N. Guerassimova[1], R. Treusch[1]

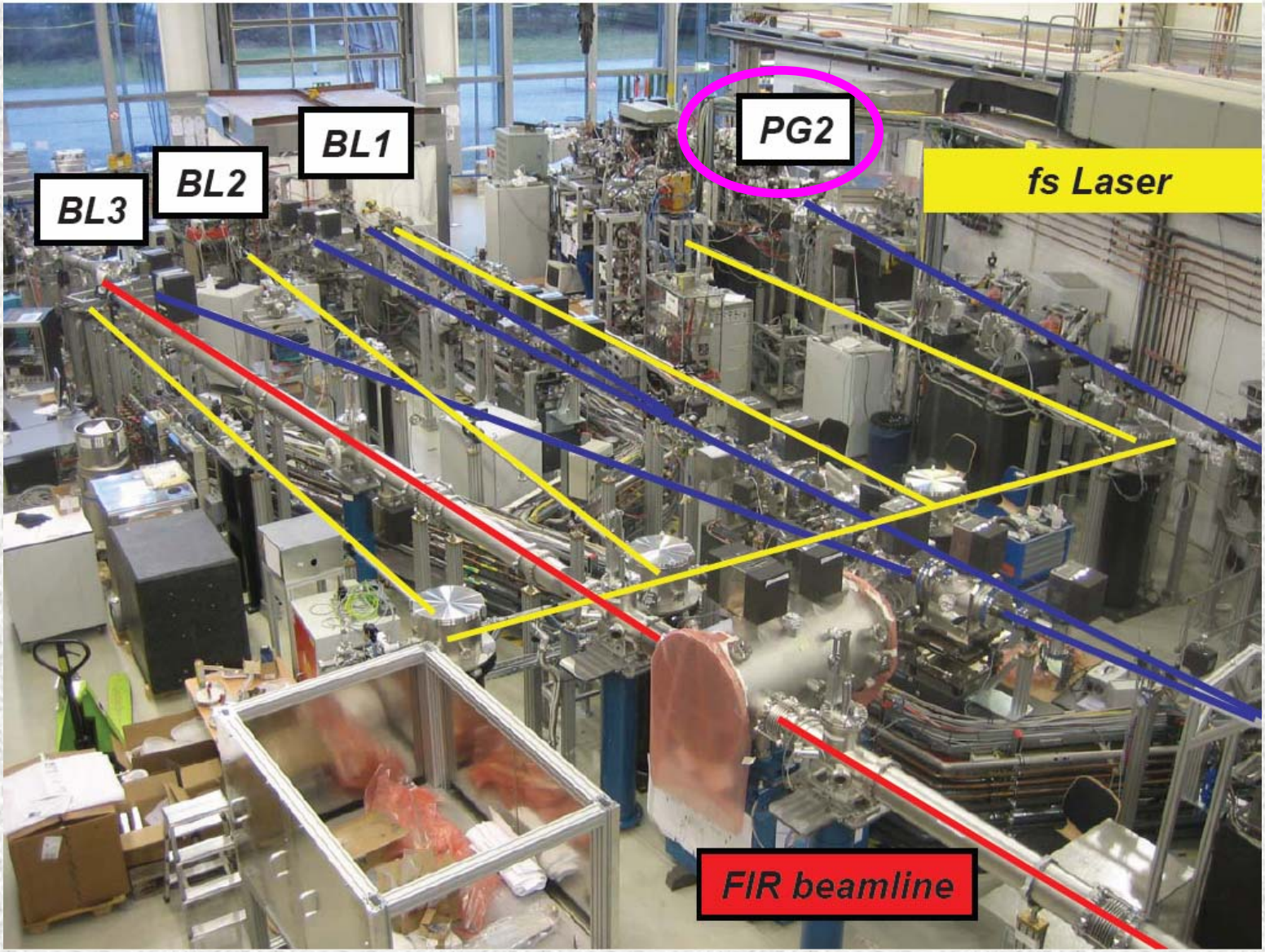
[1] DESY

M. Martins[2]

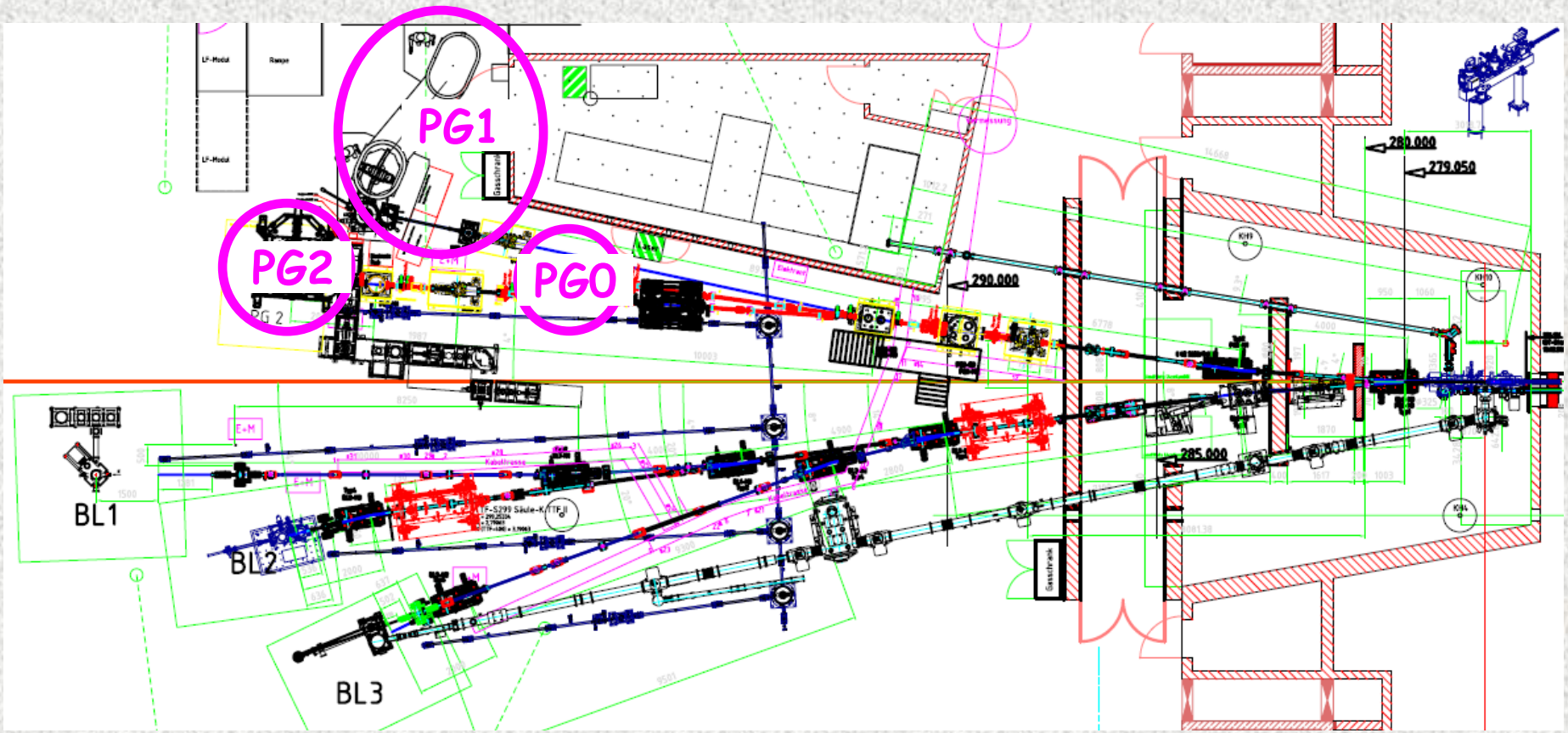
[2] UNIVERSITY HAMBURG

PG beamline commissioning

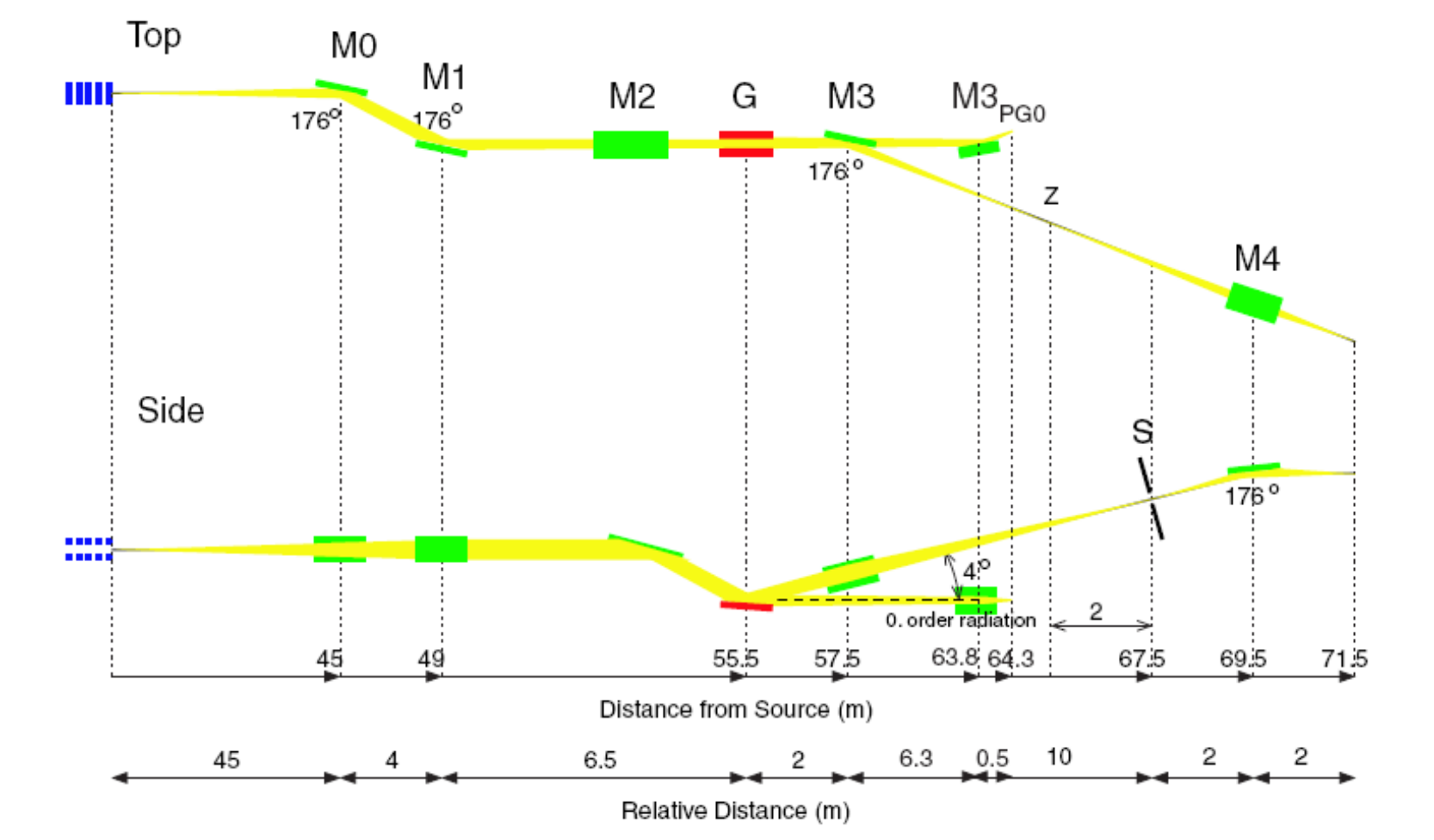
Plane Grating Monochromator



Plane Grating Monochromator

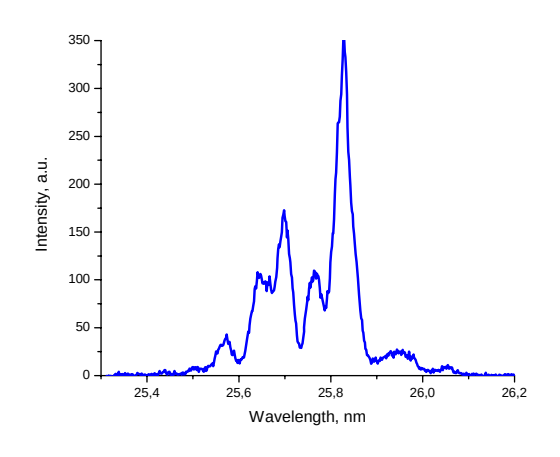


Plane Grating Monochromator

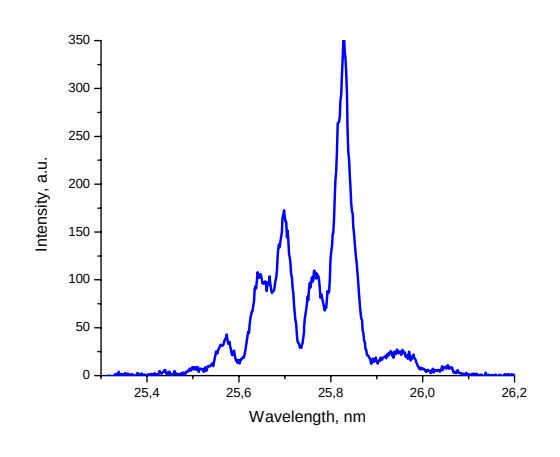


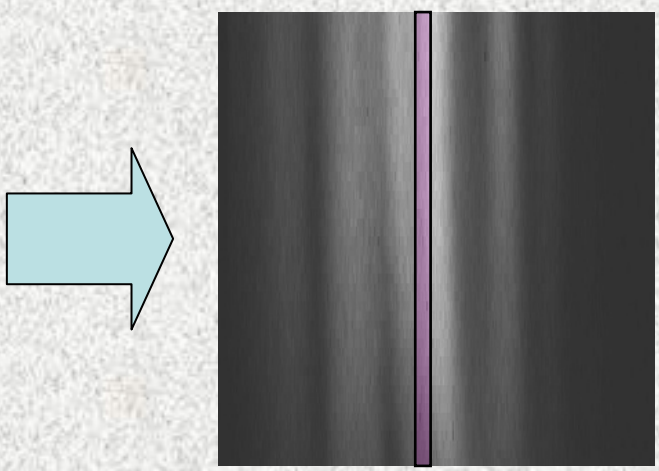
M. Martins, M. Wellhöfer, J.T. Hoeft, W. Wurth, J. Feldhaus, R. Follath
"Monochromator beamline for FLASH", Review of Scientific Instruments 77 (2006) p.115108

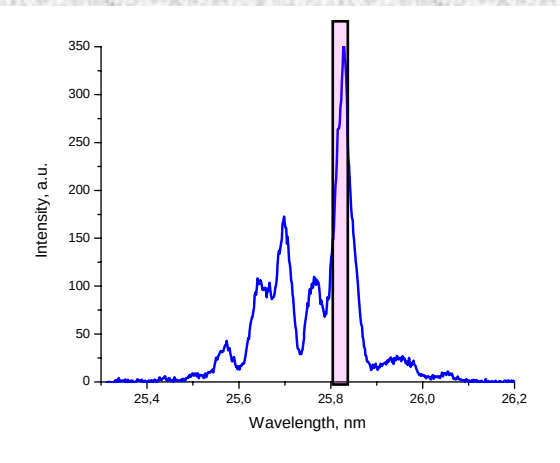
Plane Grating Monochromator

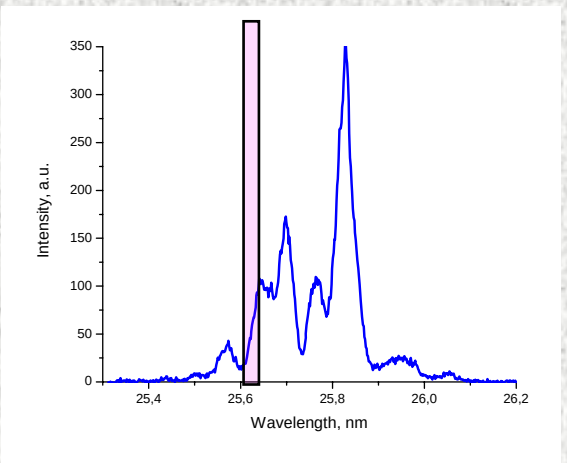


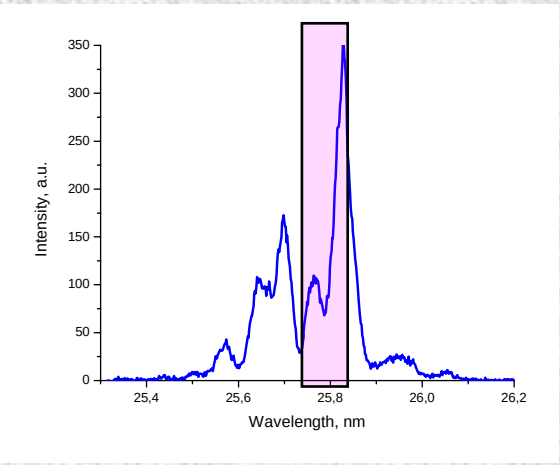
Plane Grating Monochromator





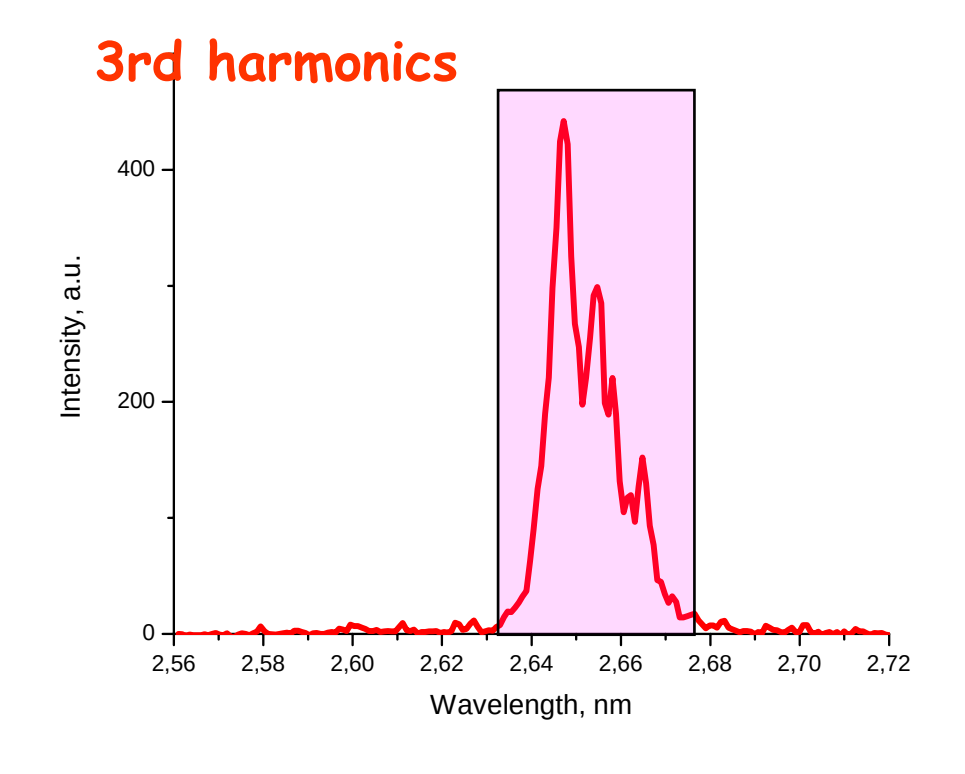






High resolution experiments

Plane Grating Monochromator

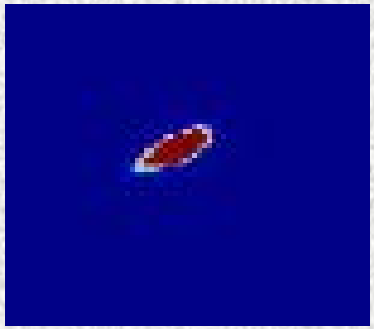


Filter for
FEL harmonics

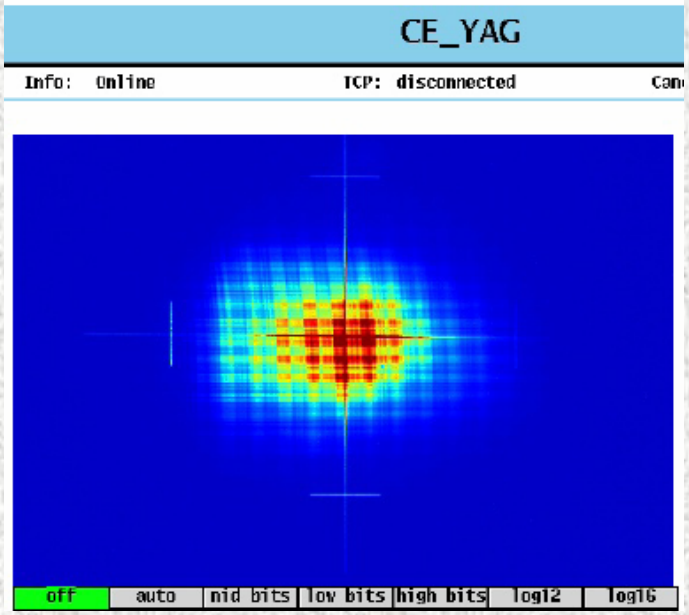
Commissioning September 2006

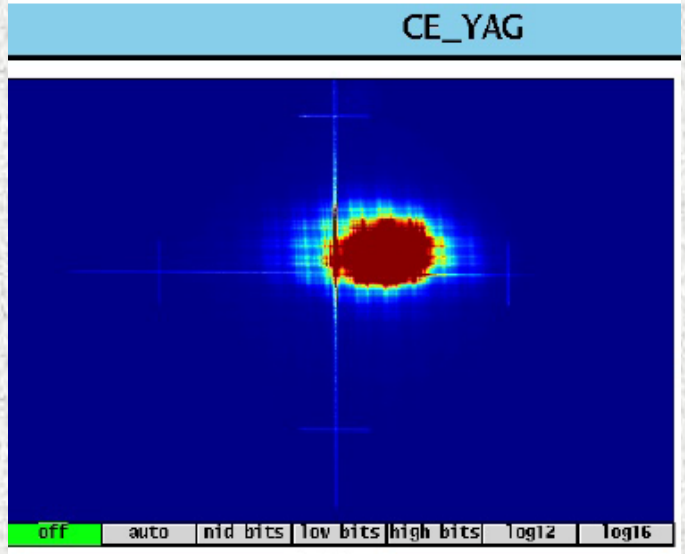
M. Wellhöfer et al.

- Measured resolution $1.5*10^3$ (expected $1.5*10^4$)
- Beam shape distorted (in focus and in the intermediate positions)



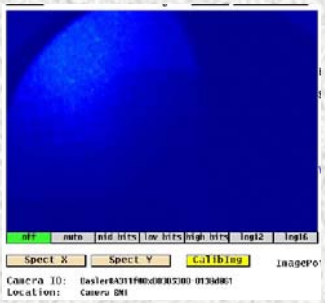
Alignment

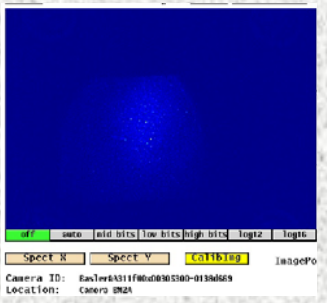


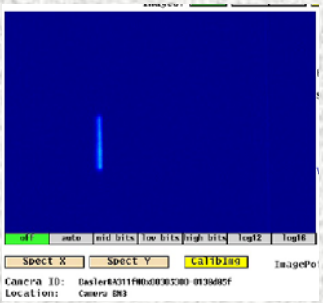


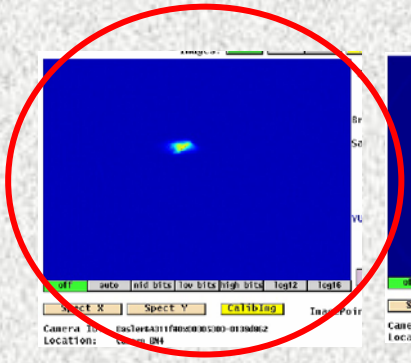
Beamline aligned

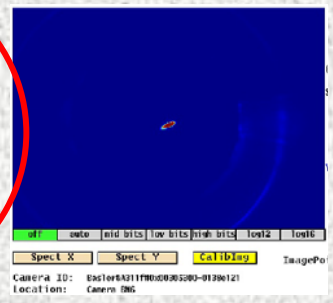
Complete realignment needed
(no beam at the end of beamline)

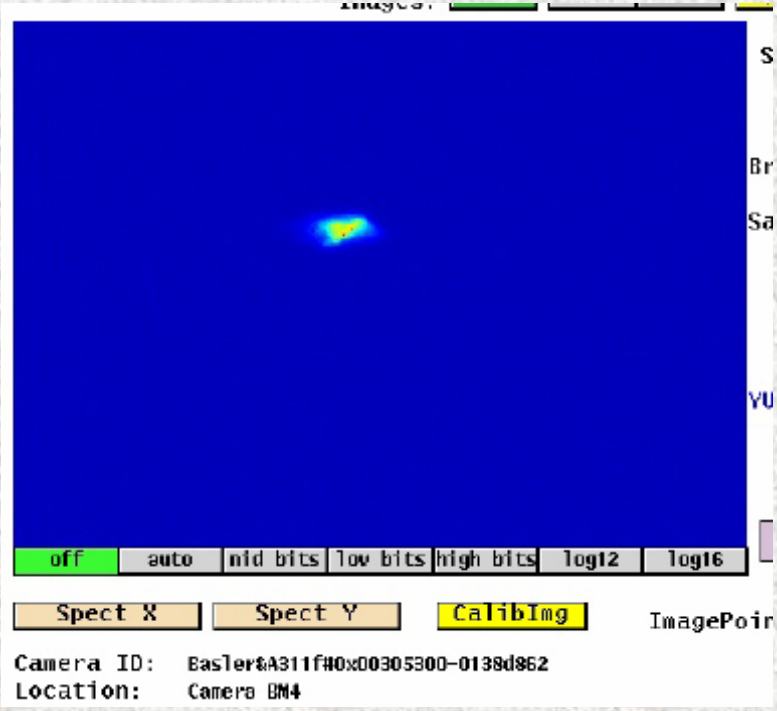












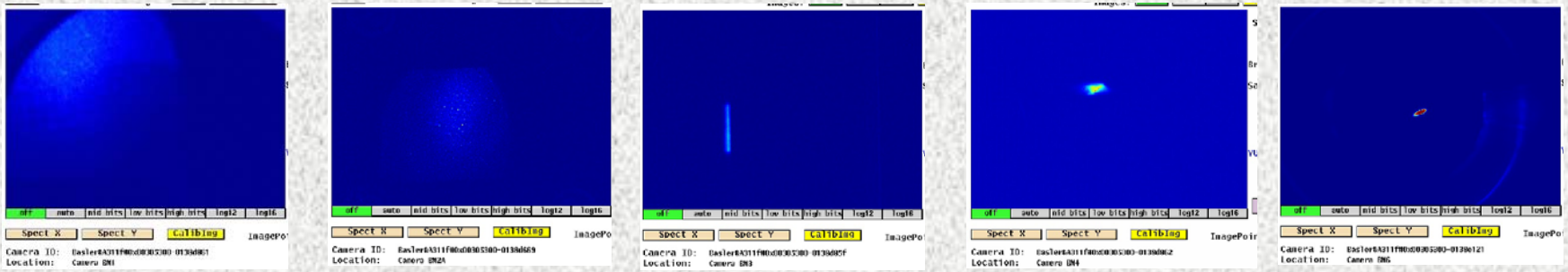
New beam monitors

Old Beam monitors

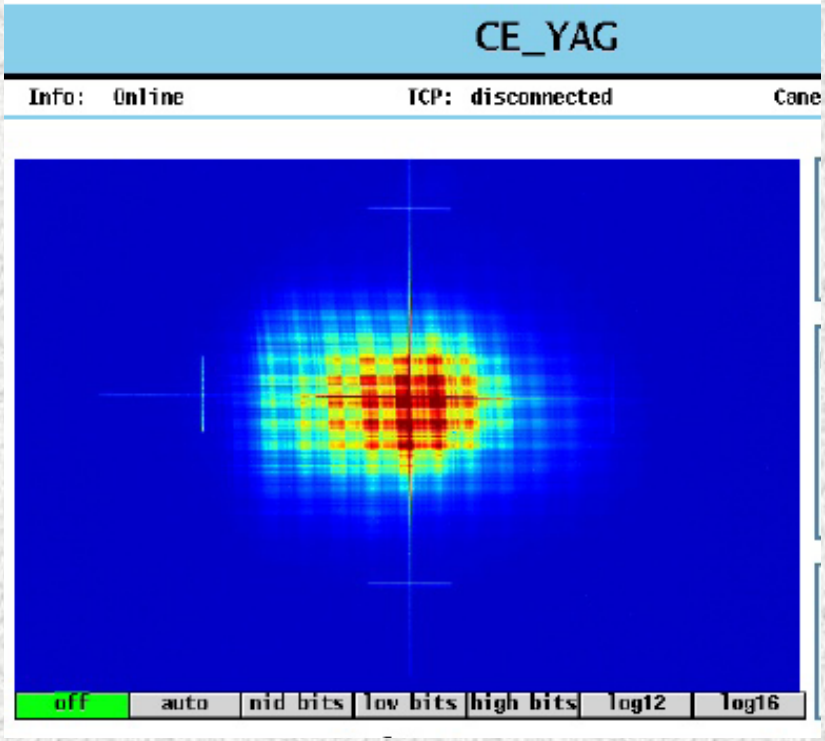
Camera ID: Basler&A311f#0x00305300-0138d862
Location: Camera BM4

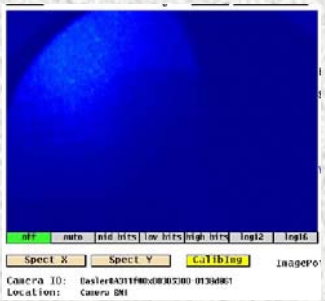
New beam monitors

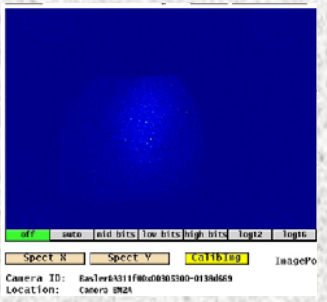
Old Beam monitors

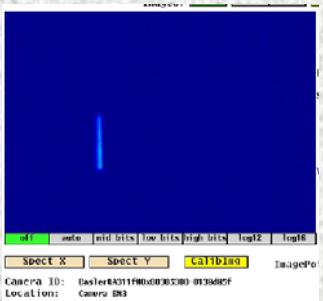


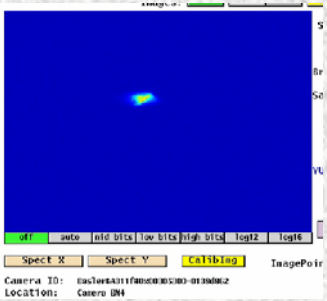
Ce:YAG at Detector2

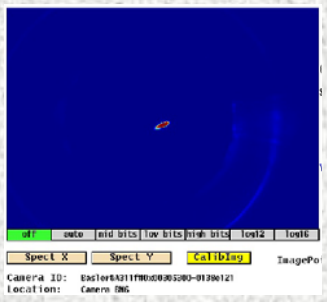


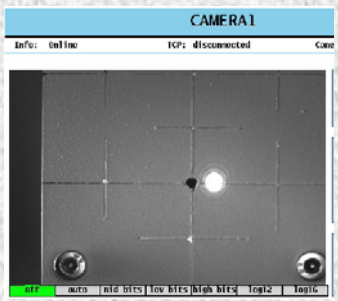


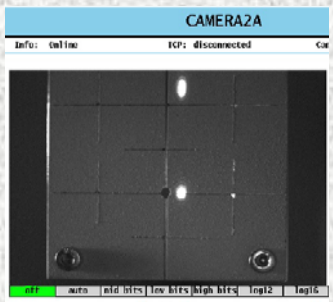


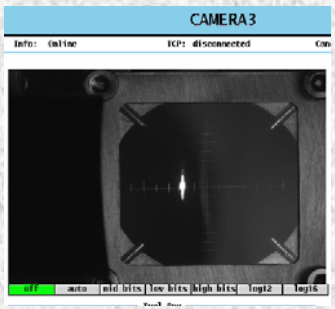


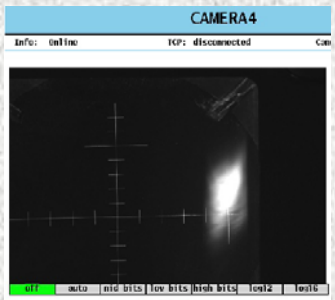


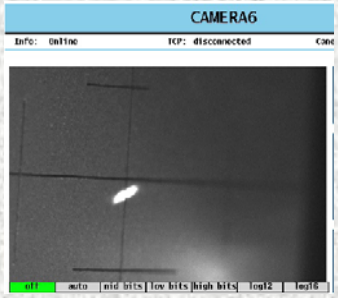


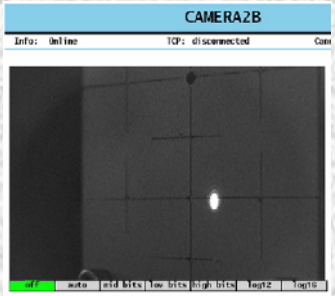


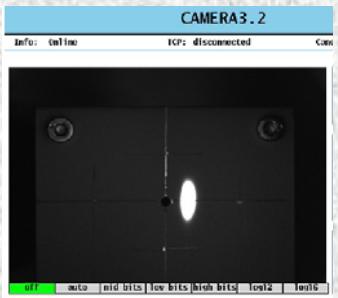


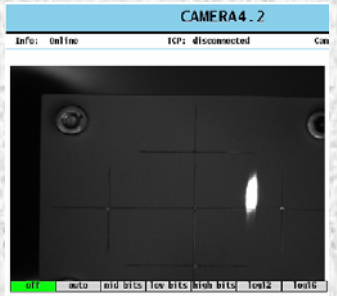












New beam monitors

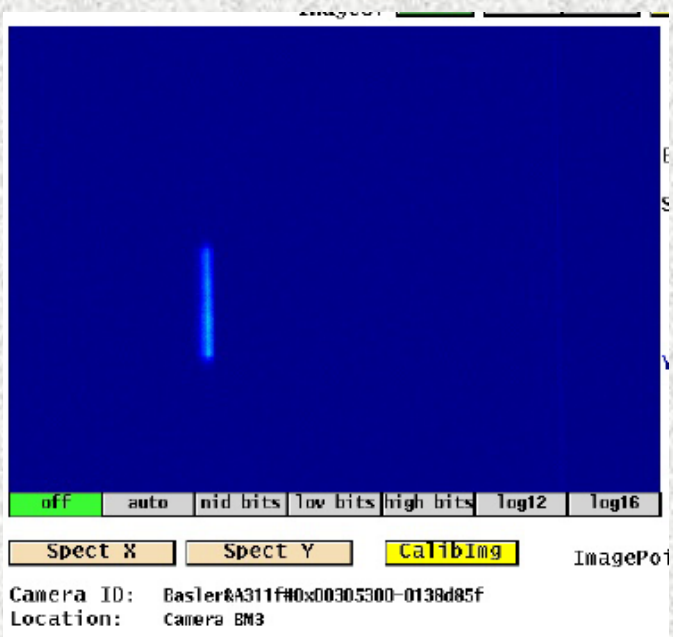
Old Beam monitors

New Beam monitors

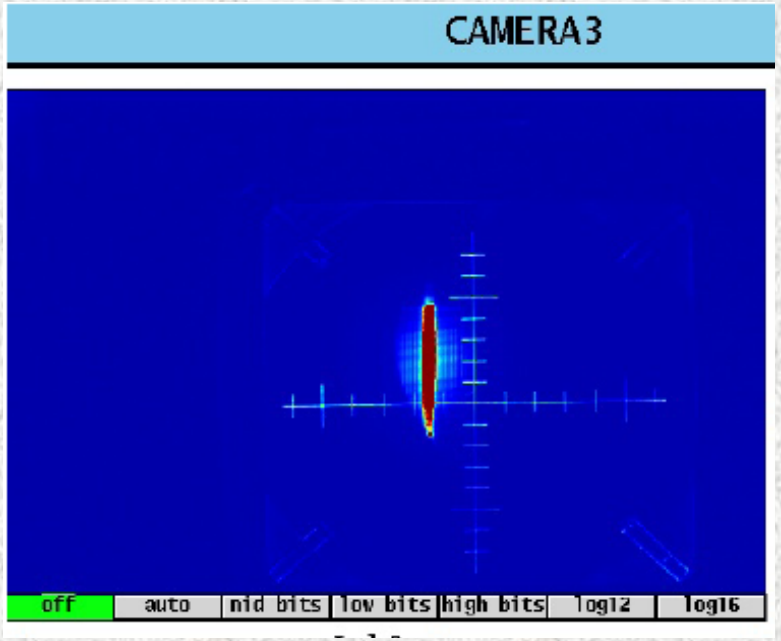
Mechanical parts
designed by
Holger Weigelt

New beam monitors

Old beam monitor



New beam monitor

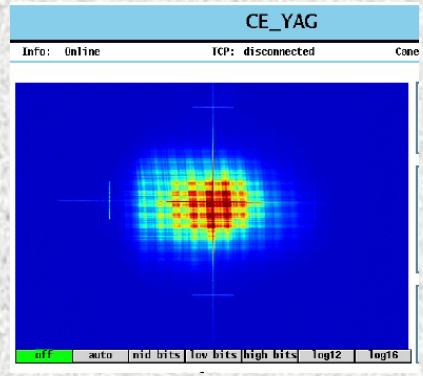


Alignment ~ 20 min

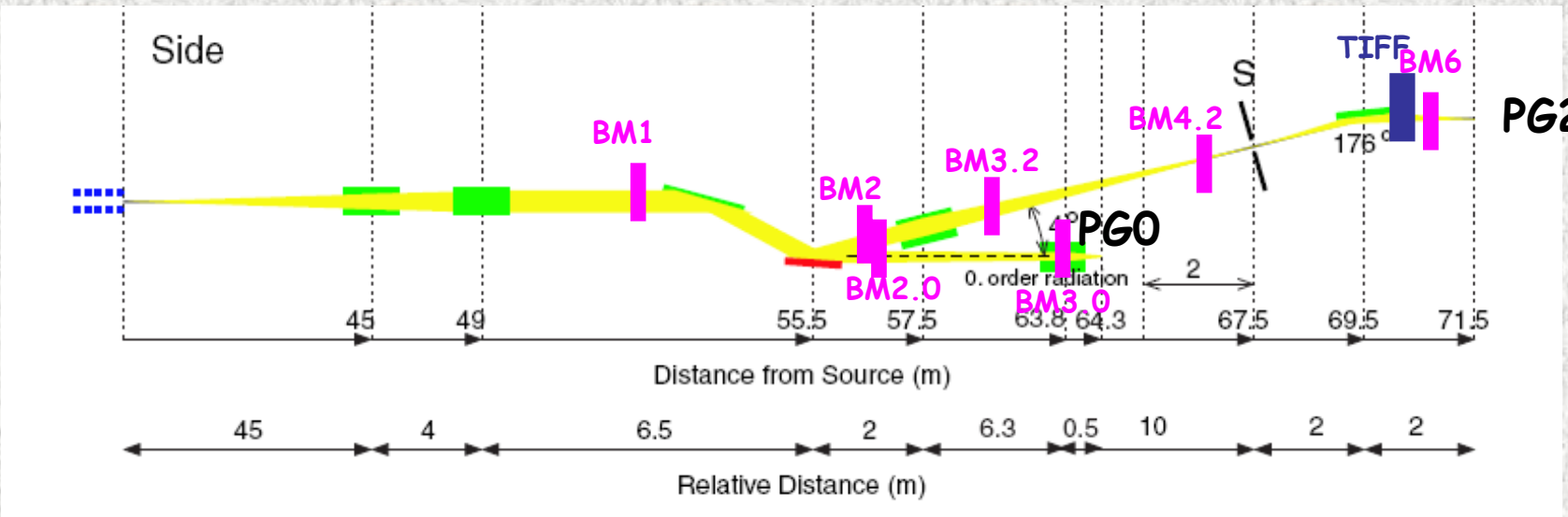
Alignment ~ 2 min

Alignment

Ce:YAG at Detector2

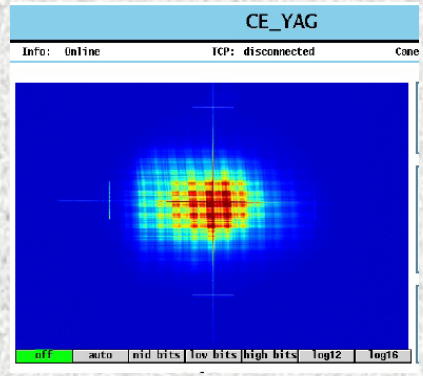


Basic alignment

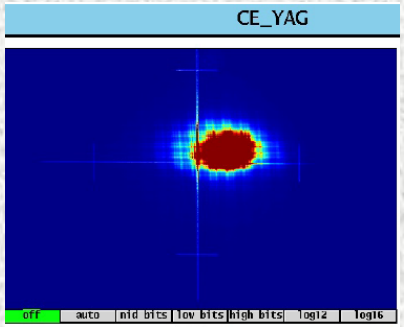


Alignment

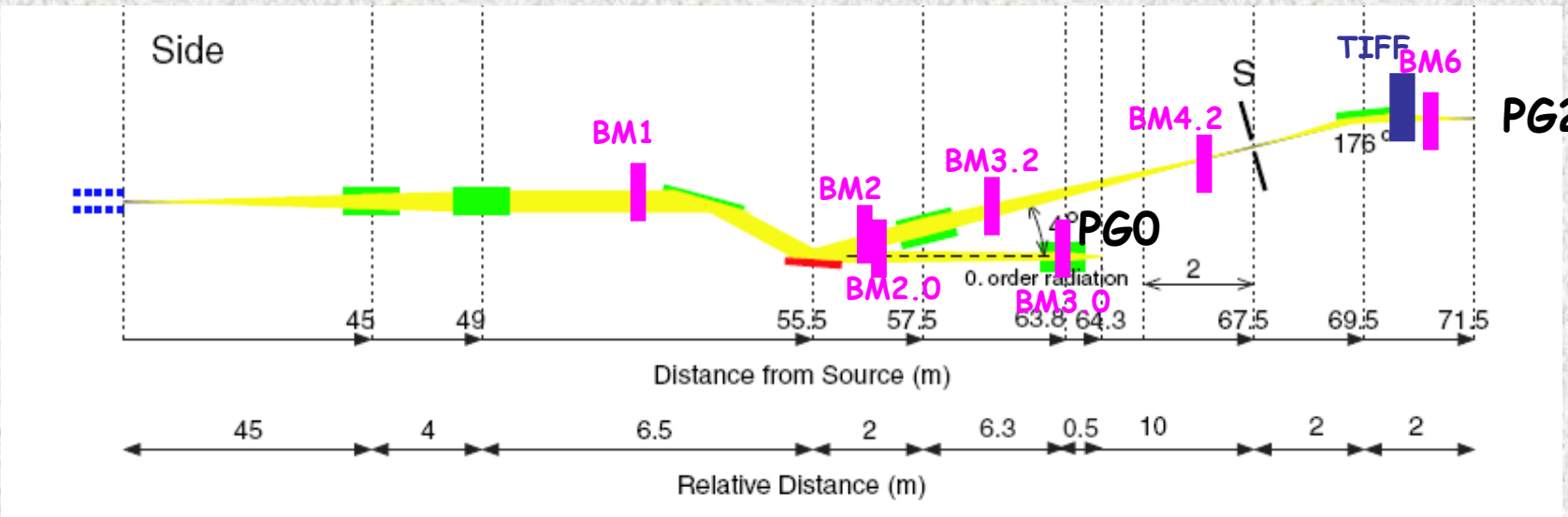
Ce:YAG at Detector2



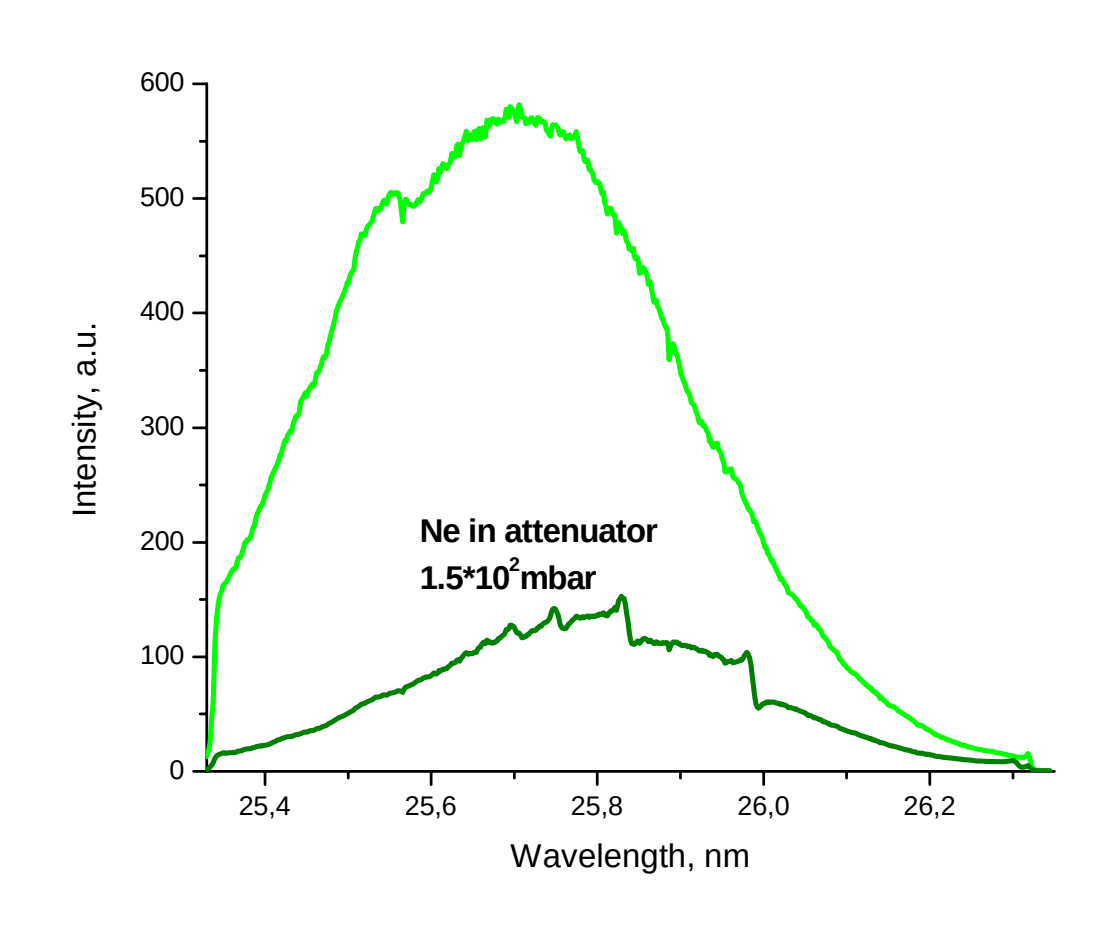
Basic alignment



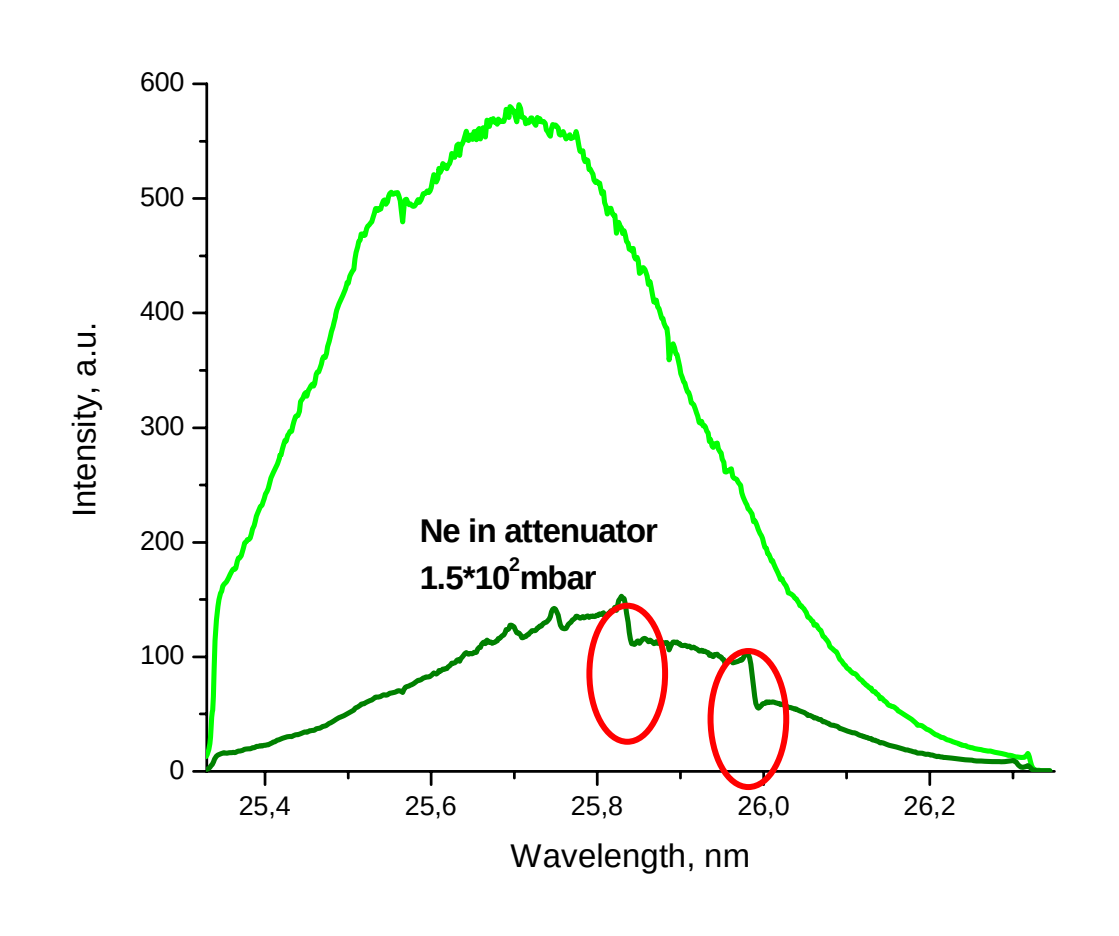
Alignment procedures established



Resolution measurements



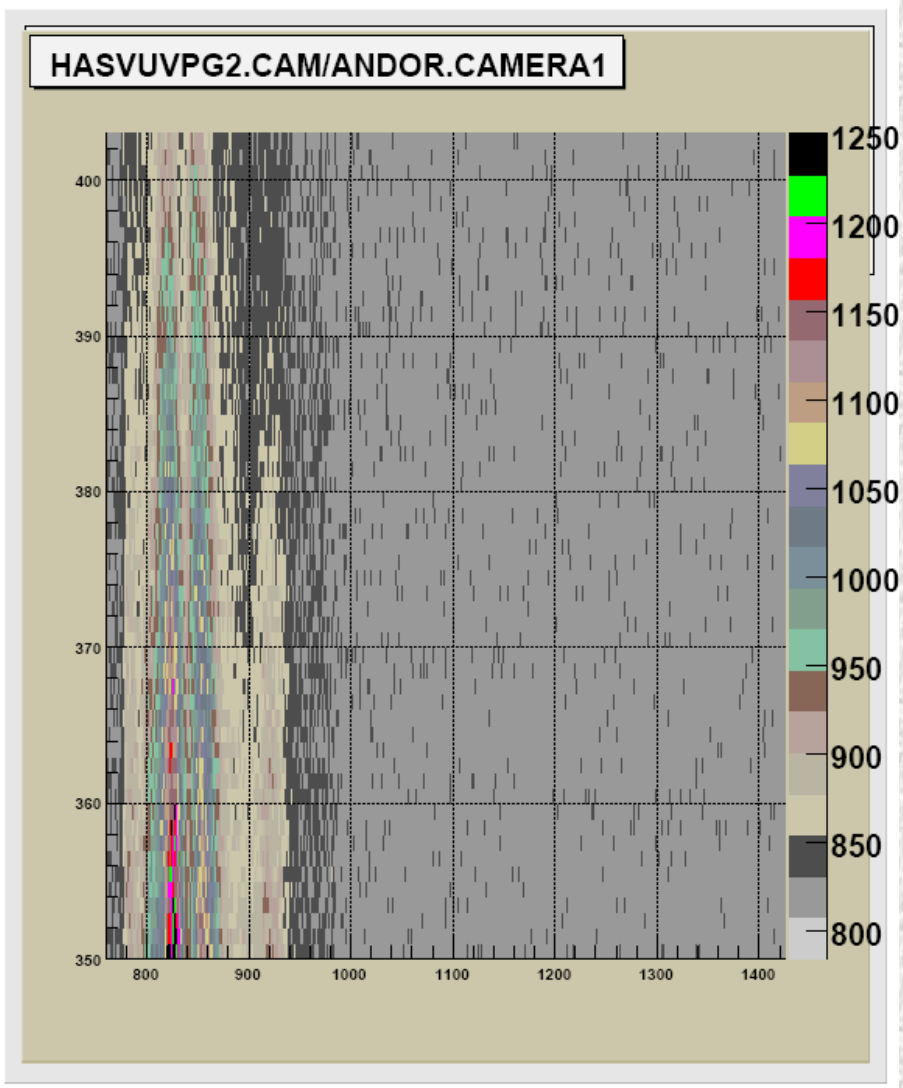
Resolution measurements



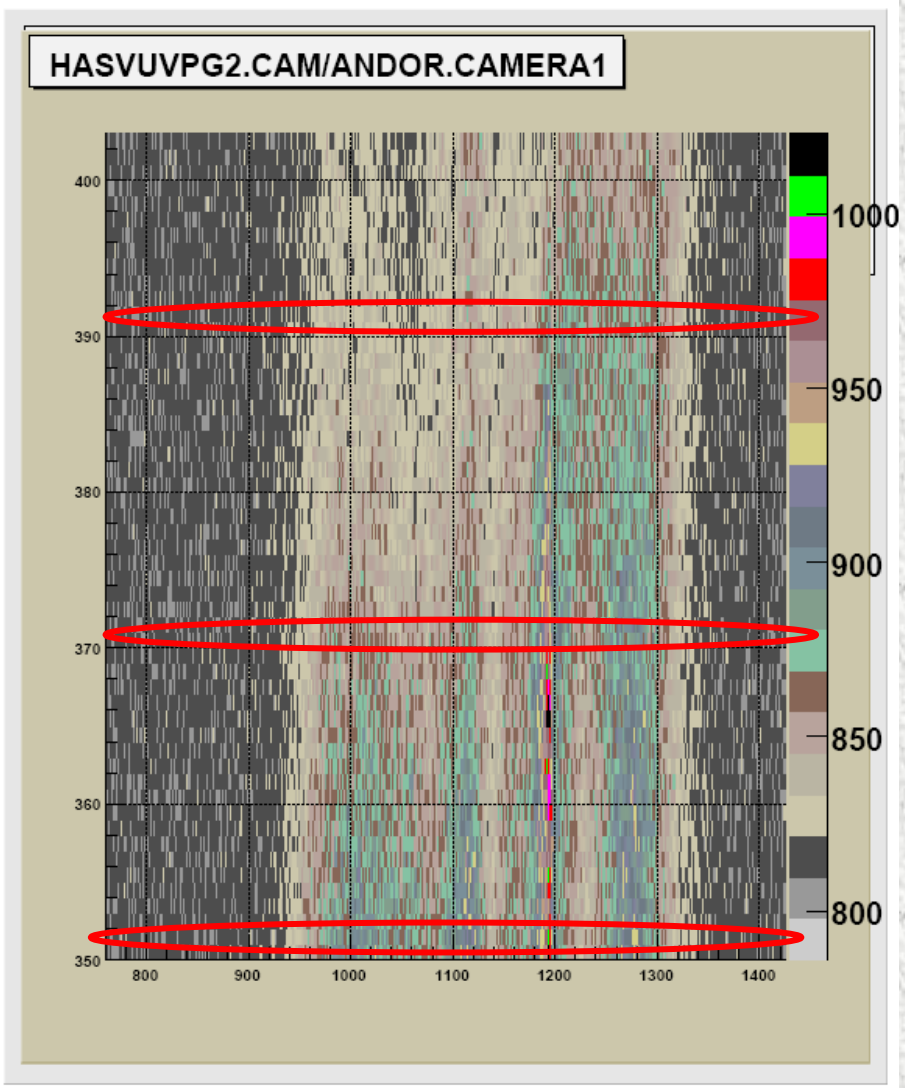
Resolution
$2.2*10^3$

Longitudinal movement of screen at focal plane:
5 cm off nominal position: Resolution $3.5*10^3$

Resolution measurements

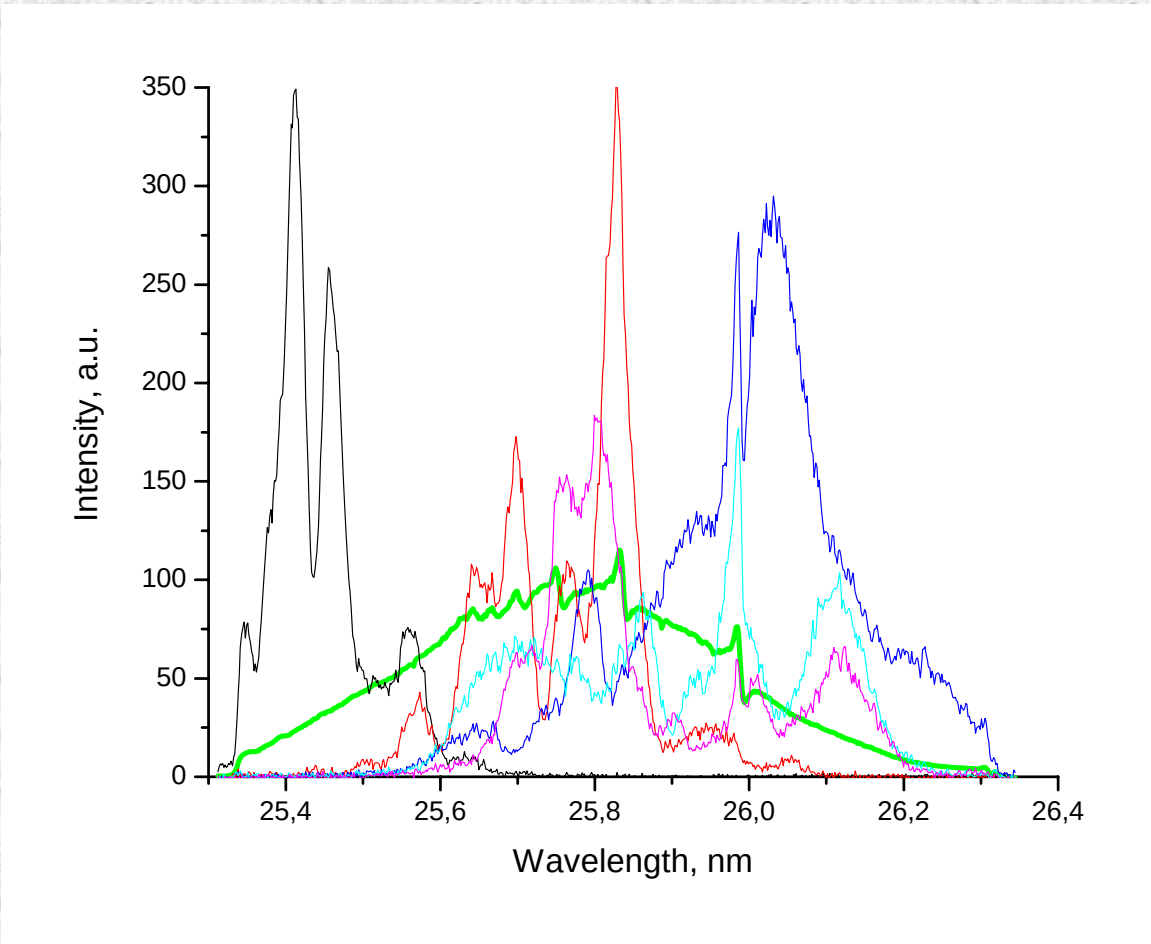


Event 11



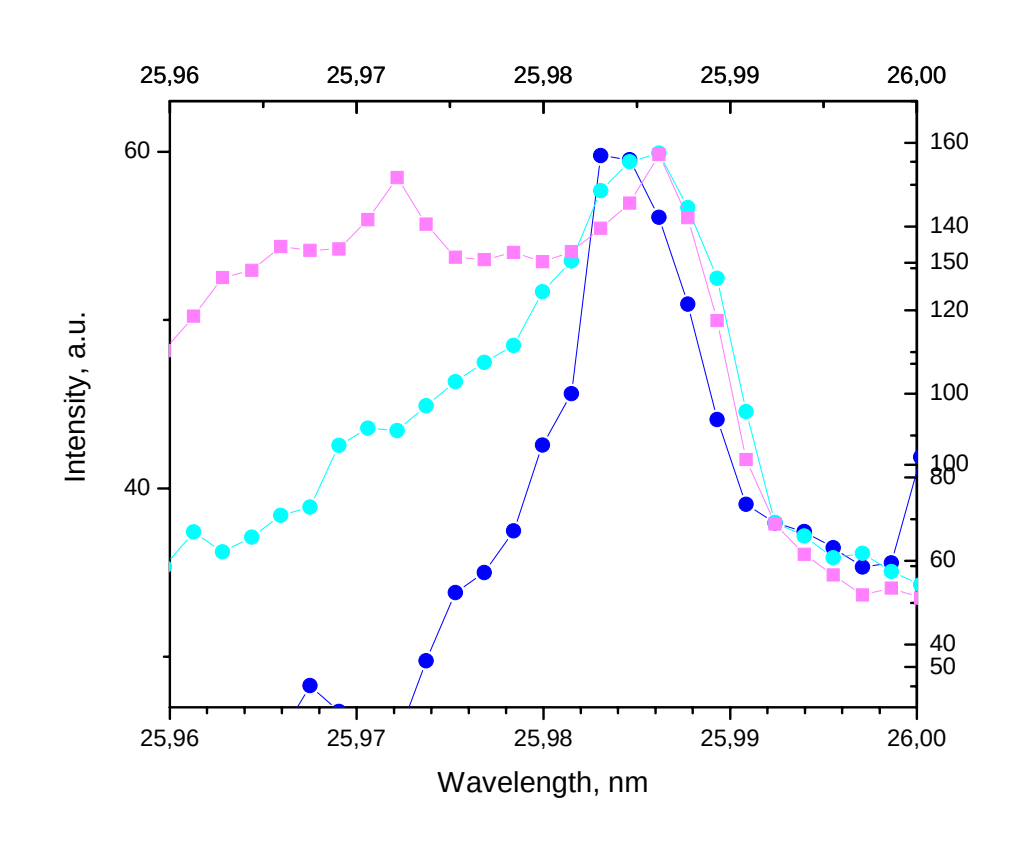
Event 17

Resolution measurements



Single shot

Resolution measurements



Resolution

$5*10^3$

Results

- New beam monitors has been implemented and commissioned
- Resolution has been improved
- The alignment time reduced significantly
- Successful users

Acknowledgments

- Photon diagnostics group @ FLASH
- AG Wurth
- H. Pedersen et al., C. Gutt, I. Vartaniants et al.
- V. Rybnikov, G. Grygiel, B. Fominykh, T. Nunez
- Operators

Thank you!