

ODR/OTR emittance station at ATF2 (KEK)

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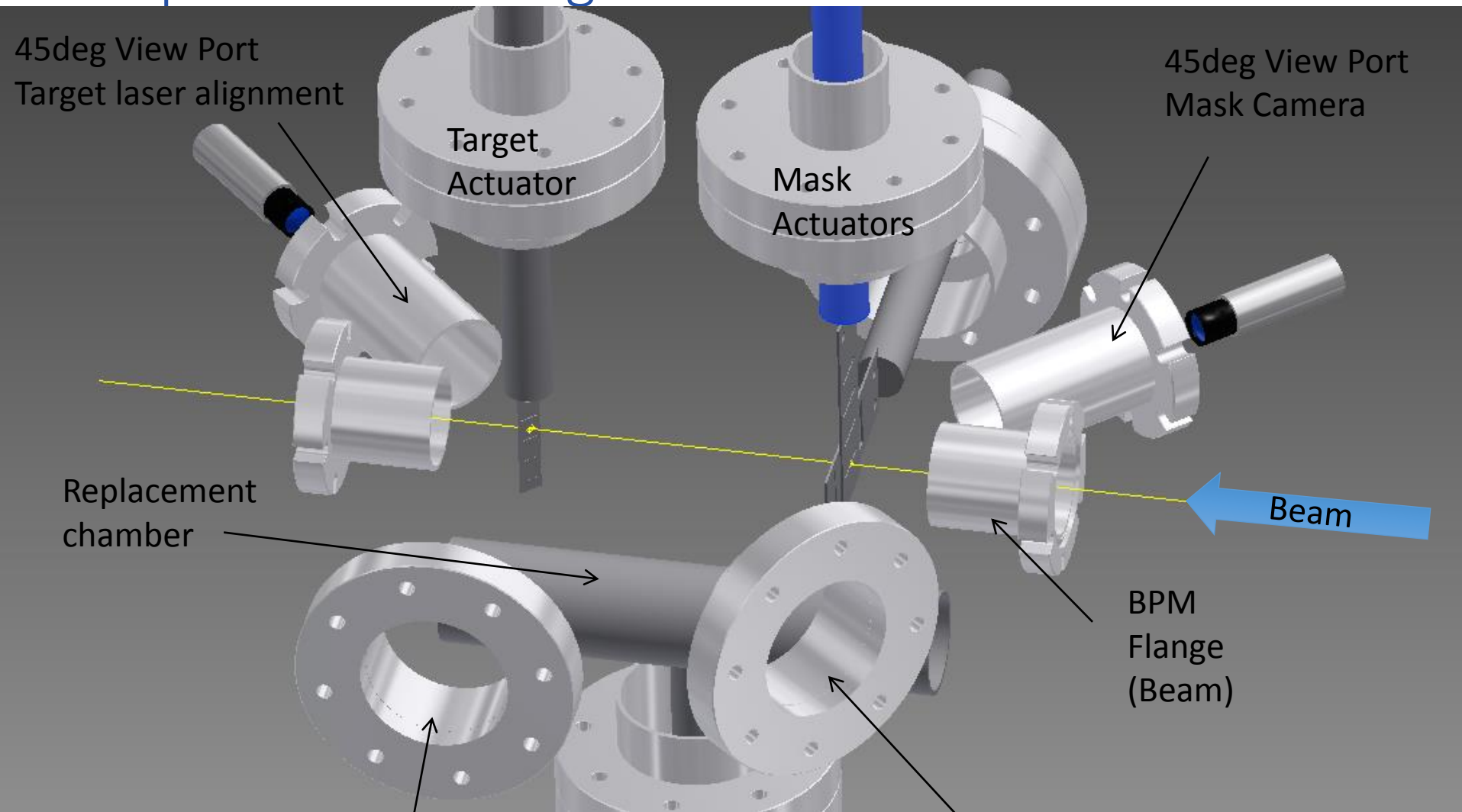


Overview

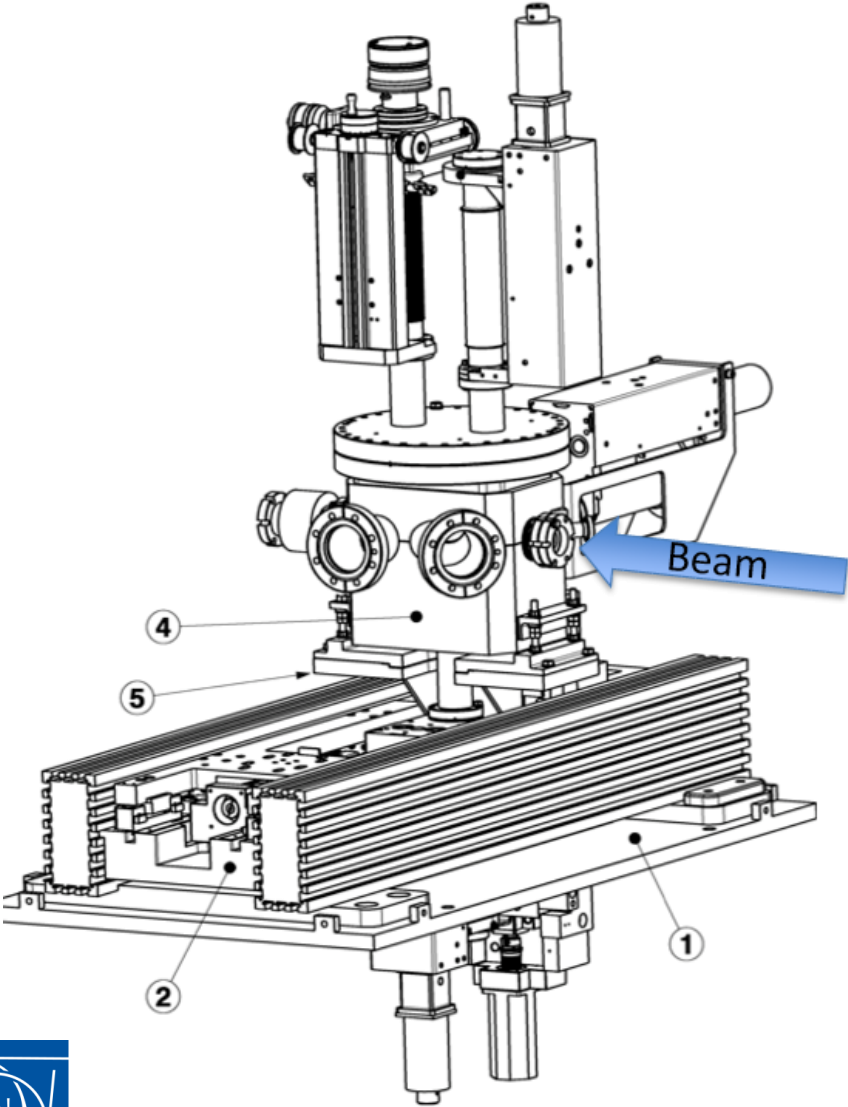
Motivations and Goals:

- Develop a non-invasive transverse profile station for CLIC/ILC beams that can be scaled up
- Develop, install and test a combined Optical Transition Radiation (OTR) and Optical Diffraction Radiation (ODR) emittance station at ATF2 at High Energy Accelerator Research Organisation (KEK)
- To optimize sensitivity to micron and sub-micron beam sizes, we plan to observe ODR/OTR in the visible and near-UV wavelength range, down to approximately 180 nm.

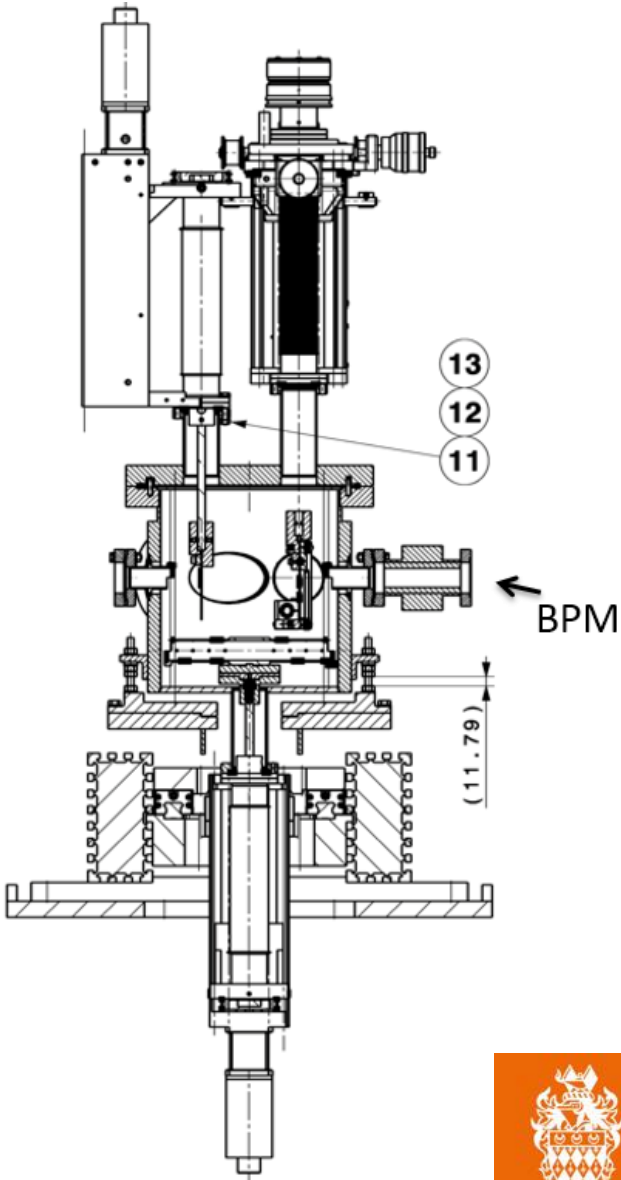
Experimental design



Experimental design

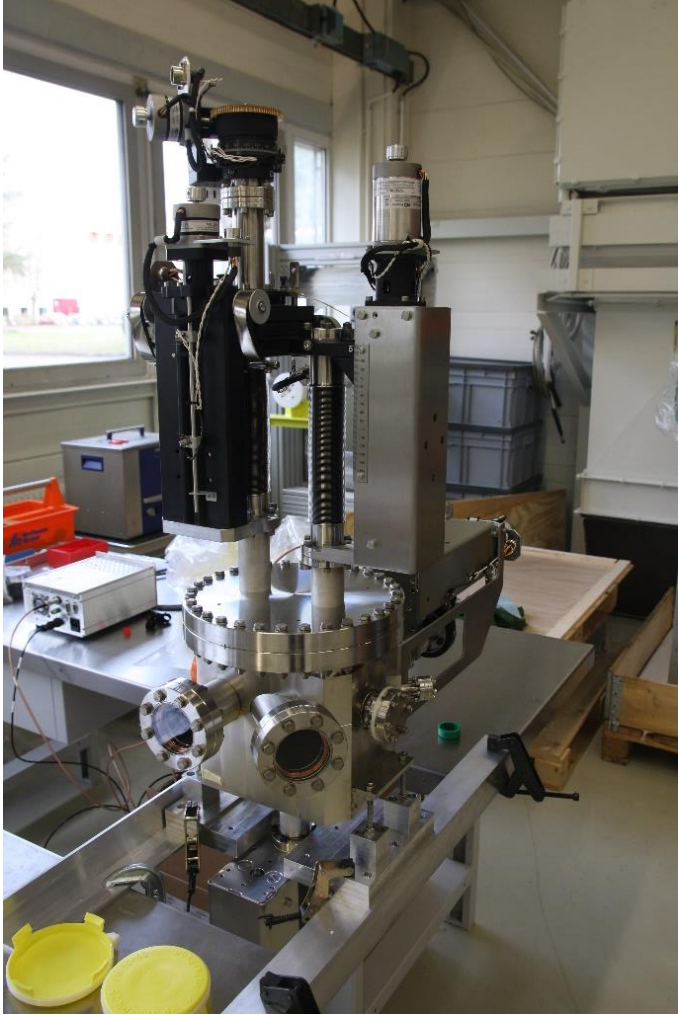


Isometric view



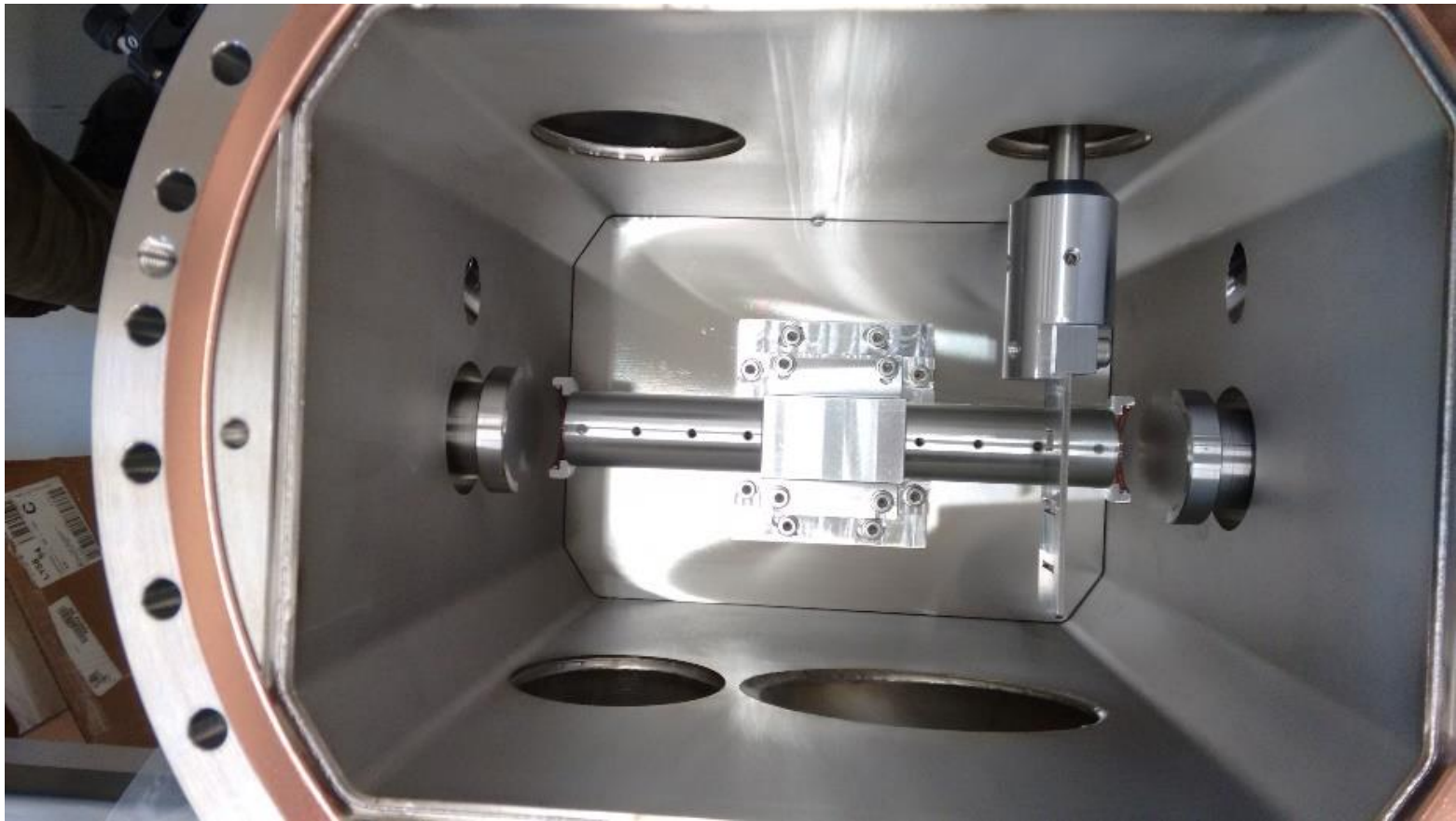
Project status

Tank production



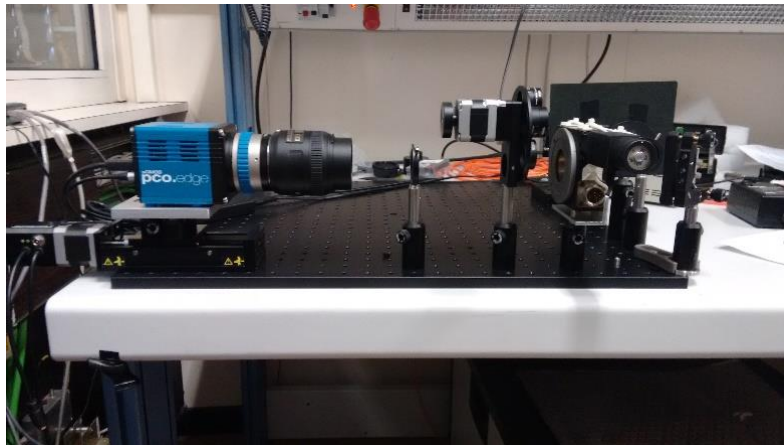
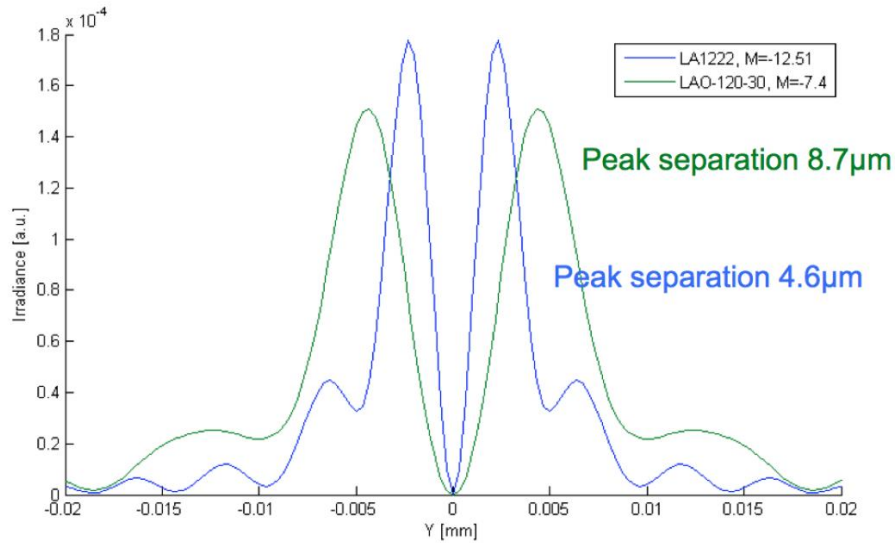
Project status

Inside of tank

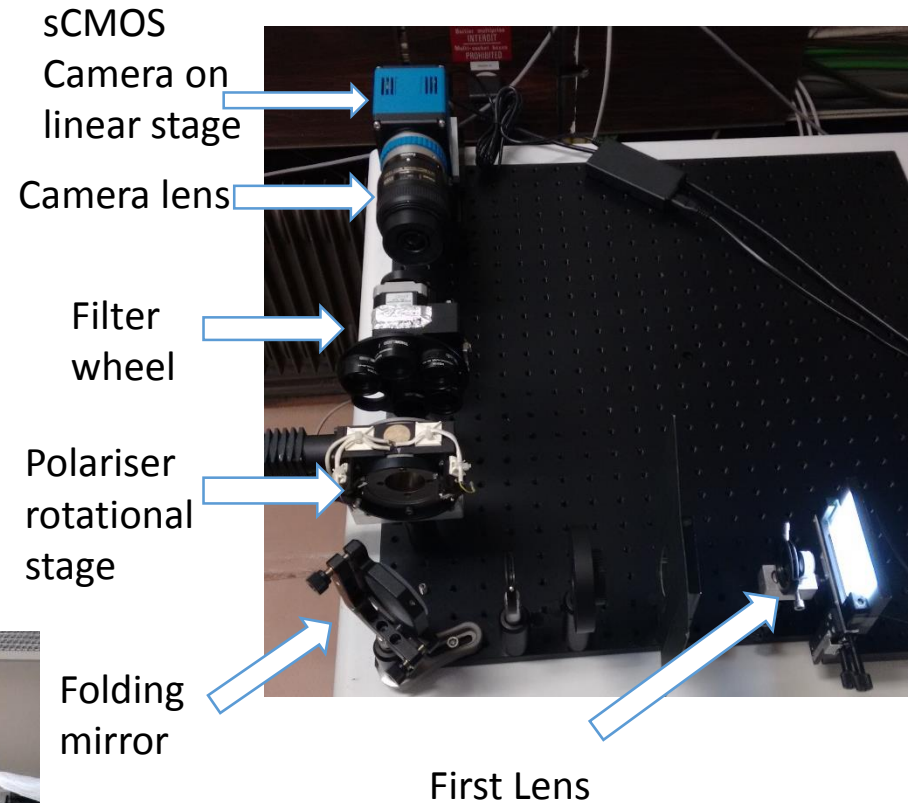


OTR optical line

Zemax simulation of the expected OTR PSF for a selection of commercial lenses

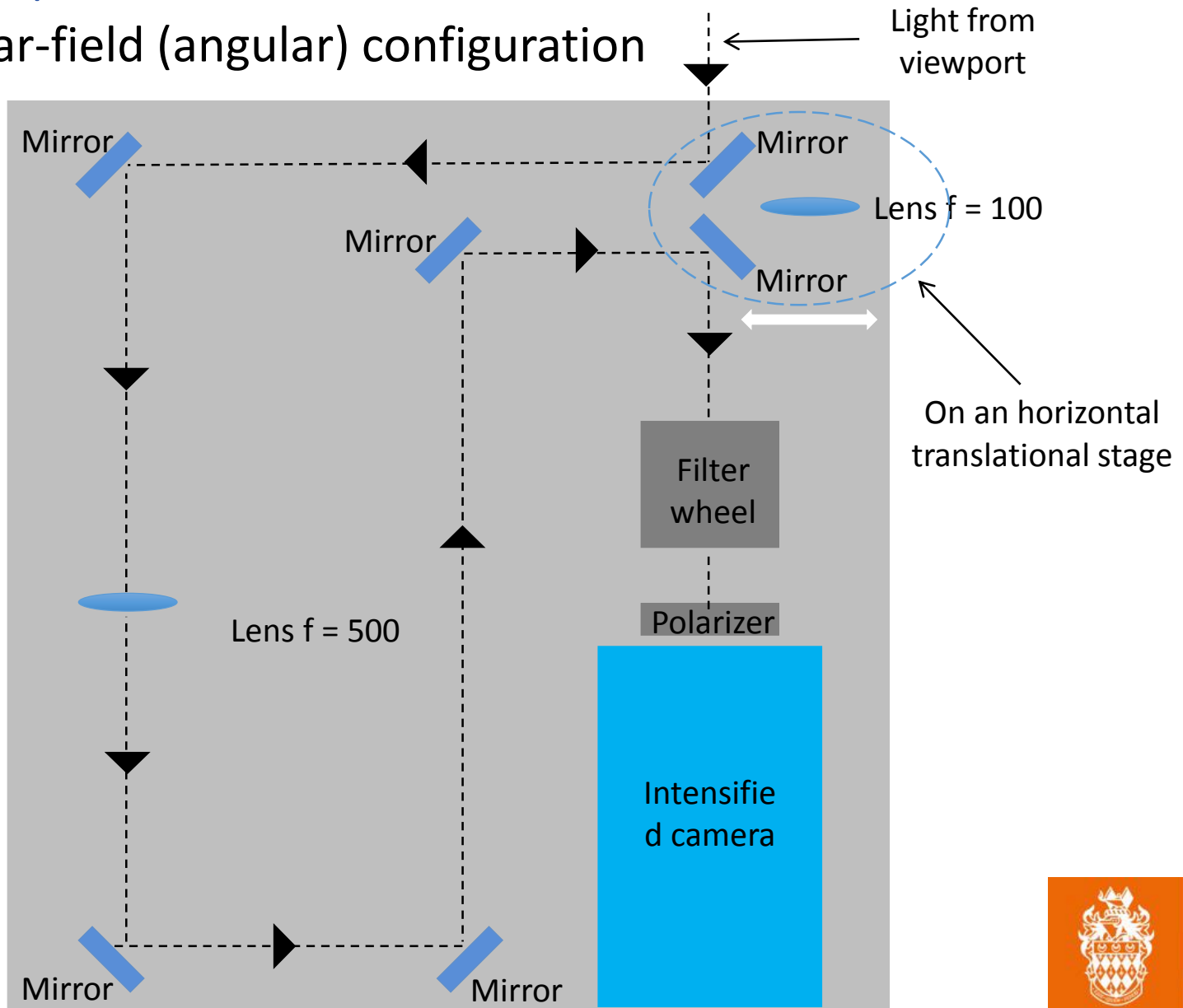


OTR optical line tests



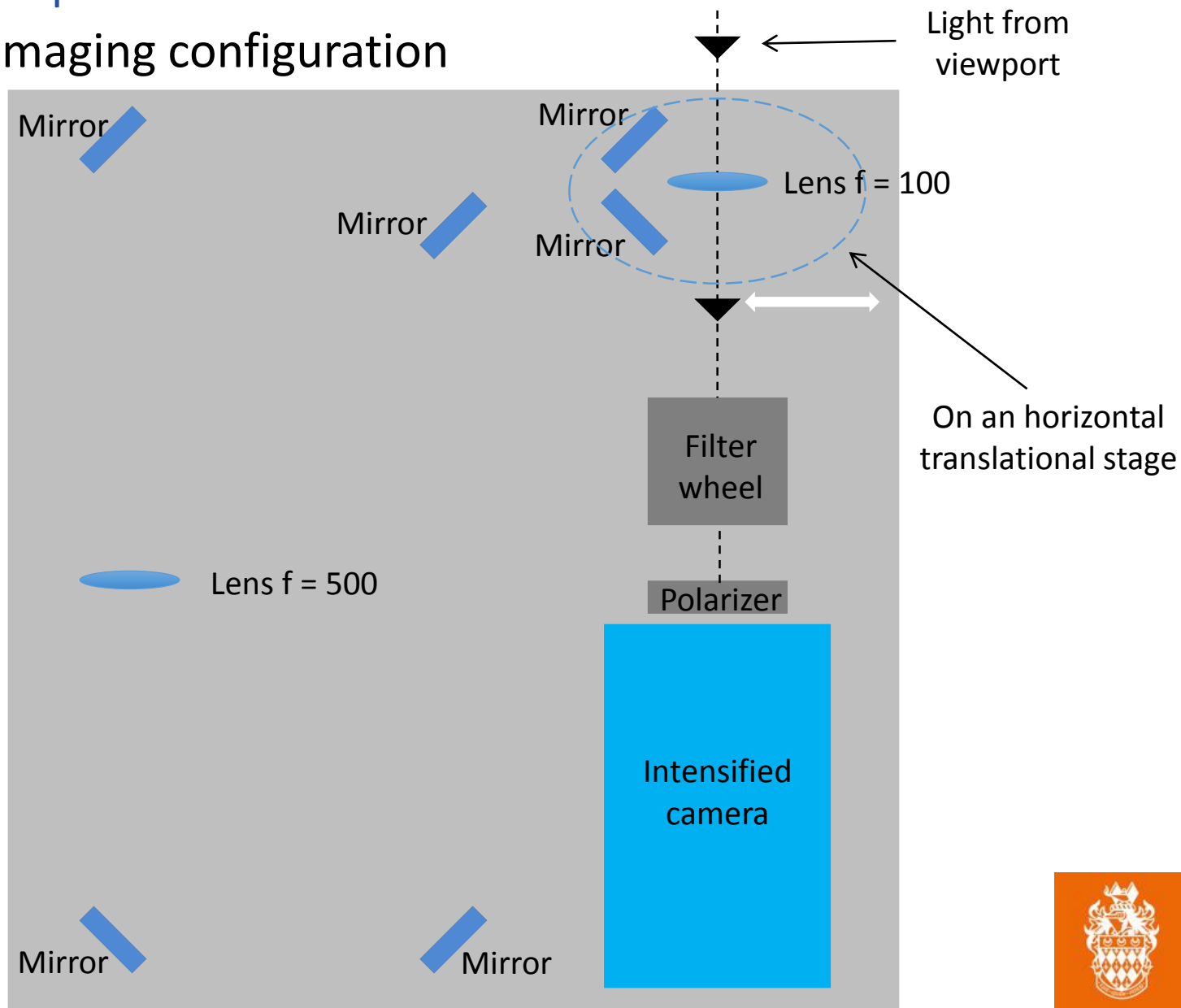
ODR optical line

Far-field (angular) configuration



ODR optical line

Imaging configuration



Summary

Status of the project:

- ODR and OTR optical lines already designed for the visible range
- All component except of cameras shipped to KEK and already arrived
- System planned to be installed at ATF2 during shutdown week of February 2016 (08/02/2016-14/02/2016)
- We plan to be at ATF2 with both cameras on 03/02/2016 to set-up the installation
- First experimental measurements planned the week after installation

Future improvement:

- After first measurements in the visible wavelength range, upgrade the optical line for UV wavelength range

Thank you for your attention!





