

# Diffusers for light source

DarkSide production meeting  
21/10-2022

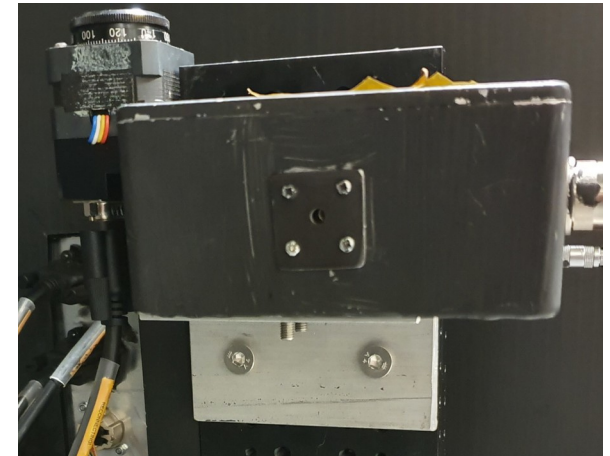
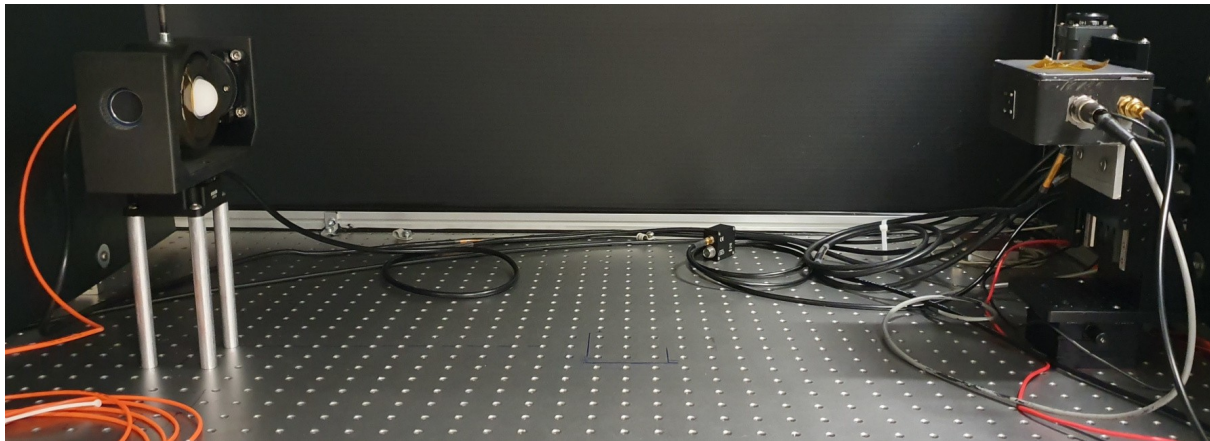
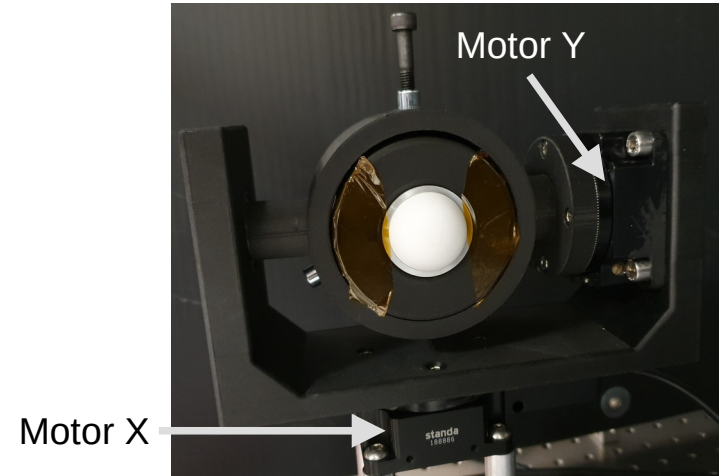
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# Setup

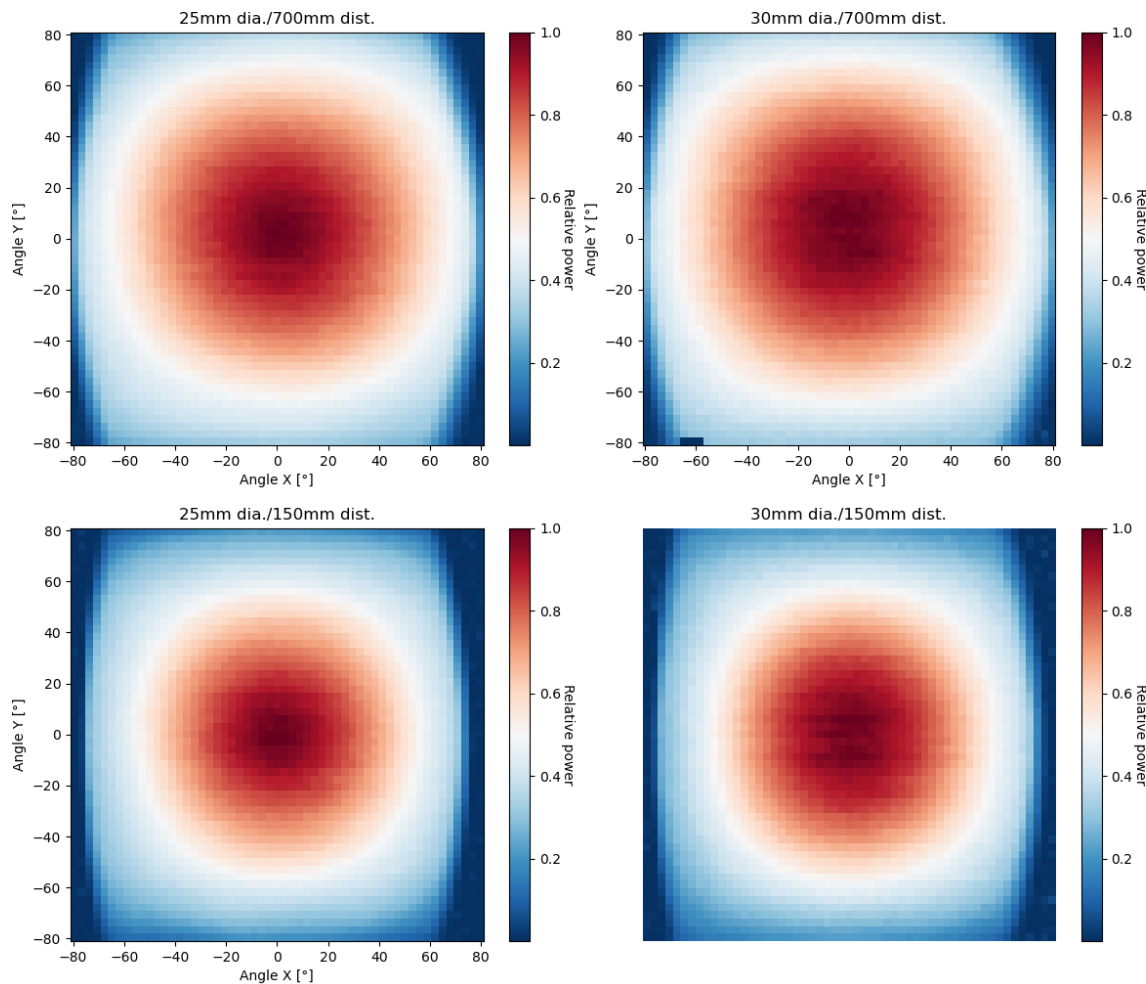
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- Light intensity scans repeated for two hemispherical PTFE diffusers: 25mm and 30mm diameter
- Light output measured with PMT at ~700mm and 150mm distance
- Do we see a difference in the intensity distribution?



# 2D heat maps

- Plots show laser power as a function of the angle in the horizontal (X) and vertical (Y) planes
- Normalised to output at the centre of each diffuser
- Size of central “hotspot” is reduced when moving the PMT closer



# 1D profile

- Profile plot of angle  $X = 0^\circ$
- Light intensity slope is greater when moving the PMT closer
- Possible explanations:
  - Geometry effect from PMT aperture?
  - Reflections having a greater influence at larger distance?

