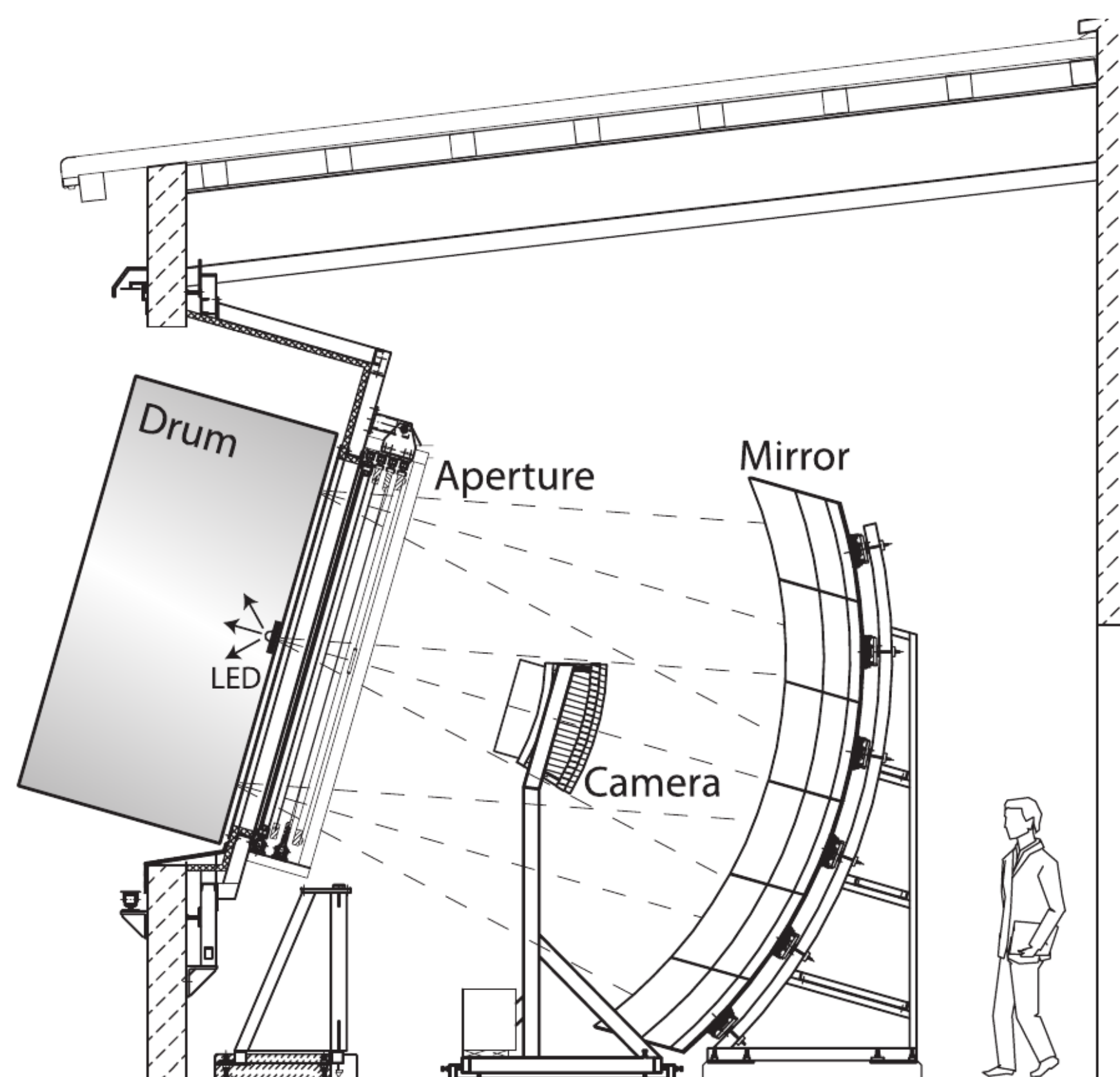


A novel method for the absolute end-to-end calibration of the Auger fluorescence telescopes

H.-J. Mathes for the Pierre Auger Collaboration

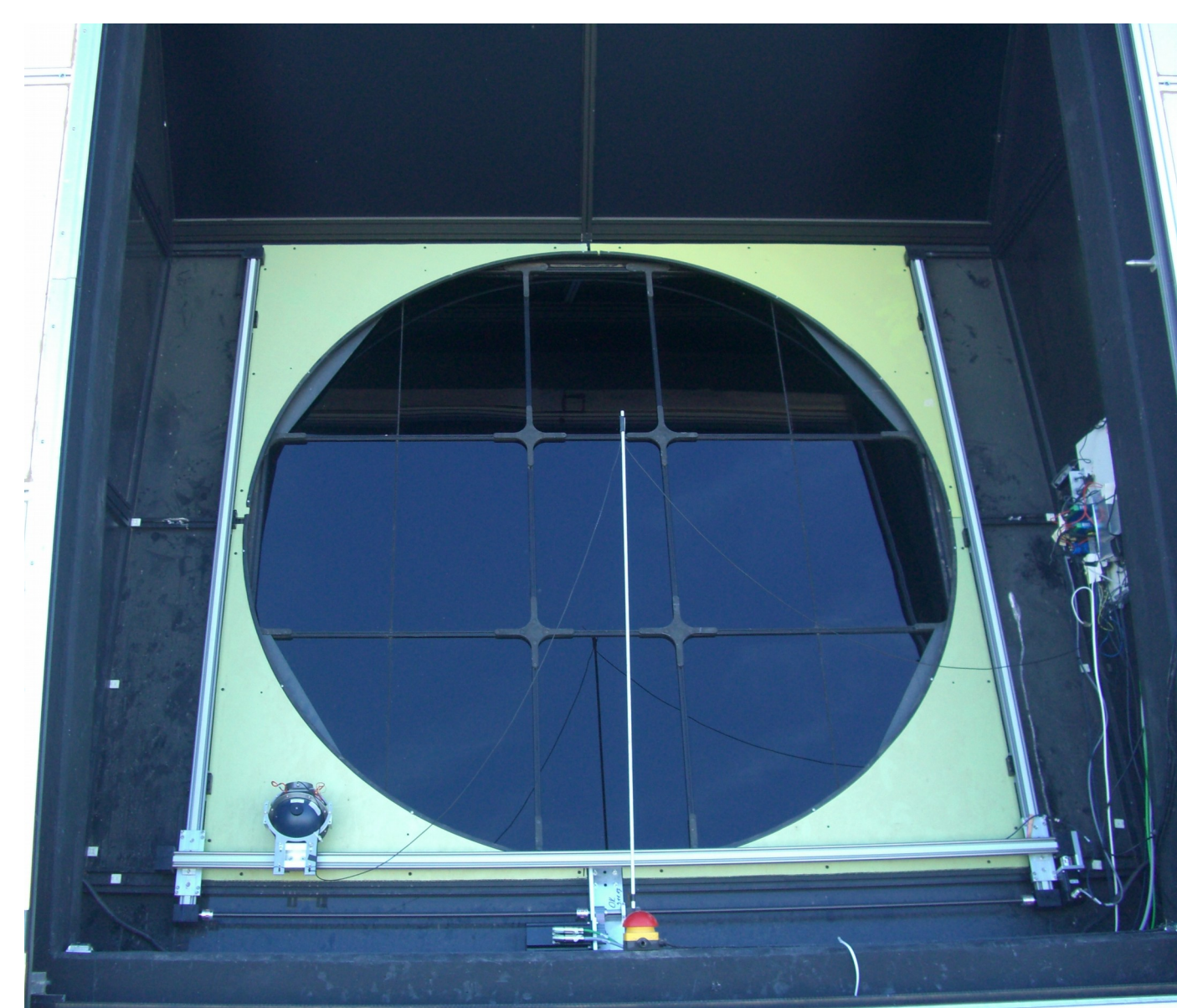
Present End-to-end calibration with the drum

- Full aperture illuminated
- Large size (handling, absolute calibration)
- Large support team required (man-power)
- Correction for back reflection and non-uniformity needed



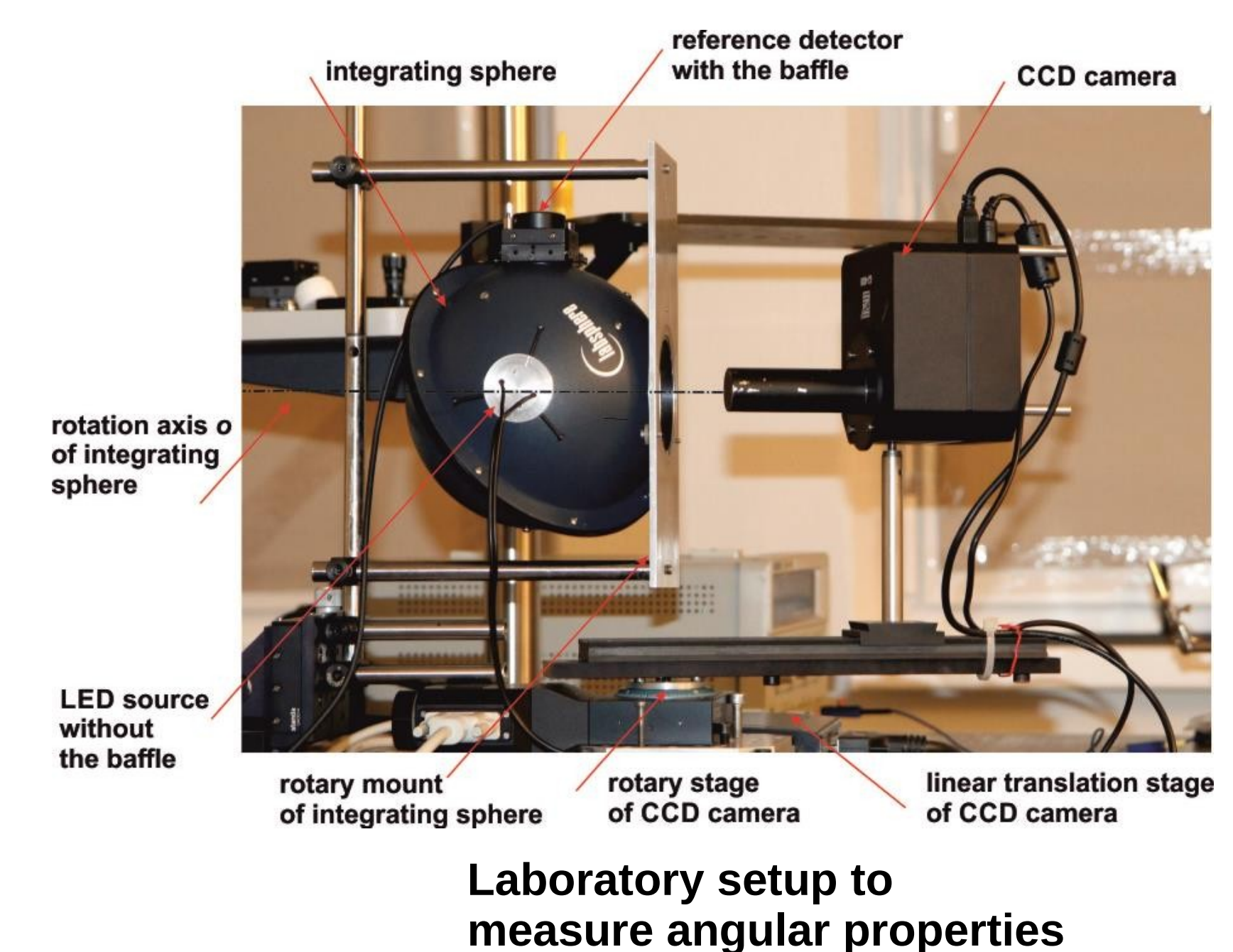
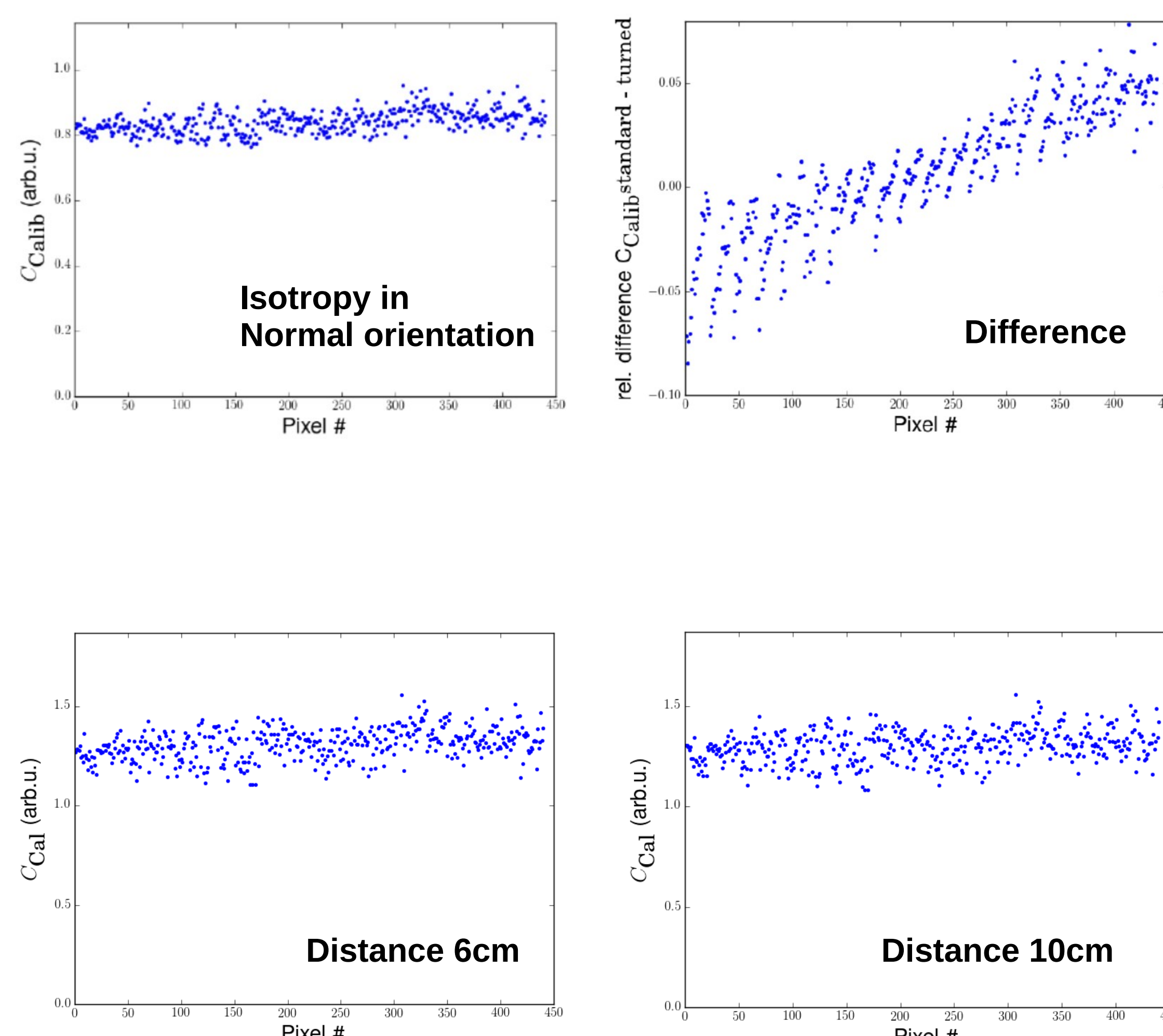
Novel method: XY scanner calibration

- Steerable light-source moved outside aperture (XY), with sub-millimeter precision and auto-correction
- Sum over many flashes resembles drum
- Light source portable
- Calibration on- and off-site possible

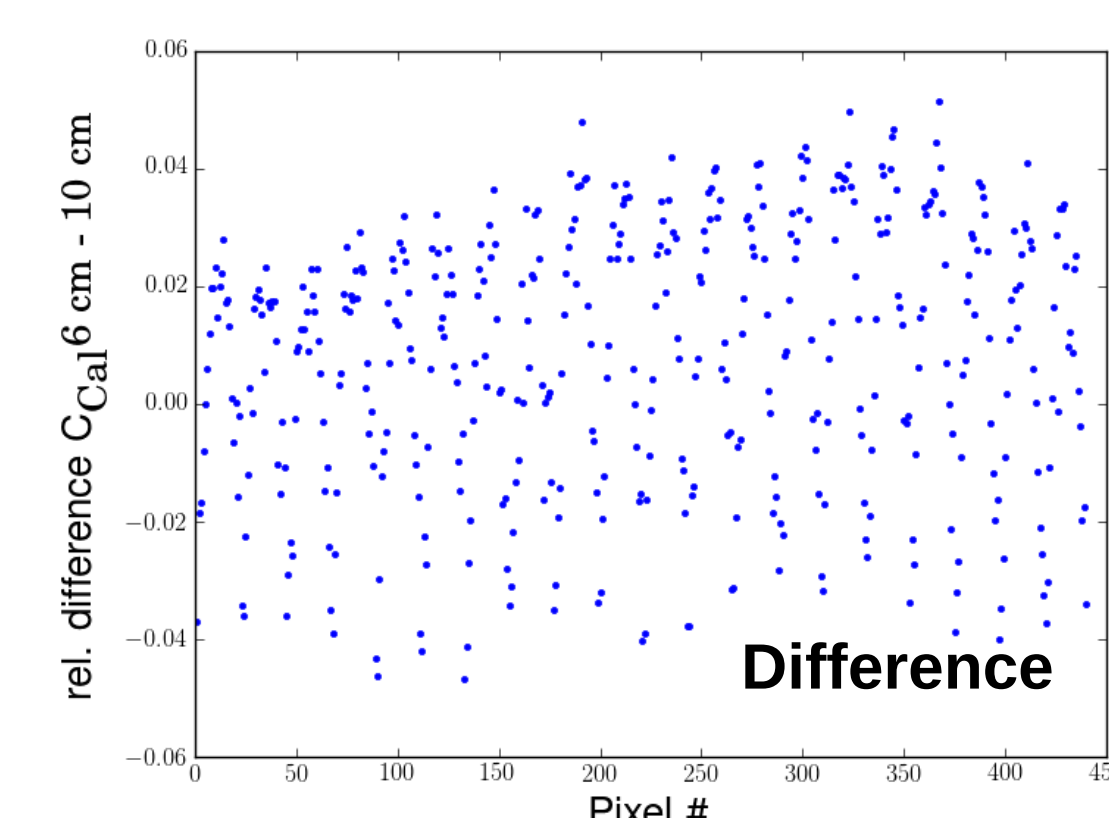


Optimize operation parameters

- Size of output port and distance to aperture
- Uniformity of light emission (effect of baffle)



- Step size on grid



Conclusions and Outlook

- First operation during March '18 shift
- The XY scanner works!

- Next campaign: October/November '18
- Absolute calibration of light source
- Improve simulation with (measured) light source distribution

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