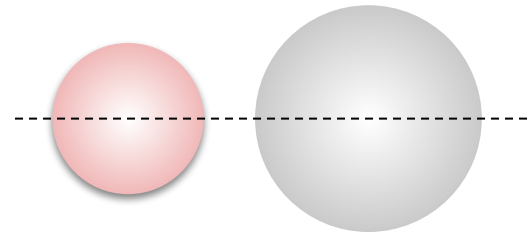




Optical measurements update

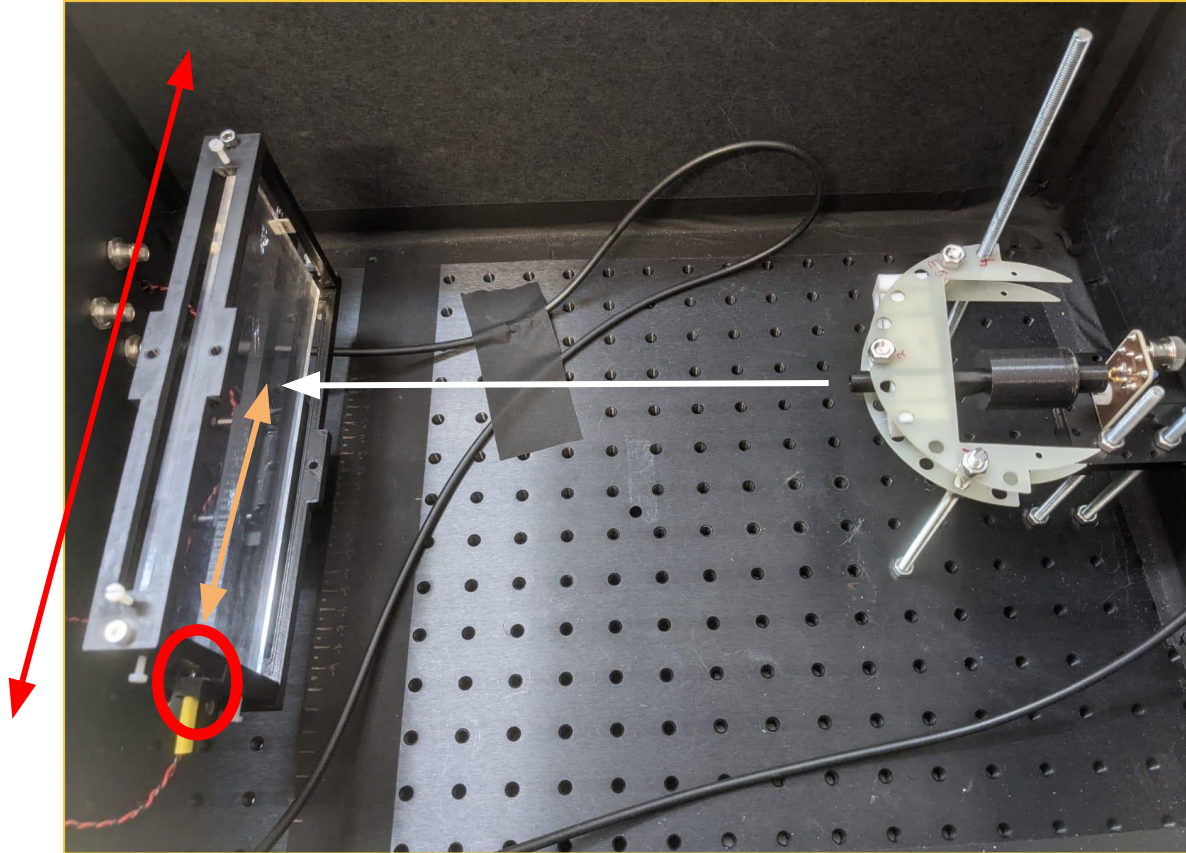
13/01/2022

Julio Ureña



Plastic scintillator absorption length measurement

Sideways scan of the clean plastic scintillator

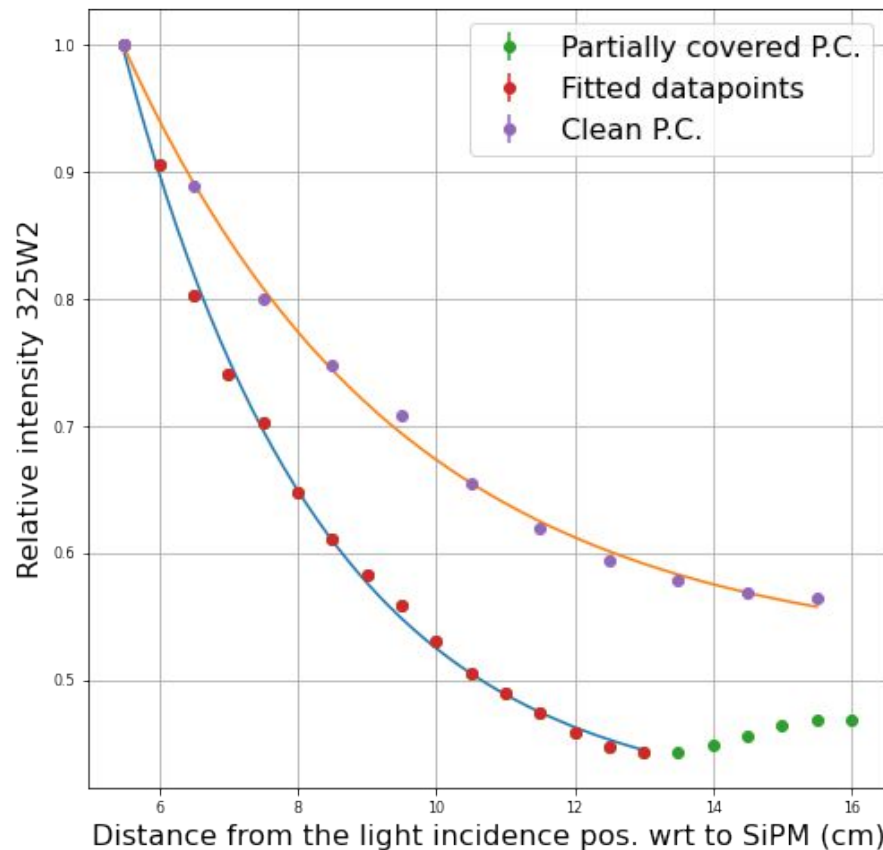


Plastic scintillator absorption length measurement

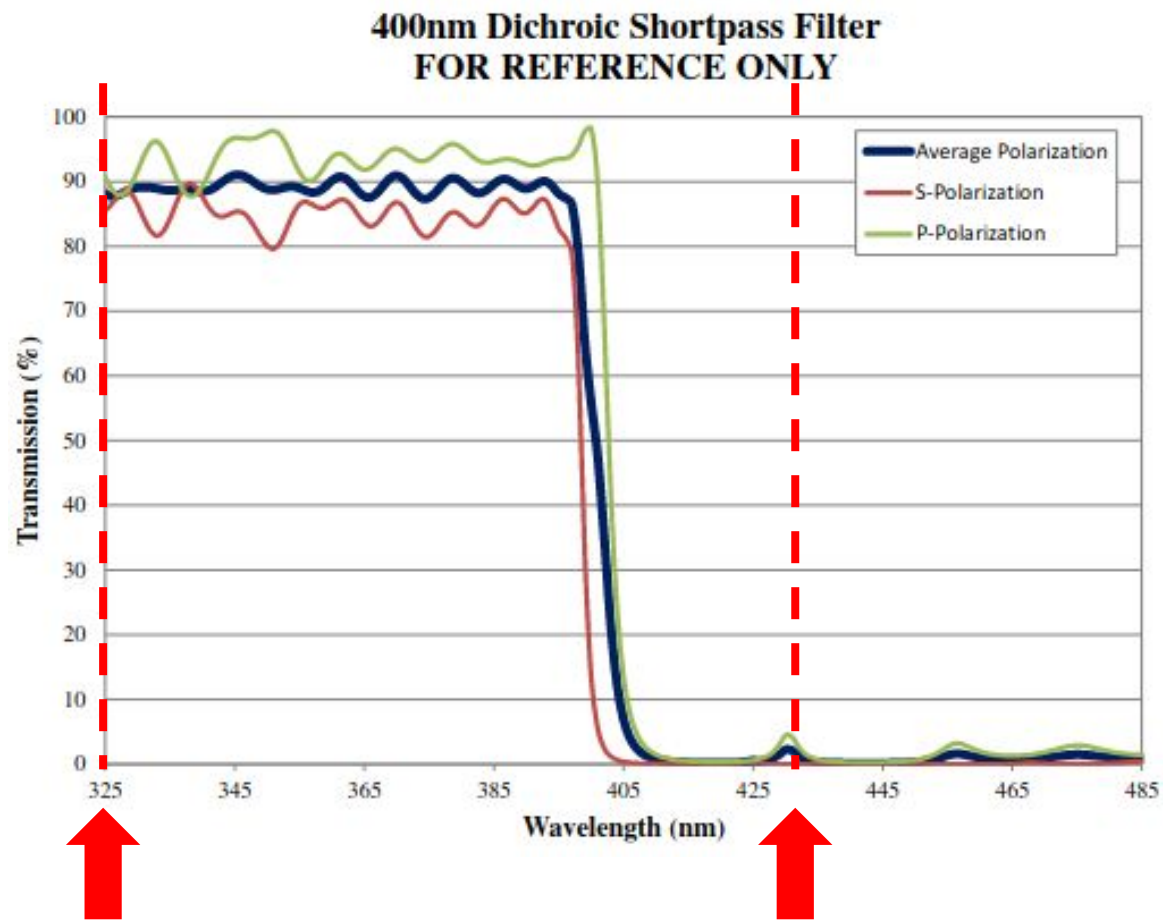
$$I_r(x) = k + c \cdot \exp\left(\frac{x-x_0}{L}\right)$$

$$L_{\text{cover}} = (2.88 \pm 0.12) \text{ cm}$$

$$L_{\text{clean}} = (3.99 \pm 0.24) \text{ cm}$$



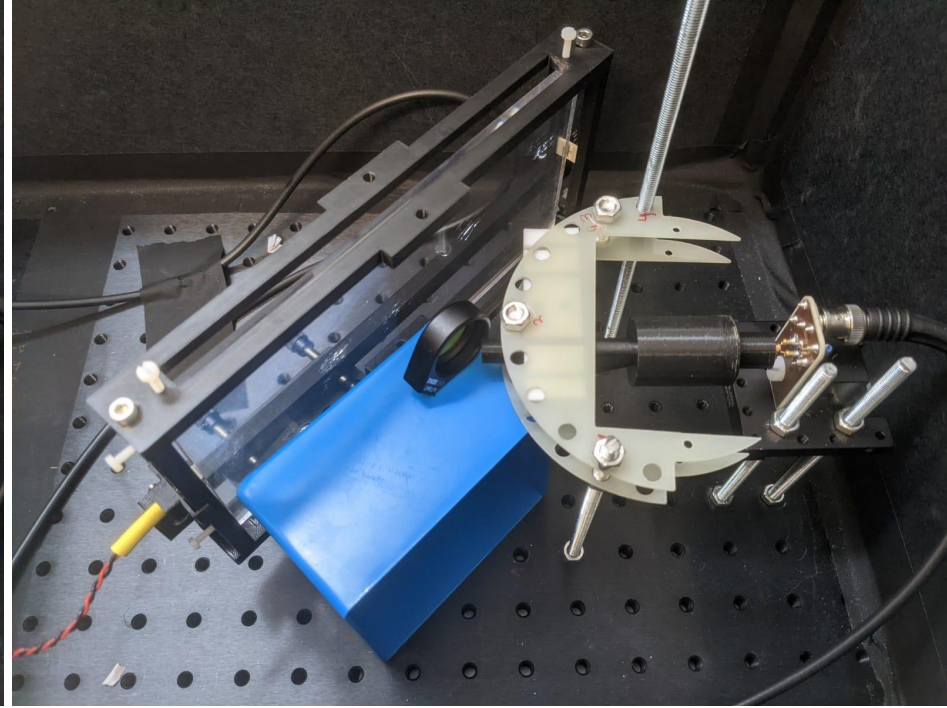
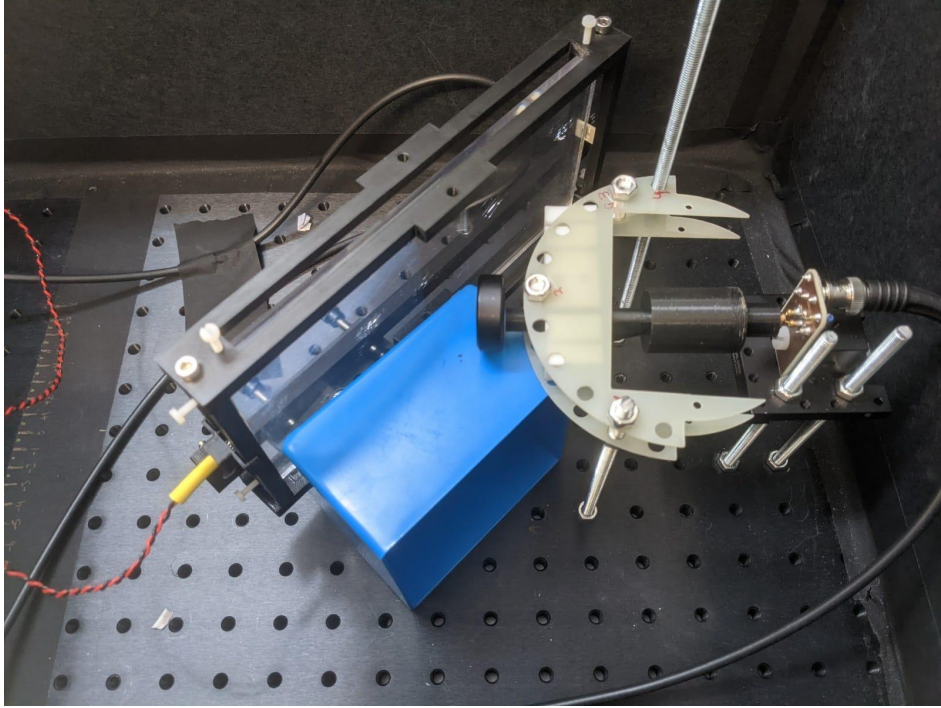
Dicroic filter transmittance measurement



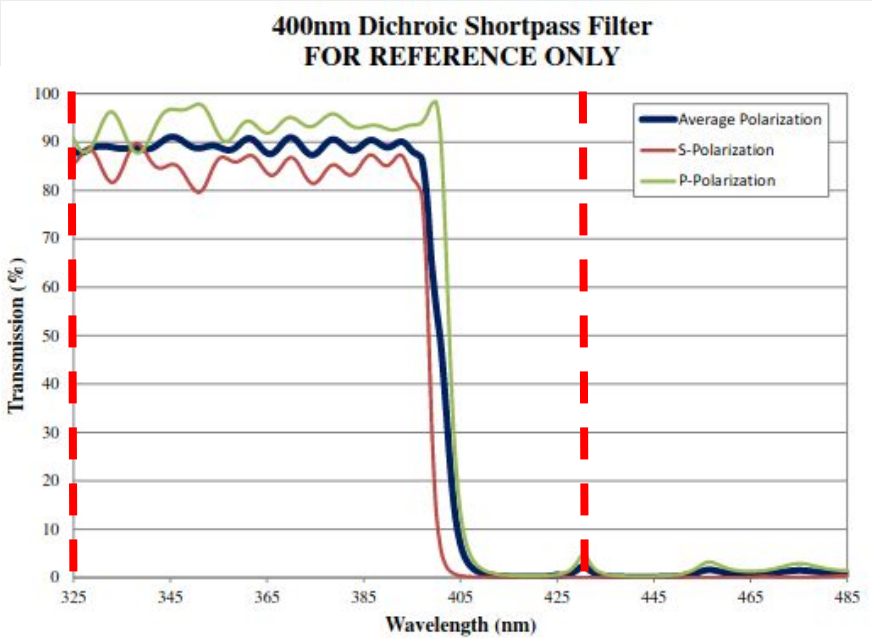
Manufacturer's data at
an incidence angle of

45°

Dicroic filter transmittance measurement



Dicroic filter transmittance measurement



Measured transmittances

Inc. angle\LED	325 nm	430 nm
45°	$(94.03 \pm 0.62 \pm 0.06)\%$	$(4.053 \pm 0.104 \pm 0.004)\%$
90°	$(54.621 \pm 0.067 \pm 0.021)\%$	$(56.29 \pm 0.22 \pm 0.06)\%$

Next steps

- Wait for the Thorlabs order to arrive & build the new setup
- Use a rotatory stage to sample different filter angles
- Measure absorption length for the 430 nm LED as well
- Search for PVT absorption length info. (simulation)