

Plans for window test stand

Testing exit windows, especially CFC window for FLASH RT experiments at PITZ

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Proposed Test Area

Slot for plasma experiments etc. Currently: High1.Scr2



Preliminaries

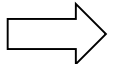
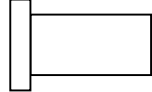
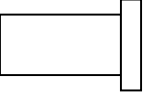
Simulation and experimental plan

Upstream: Main solenoid + 4 quads for focusing

DN40CF
flange

High1.Scr2

DN40CF
flange

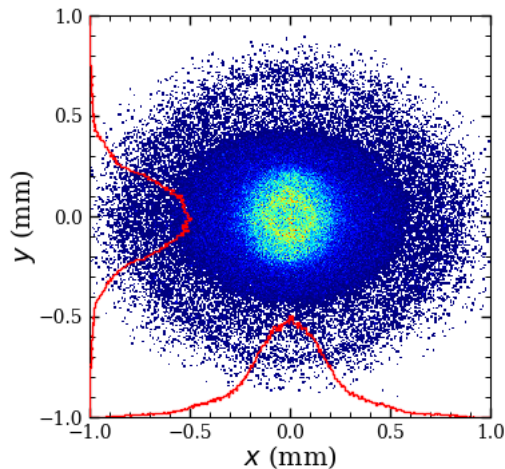


Beam

Experiments

- Preparation: beam sizes with quad focussing (with High1.Scr2); 2mm downwards in 0.2mm steps
- Damage threshold
- ...

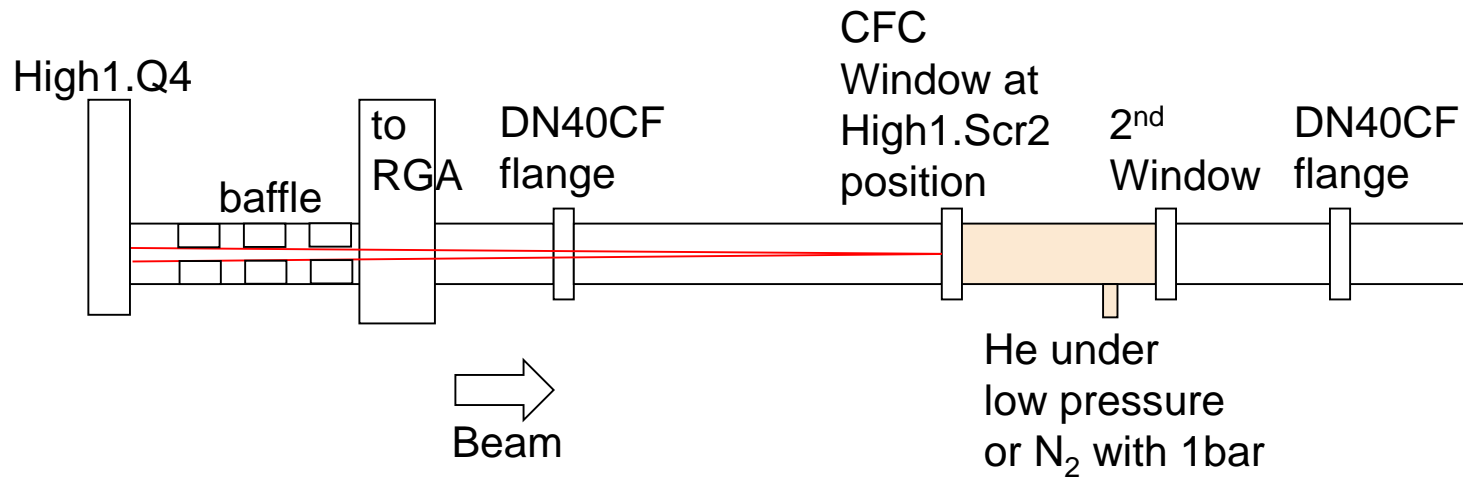
Example for focusing of e-beam with 5nC bunch charge (simulated for High1.Scr2 position, but similar results for whole range of experimental slot)



Gaussian fit: $\sigma_x = \sigma_y = 200\mu\text{m}$

Possible setup

Window in vacuum (low pressure); later maybe with 1 bar pressure difference



What is needed

- Test gas vessel
- Static filling of gas vessel to mbar
 - Turbo pump & needle valve for He
- RGA in vacuum bypass
- Diagnostics
 - PGs
- Baffle to hinder particle flow if CFC window is destroyed
- 2nd window, e.g. copper plate (5 mm beam diameter)
- Mechanical frame (existing one ok?)