

H-Mode Test Linear Accelerator

HTL

Oliver Meusel

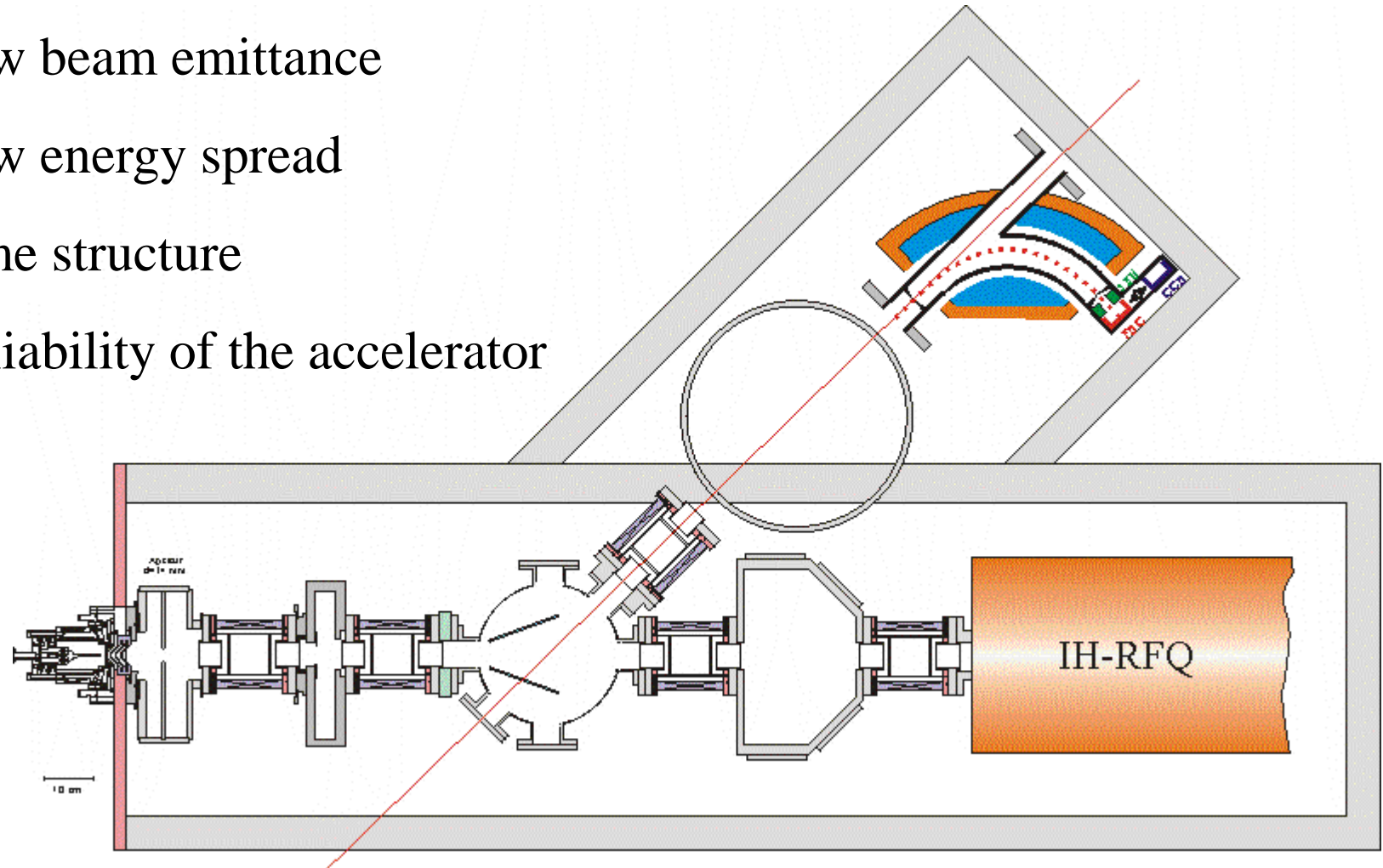
on behalf of the project team

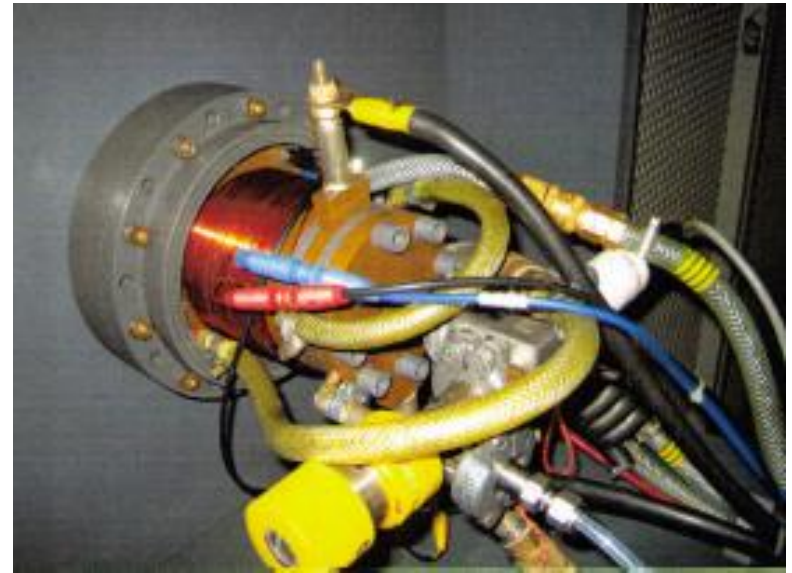
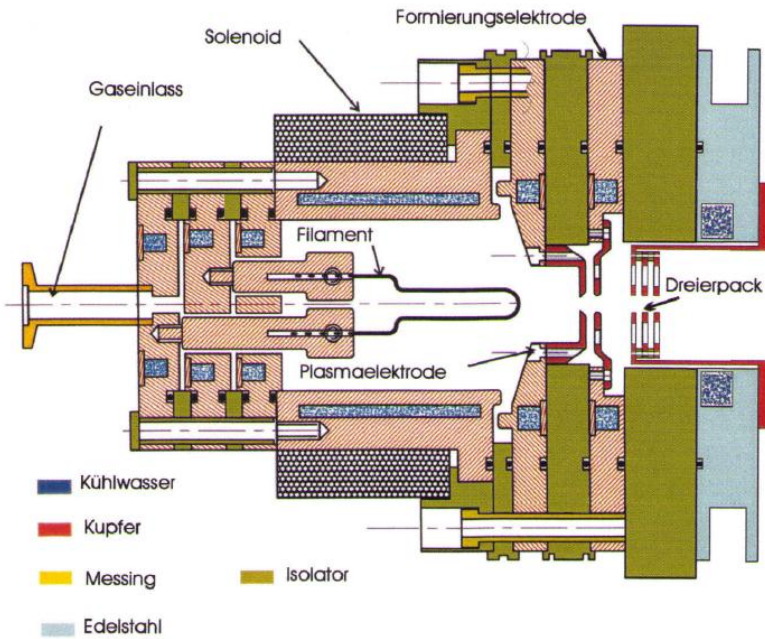
Herbstworkshop

FFM - Riedberg

08/10/2012

- High beam intensity
- Low beam emittance
- Low energy spread
- Time structure
- Reliability of the accelerator





$$I_p \sim 1 \text{ mA}$$

$$\varepsilon_{\text{rms, norm}} = 0.07 \pi \text{ mm mrad}$$

$$W = 60 \text{ keV}$$

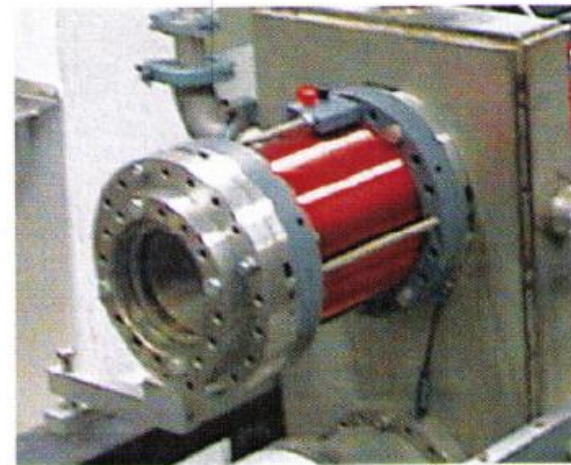
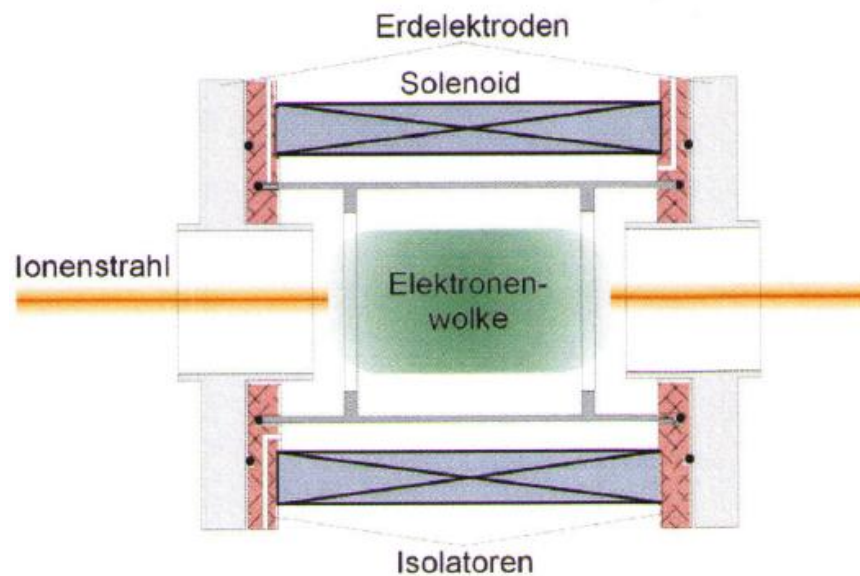
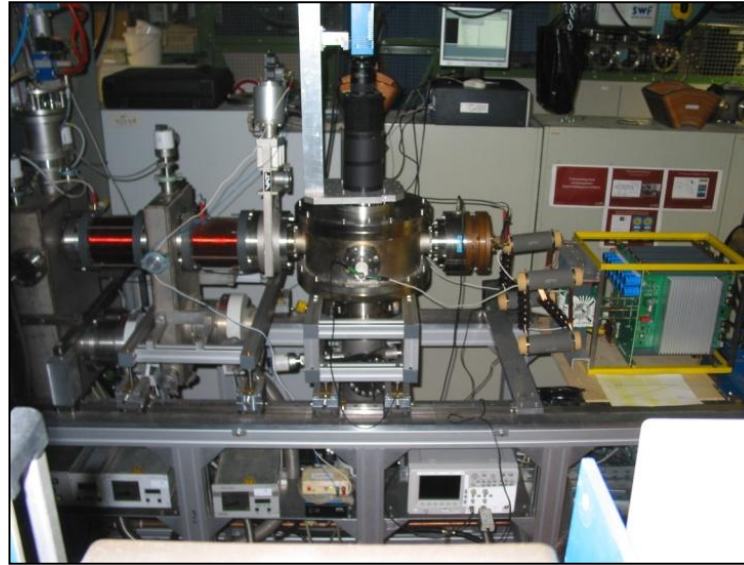
dc-operation

He⁺

pulsed mode ?

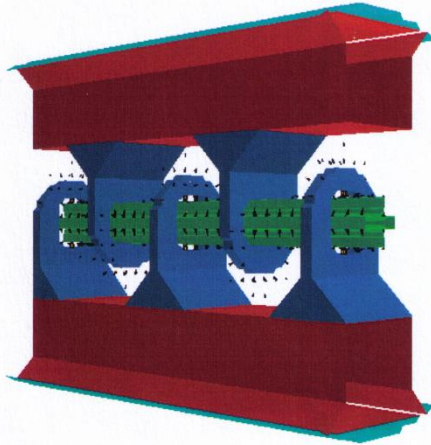
mechanical design of the ion source

P. Schneider



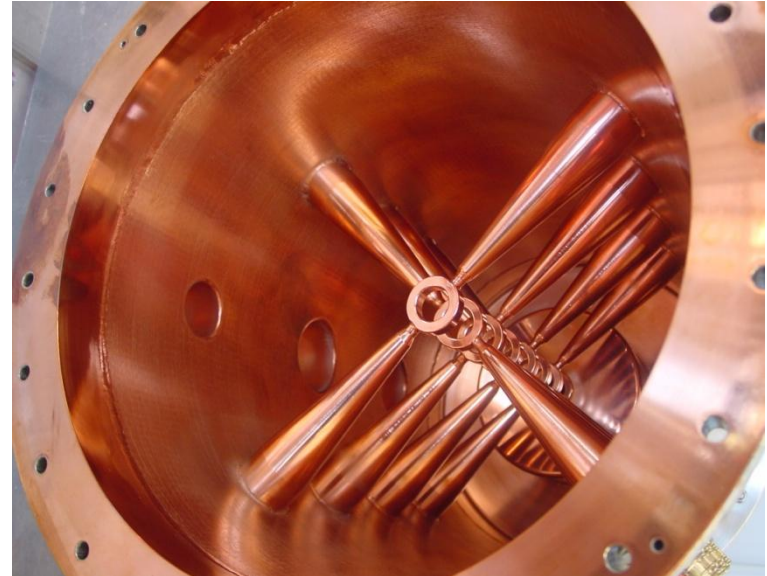
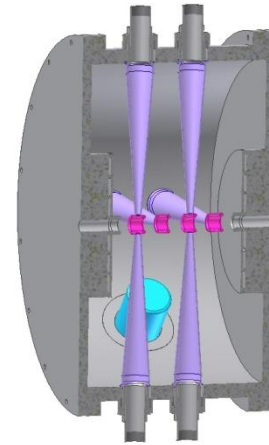
IH - RFQ

$$W_b = 0.3 \text{ MeV/u}$$

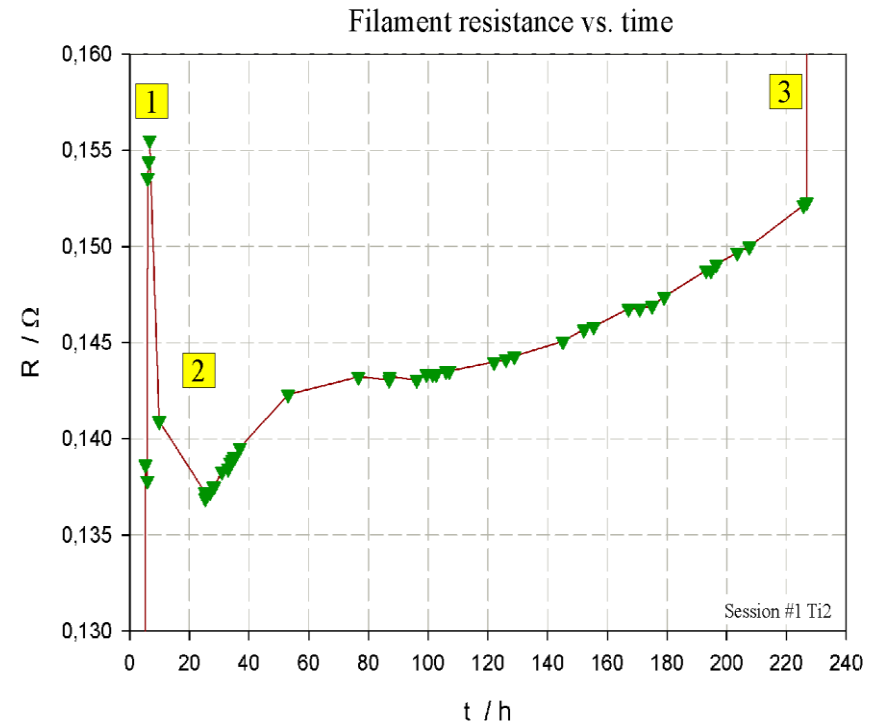
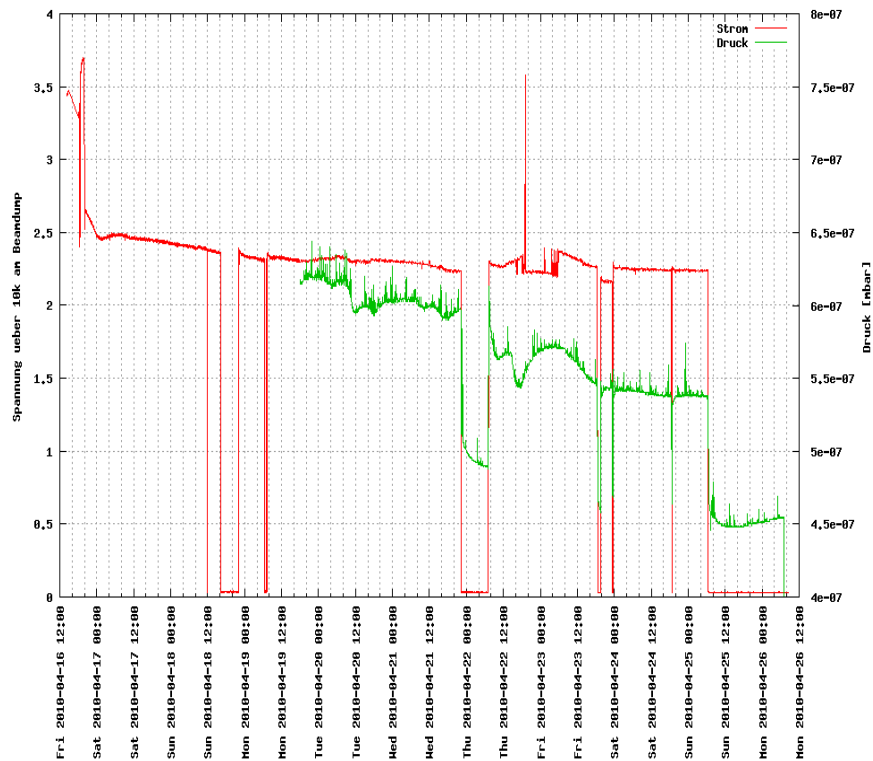


CH - DTL

$$W_b = \pm 0.5 \text{ MeV/u}$$

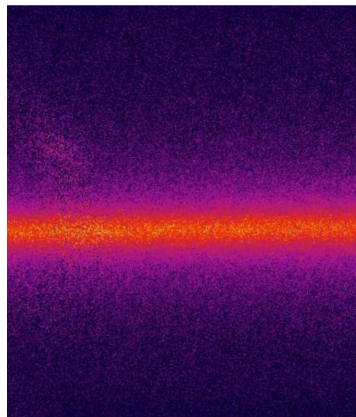


Reliability test of the Ion source with pentode extraction system (Daniel N., Christopher W., Hannes D.)



Chopper pre test of electrostatic deflector and pulse generator
(Hannes D.)

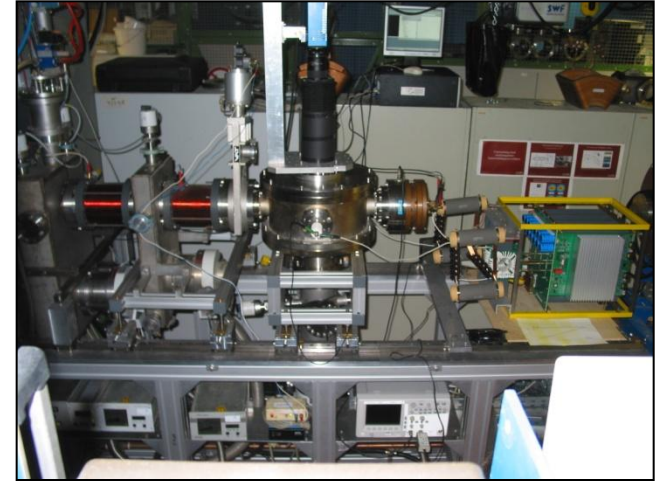
18 keV
He-Beam



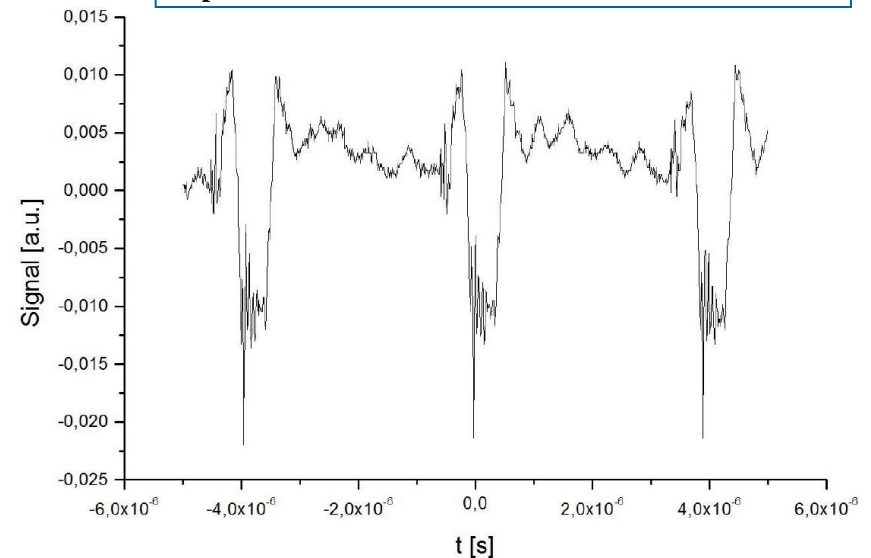
Slit



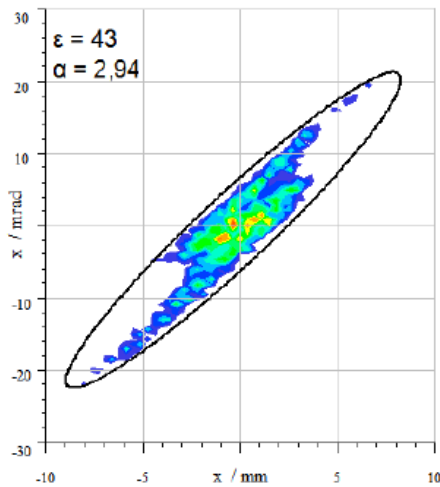
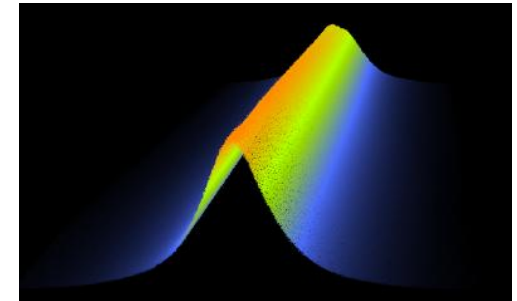
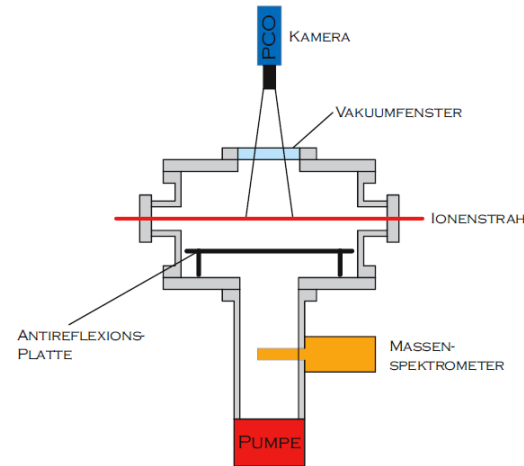
Optical Diagnostics of
Beam Deflection Measurements



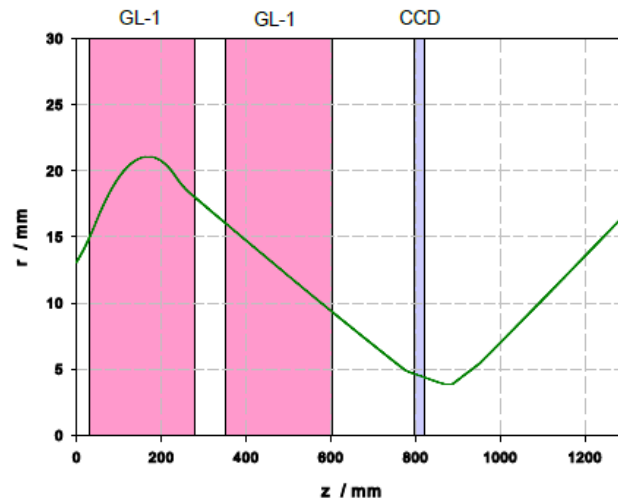
$t_{\text{pulse}} = 100 \text{ ns}$ rep. rate = 250 kHz



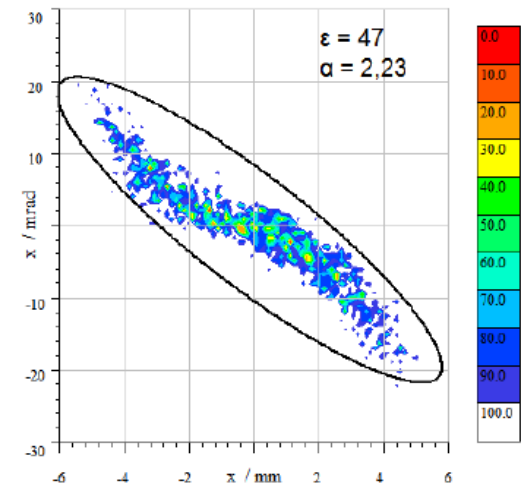
Development of a test stand for optical beam tomography (Christopher W.)



(a) Ausgangsverteilung



(b) Envelope



(c) Verteilung im Tank

Agenda:

- Scattering experiments $\text{He}^+ \rightarrow \text{He}$ (Behrooz)
- Lab Course (Jennifer)
- IH - RFQ injection (Klaus K.)
- High field Gabor Lens with asymmetric focusing (Kathrin)
- Room temperature CH - Cavity (Holger P.)
- SC Gabor lens (Kathrin)
- Astrophysics?

Thank you.