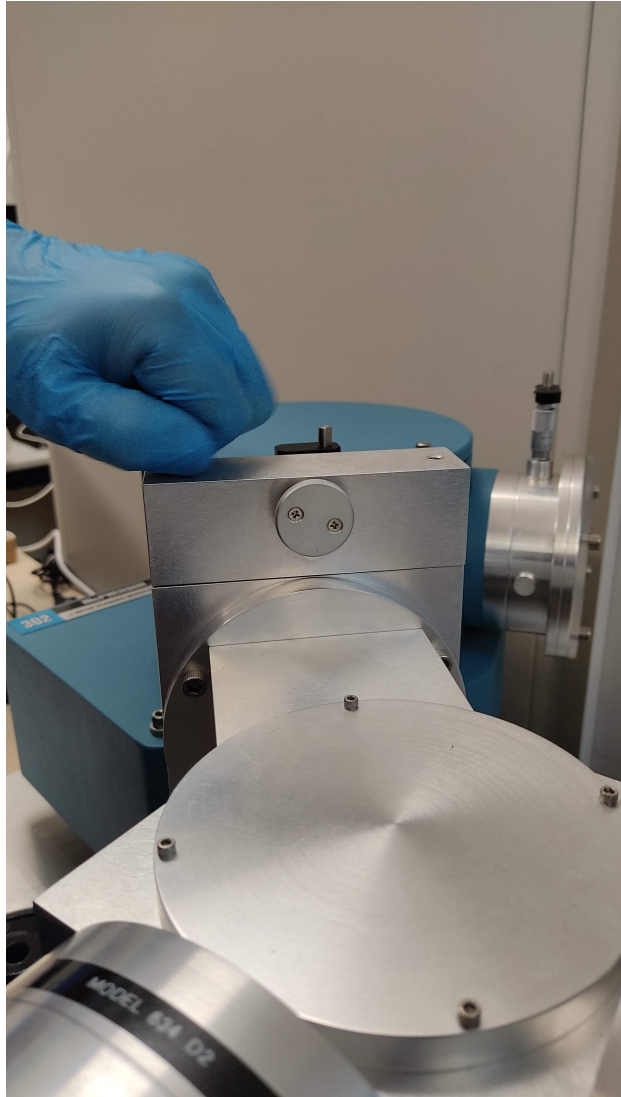


Provisional Mechanical setting

Tungsten lamp switched ON



Installation of the filters and coupling of the Tg lamp



Filters: Long pass 225 nm, 90% T (used with D2 lamp) and 400 nm Long pass with Tg lamp

Grating 1200 G/mm

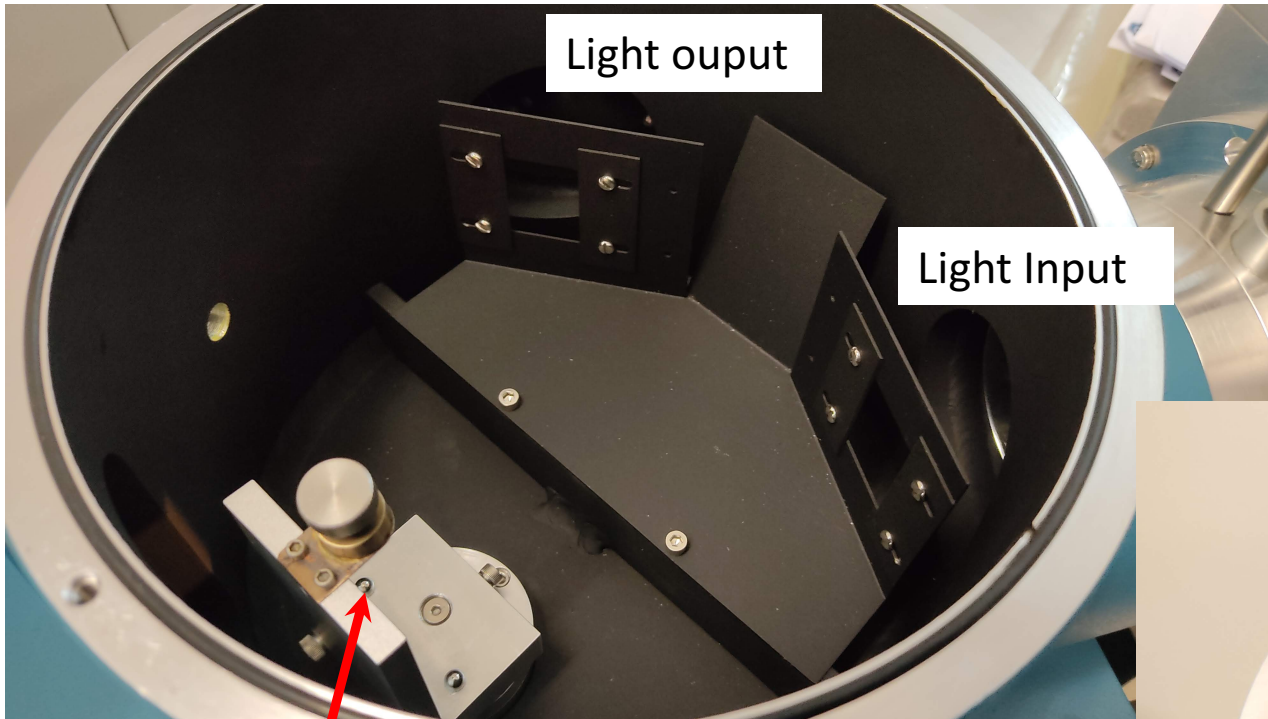


Grating density : 1200 Grooves/mm

Upper wavelength limit : 550 nm

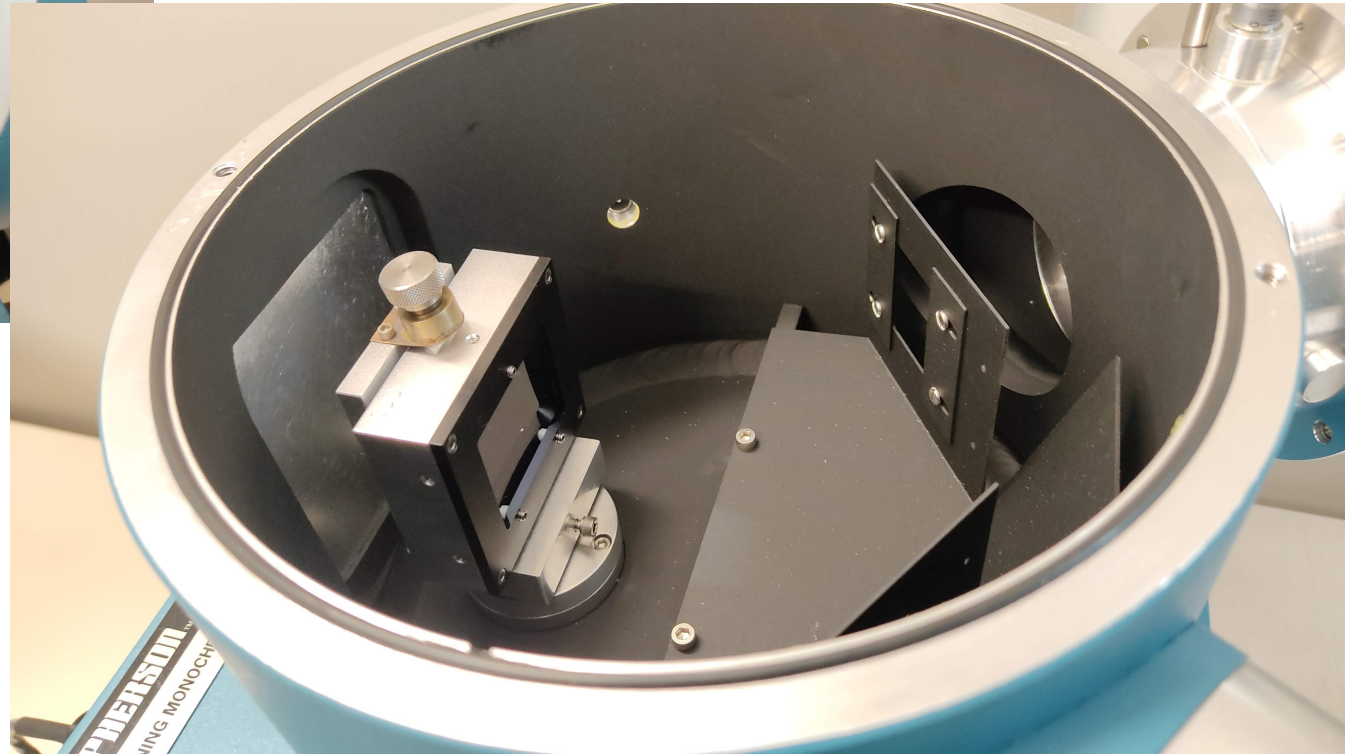


Installation of the Grating



Grating support mounted on the motor axes

Grating mounted on its support



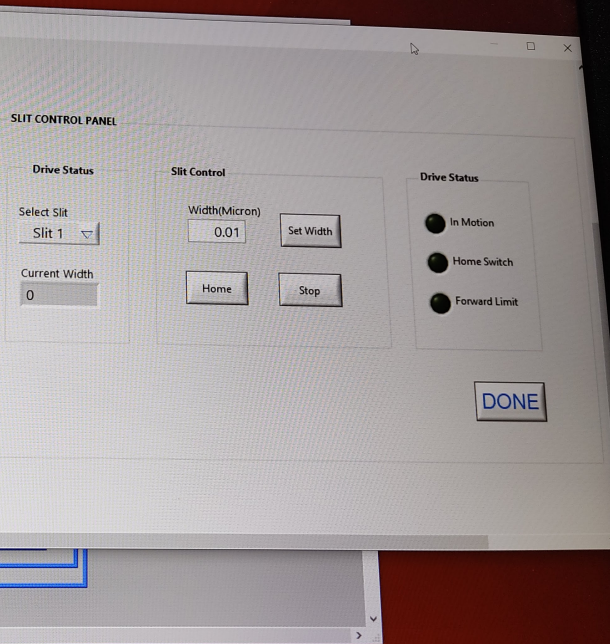
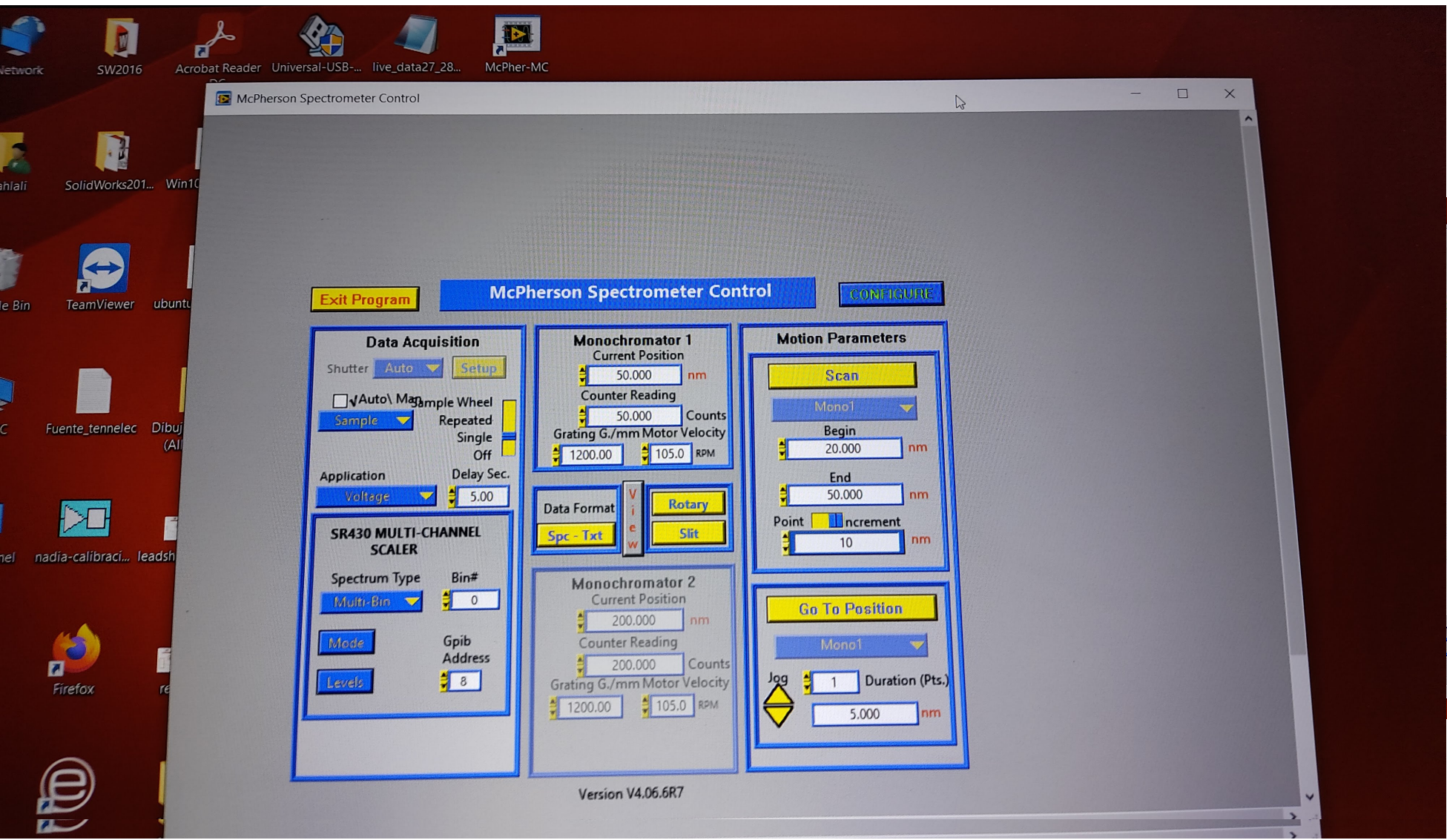
MC scan controller



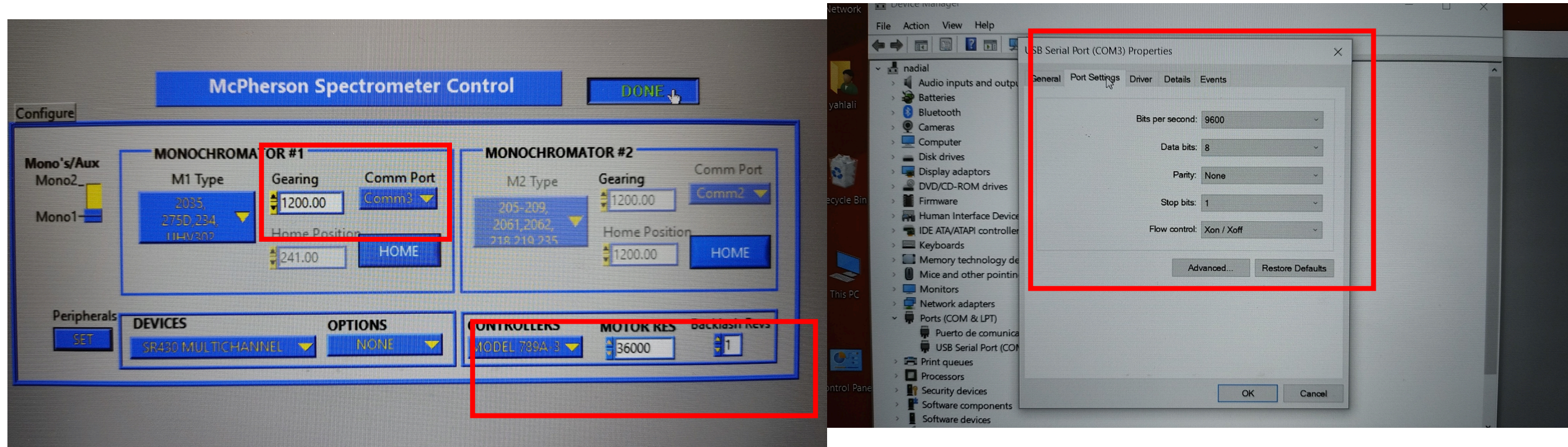
Universal electrical standard



Controller Driver Software installed



Driver configuration & Laptop Port parameters



Communication is OKAY. The driver should issue commands to the monochromator and read back the counter setting.

HOME position: 241 nm

Homing has to be done if the calibration is lost.

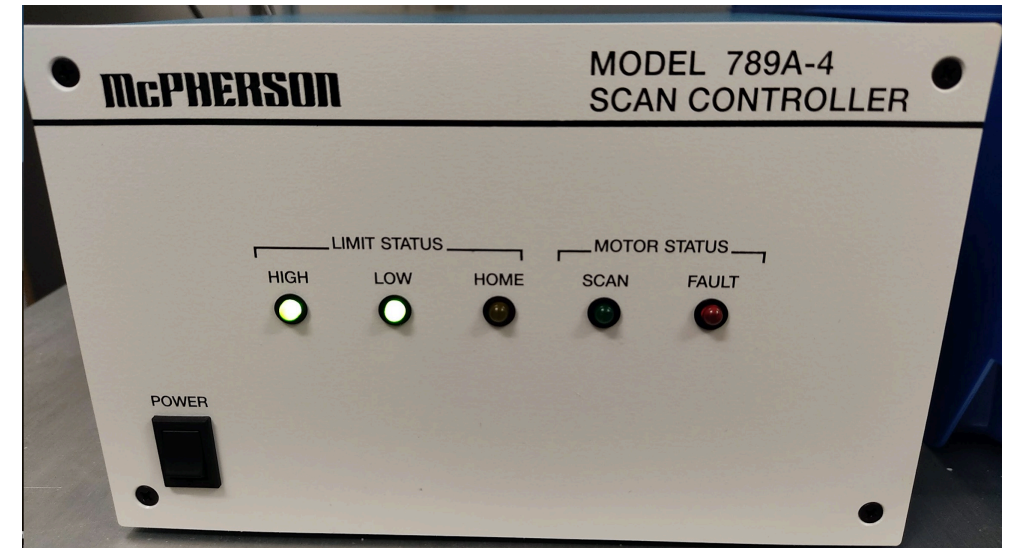
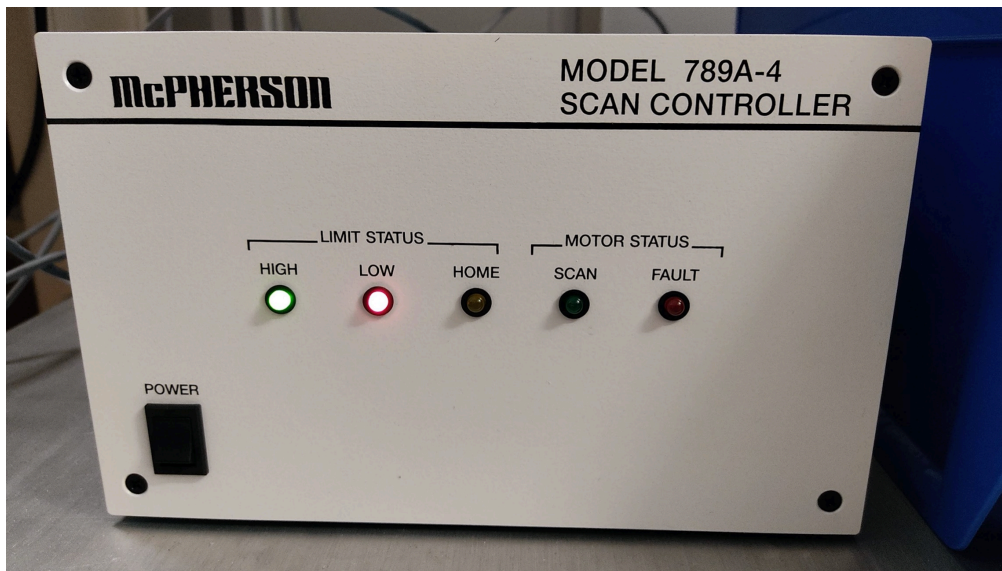
Mechanical counter and limit switches



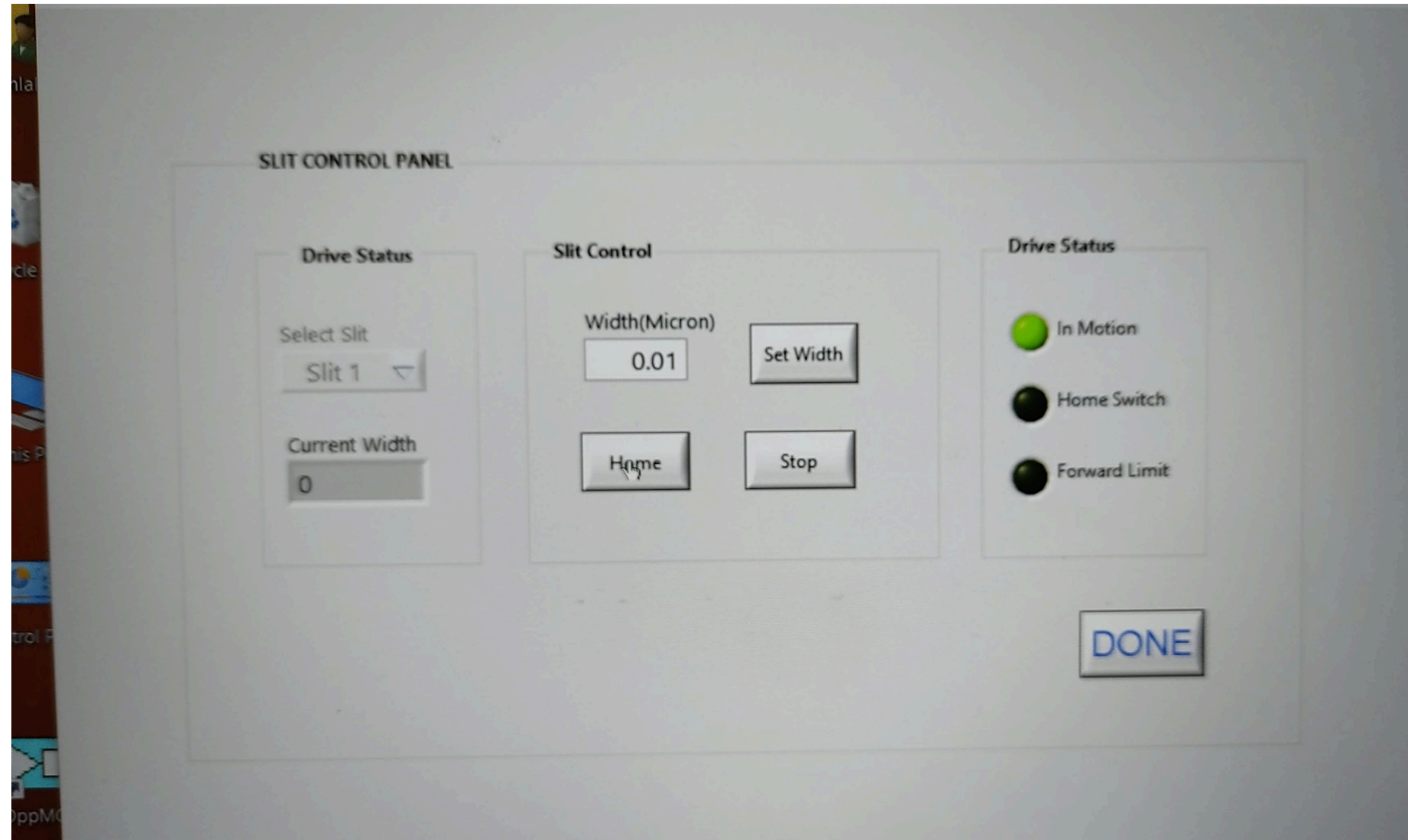
Set to 99999 Angstrom is the lower limit
The low limit switch turn red. Should be set (mechanically) above zero



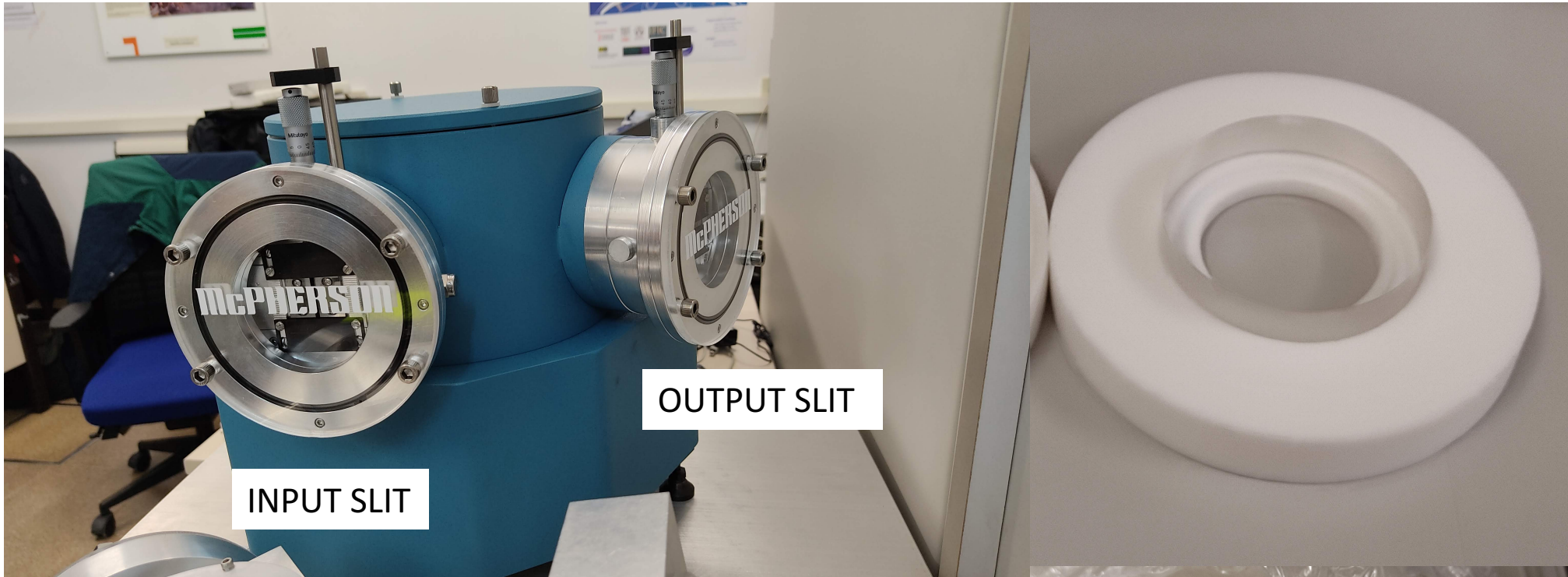
Set to 0000,0 Angstrom
Switches LED green. Okay



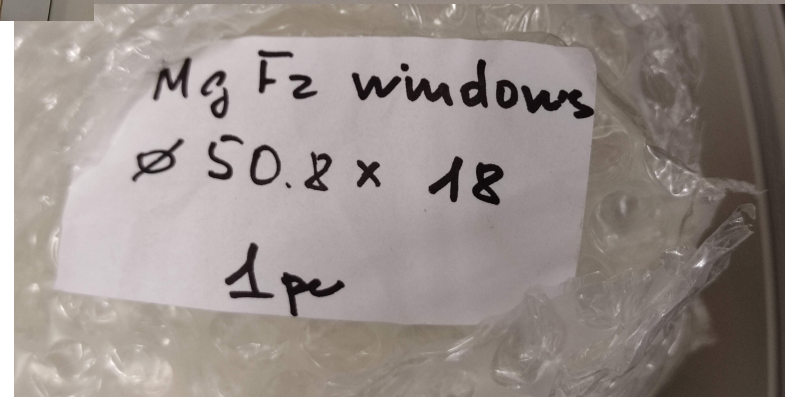
In Motion



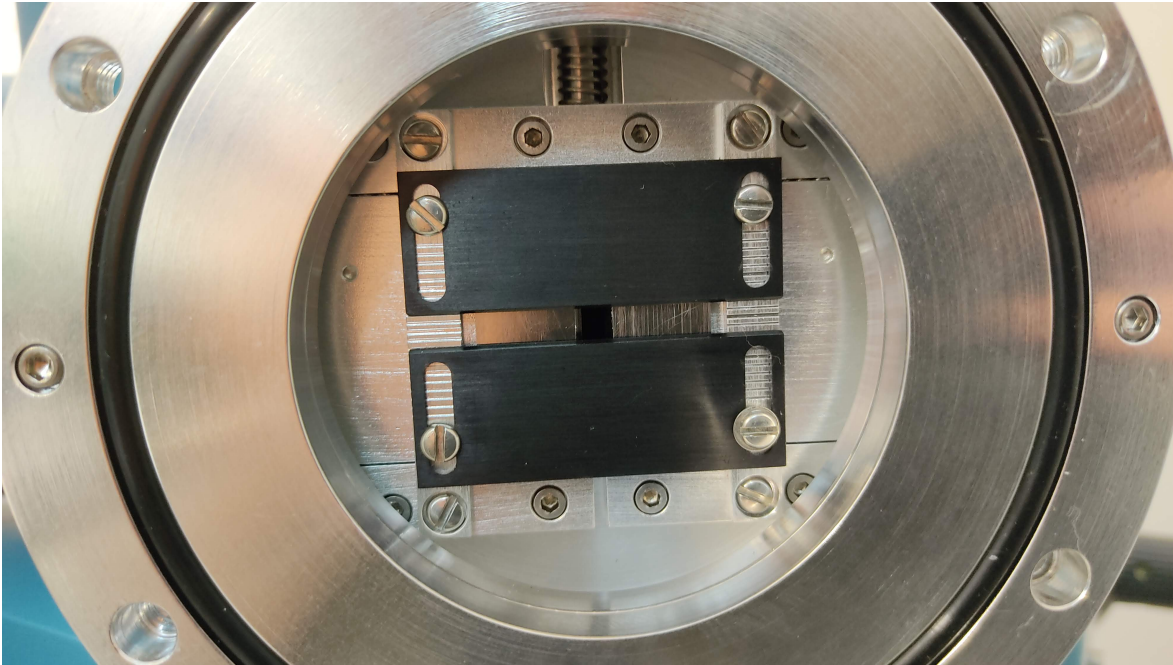
MC output flange for vacuum operation



TO DO : manufacture a flange to couple the MgF2 window to the output slit



Output flange for coupling to PMMA box



EXIT slit and flange

Thickness of the flange : 12 mm

Does not allow mounting of the MgF2 window (18 mm thick)

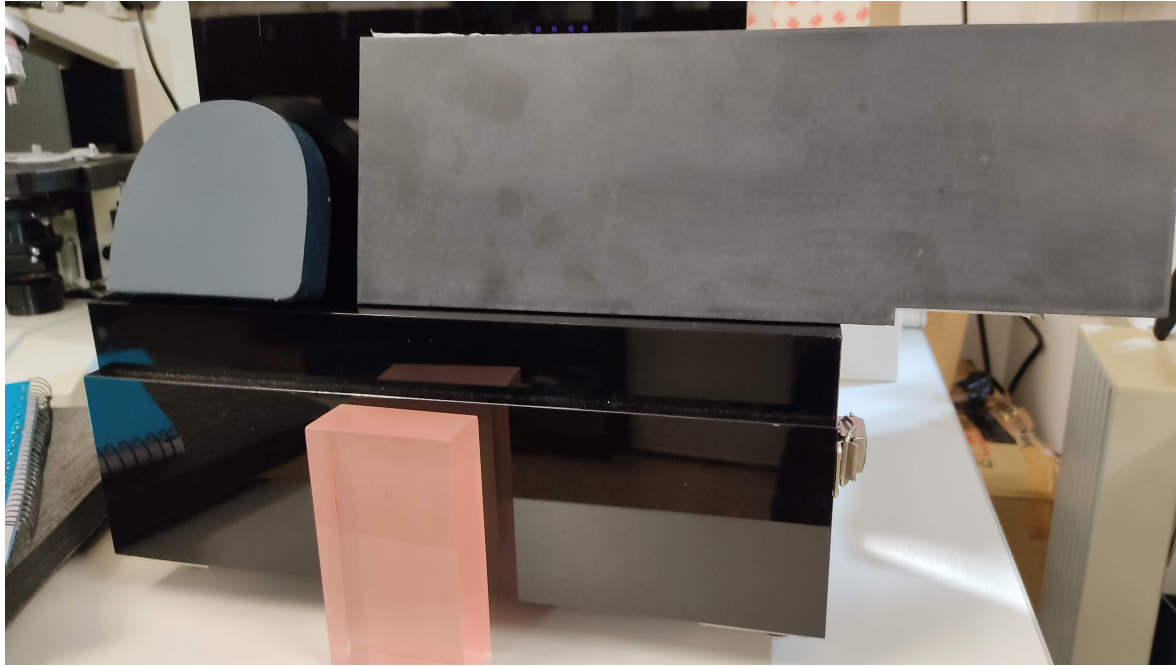


Flanges we purchased were intended for vacuum coupling.

Mounting the MgF2 flange is not possible with these adapters.

Manufacturing the PMMA box

see Anselmo's presentation for the box



Manufacturing by Monje Hermanos (Burjassot)

Materials : PMMA plates are polished from fabric. They could be painted for having non-reflective interior surfaces of the PMMA test box. Alternative : **rubbing the surface (best alternative as no material could be detached from the surfaces and contaminate the monocromator).**

Rubbing the interior surfaces, manufacturing of holes for the flanges, mounting pieces for the gloves, mounting the connectors, valves, upper cover with viton ring etc.. Could be done by Monje.

Overall cost between 300 and 500 Euros. Delivery time : 7 to 10 days after official ordering

Next

- Perform the calibration of the monochromator
- Characterize the light output spectrum (visible)
- Finish mechanical setup
- Connect D2 lamp
- Connect vacuum pump
- Manufacture PMMA box & MC coupling flanges