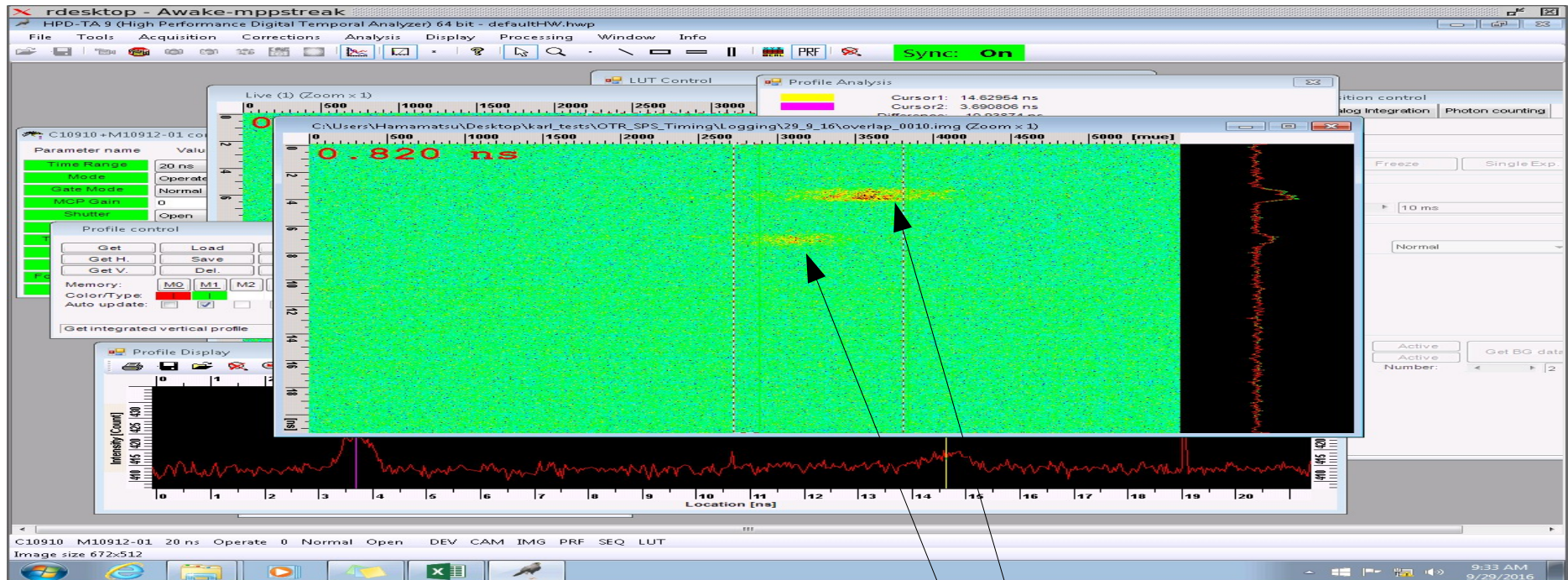


Overall very successful week

- OTR/Laser visible on both CCD's (Next to beamline and in hut)
 - TCC4 (next to beamline) CCD unreliably
- Laser visible on Photodiodes in TSG41 (hut) and TCC4 (beamline)
- OTR light visible on both Photodiodes (signal in OASIS scope), even with pilot beam
- p+ beam visible on TCC4 (beamline) photodiode
 - Huge signal from „beam“ (secondary particles), signal intensity depends if CTR or BTV ...26 (downstream of plasma cell) is in
- Software:
 - Software („Expert application“ for Streak cameras) was operated and took images of proton beam, found only minor problems

OTR diagnostics timing found, time/space resolved measurements of beam possible



Goals of last week:

- Find timing between p+ and laser – done
- Streak proton bunch - done
- Software tests – done and ongoing

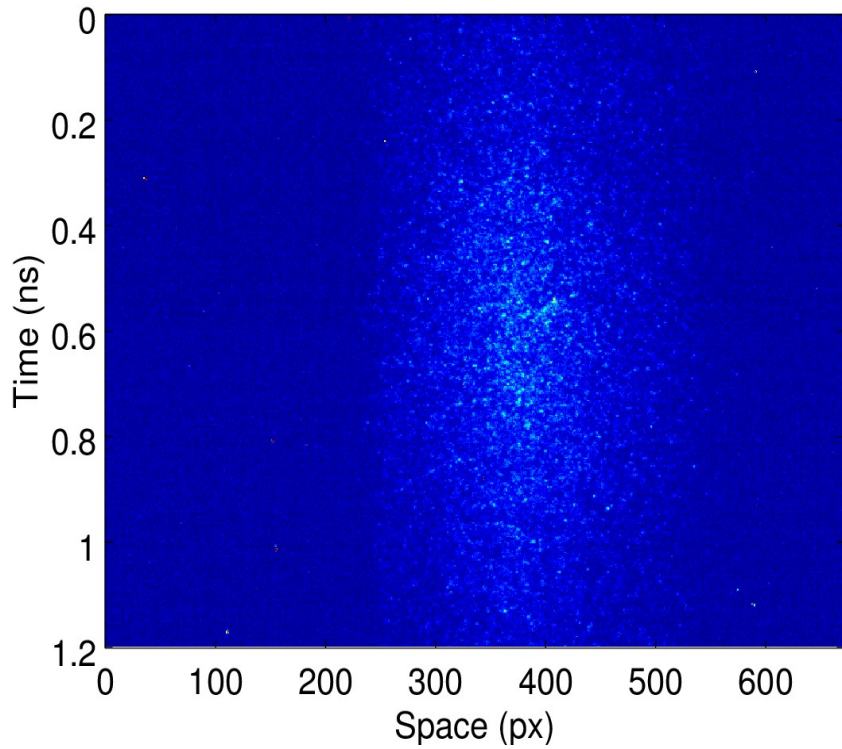
Laser
Protons

~3ns difference

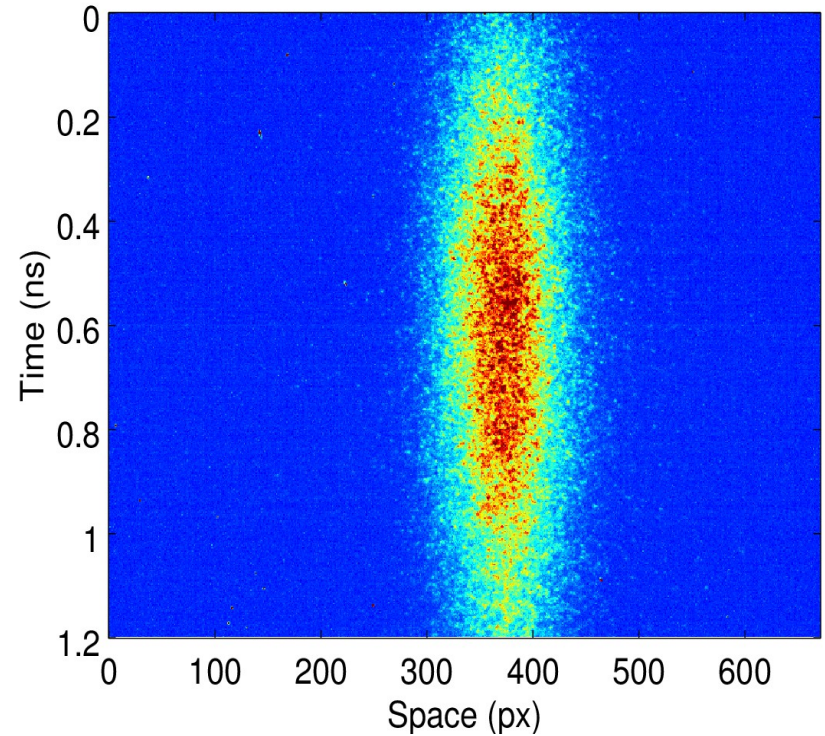
10Hz laser (resolved by relentless josh) & 1/40Hz beam

- Laser overlap with p+ was with laser running at 10Hz
- Overlap/streaking with the „correct“ (to be amplified and released) pulse
- Rough (~ns level) overlap also possible using Photodiodes
- Laser and protons can easily overlapped in 1ns timewindow to <100ps accuracy

Imaging of Beam with ~3:1 demagnification (close to 150/40 ratio)

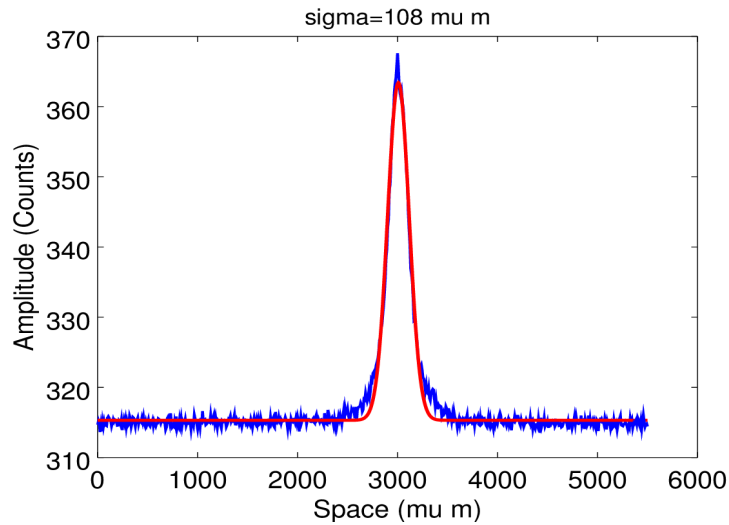


Before adjusting final focussing



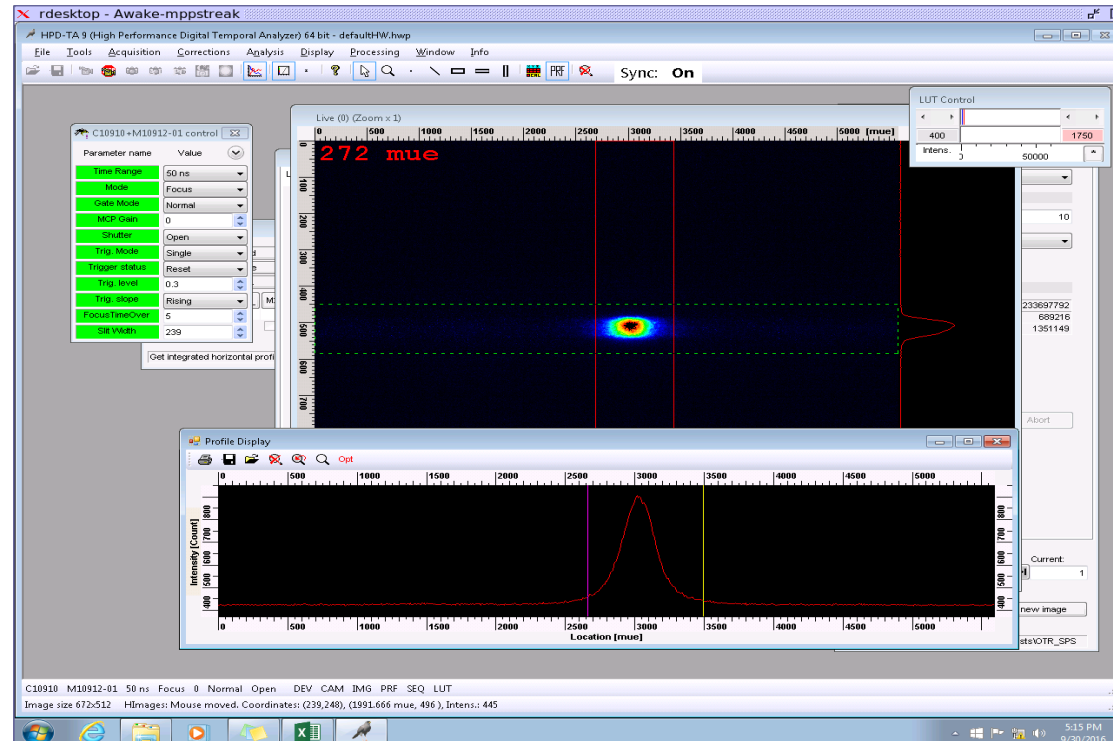
Final lens adjusted

Exact calibration of transferline coming in the next weeks



Example for pilot beam:
 Not very gaussian (afaik expected)
 Sigma ~ 110 μm ,

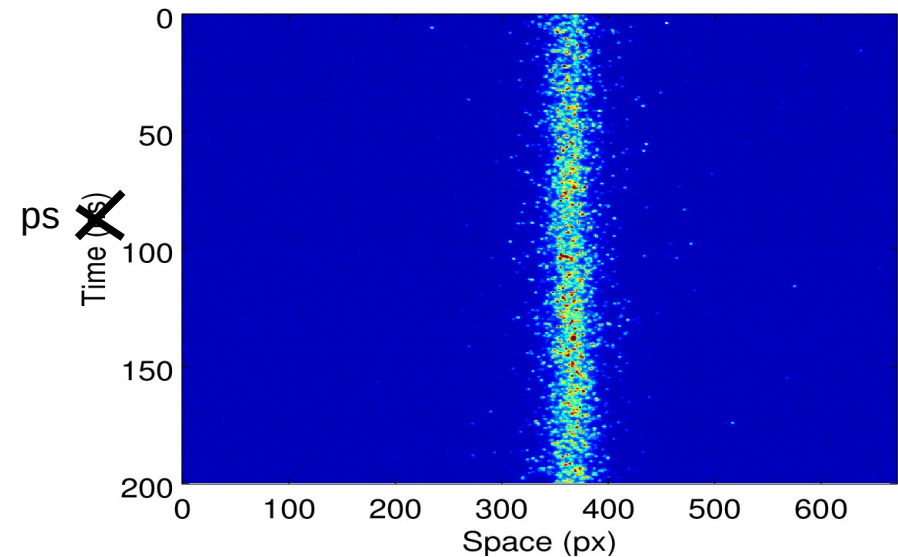
Focus of pilot beam on slit,
 ~300 μm beamsize
 (~1mm beamsize on screen)



Zooming in possible (but atm not very exciting)

- Going down to 100ps timescale possible (only tested for $3e11$ protons)
- 200ps timescale also possible with pilot beam

As expected: beam at ~ 400 ps is a continuous line



Minor details are missing

- Expert application and FESA server for Streak camera operational
 - Did not test it together with fixed display
 - Minor problems found (i.e. colormap not very useful)
- OASIS: did log data at 1/40Hz, stored in timber, can be read out
 - No 10Hz logging possible

Oasis variables (photodiodes and CTR signals):

MPPAWAKE:SR.SCOPE27/28/29/30.CH01

Scope 27 and 30 do have 2 channels

Field names:

Value ← scopetrace

firstSampleTime

sensitivity

triggerError

acqStamp

sampleInterval

- OTR diagnostics working
- Photodiodes working and logging
- BI software working
- Motorization tested and aligned to proton beam
 - if proton beam steering is needed we need to readjust!
(can be done remotely)

Next Steps:

- resolve last software issues (motorisation controls debugging)
- fixed display
- Measurement of demagnification of OTR line
- hope that the plasma cell endflanges do not hit anything....