



Queen Mary

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Science and Engineering

# Optics as used at LION – Part 2 (updated)

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# Redoing optical simulations for the LION beamline experimental conditions

Include the key part of the beam window seal since this partially occludes the optical system view of the first millimetre (approx.) of the light from the deposited energy in the liquid scintillator.

# Redoing optical simulations for the LION beamline experimental conditions

The length of liquid scintillator in front of the BK7 window is now correct, as is the effective diameter of the window. ✓

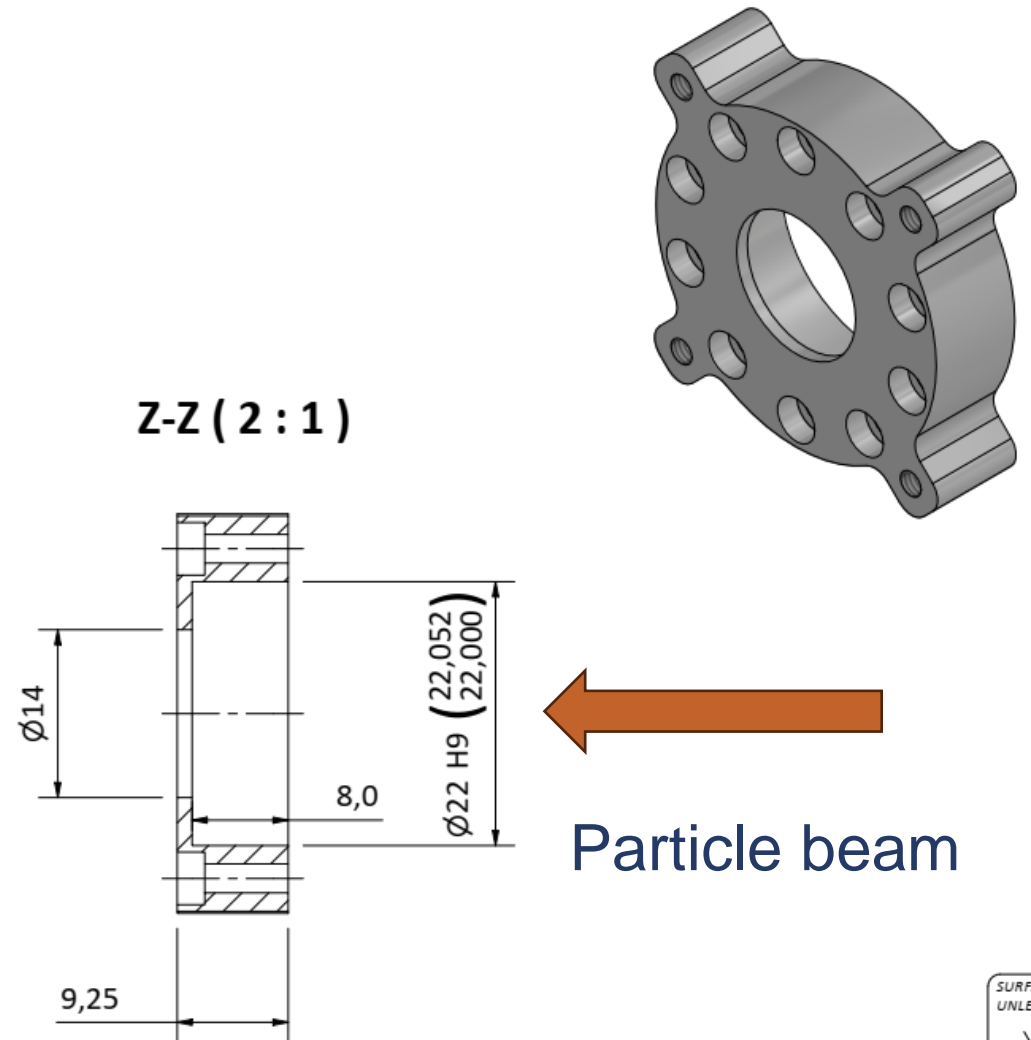
The lenses are not quite the correct specification, but similar.  
 $10^6$  primary optical photons traced per source segment.

**WARNING:** these results have not been thoroughly checked nor do they include other important changes (e.g. lens prescription) needed. **Treat as qualitative but indicative!**

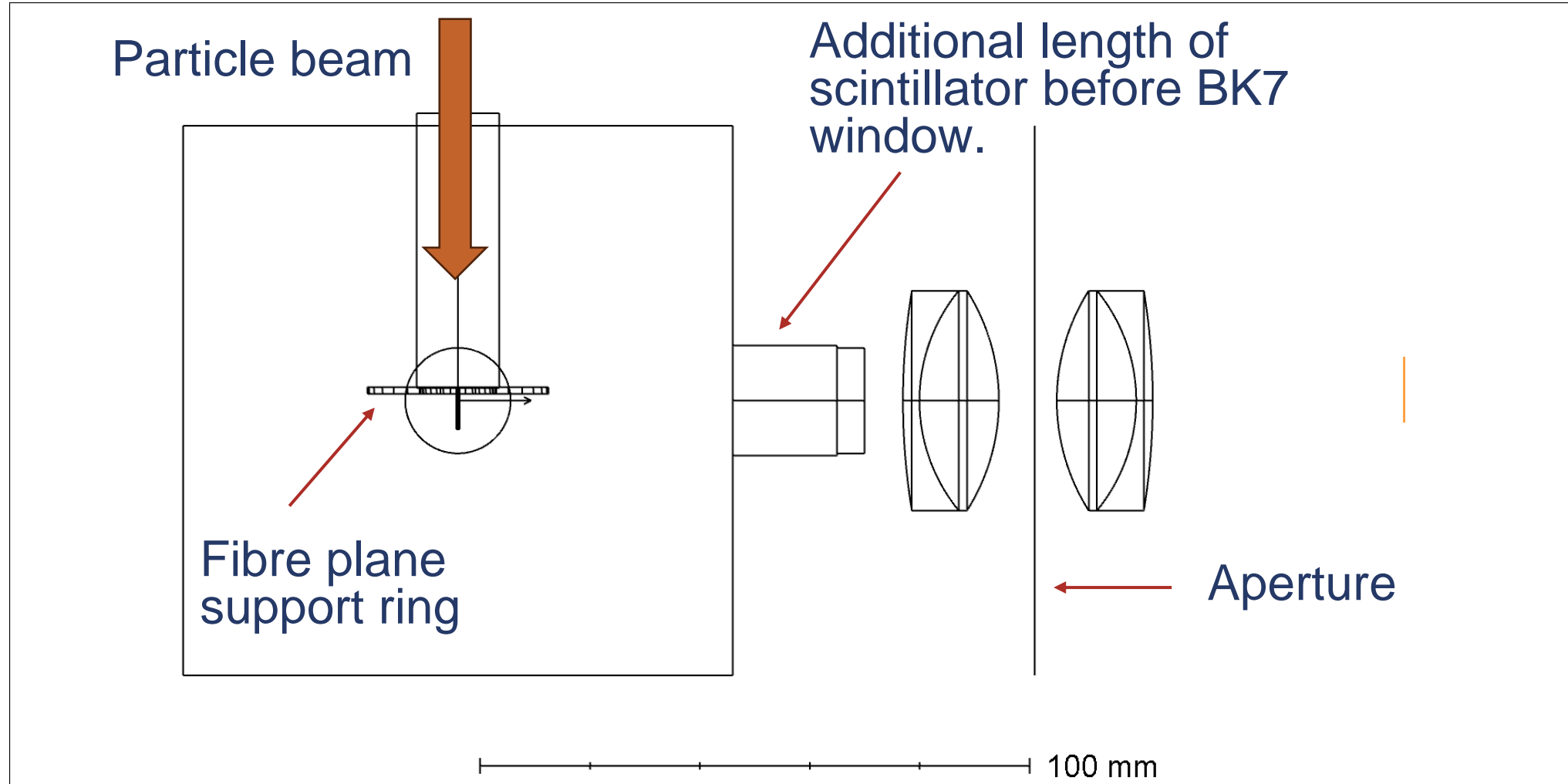
# Occluding effect of “Beam Window Seal Mk II”

This item (drawing #M1024-025) provides a seal for the Kapton™ beam entrance window & is the support for the fibre planes.

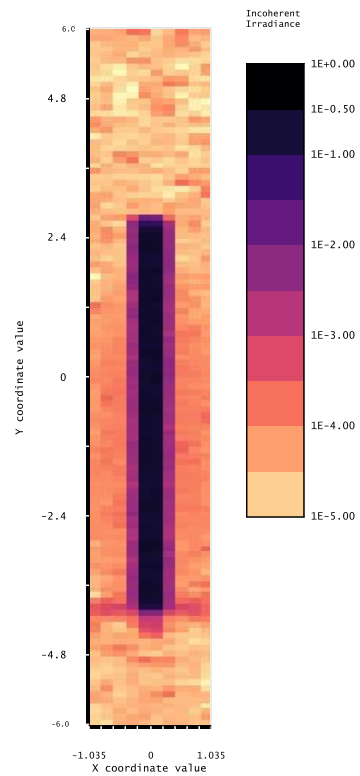
It is black anodised aluminium.



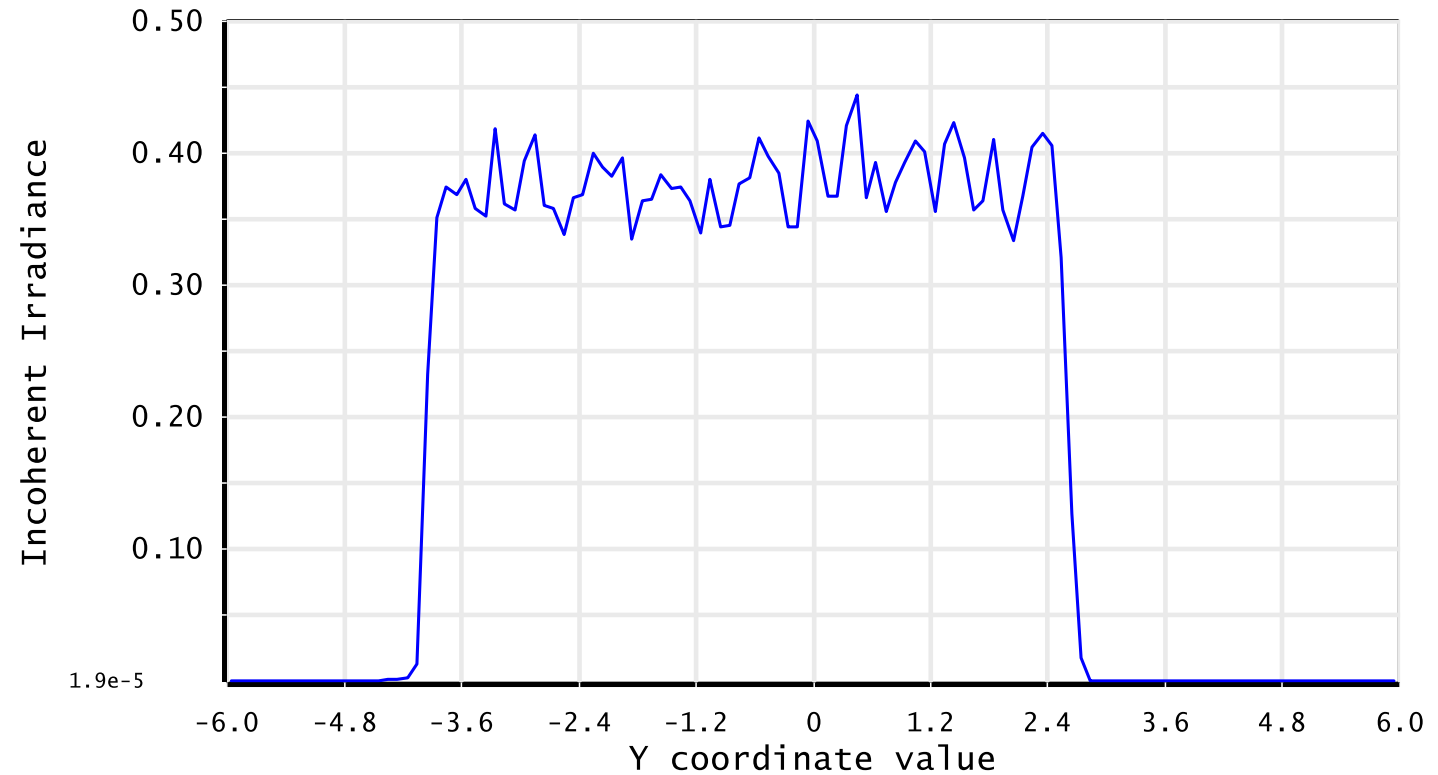
# Occluding effect of “Beam Window Seal Mk II”



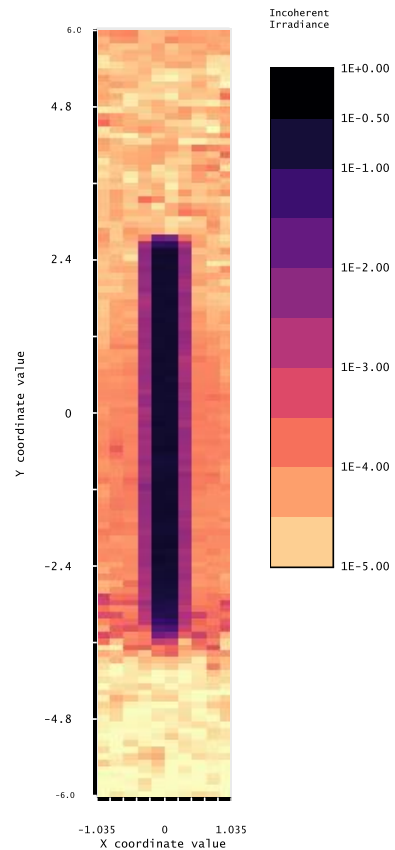
# No occluding window seal, uniform sources (ideal beam!).



60 camera pixels averaged per displayed column, central column shown below, dimension in [mm]



# With occluding window seal, uniform sources (ideal beam!).



60 camera pixels averaged per displayed column, central column shown below, dimension in [mm]

