WP2: picosecond beamline

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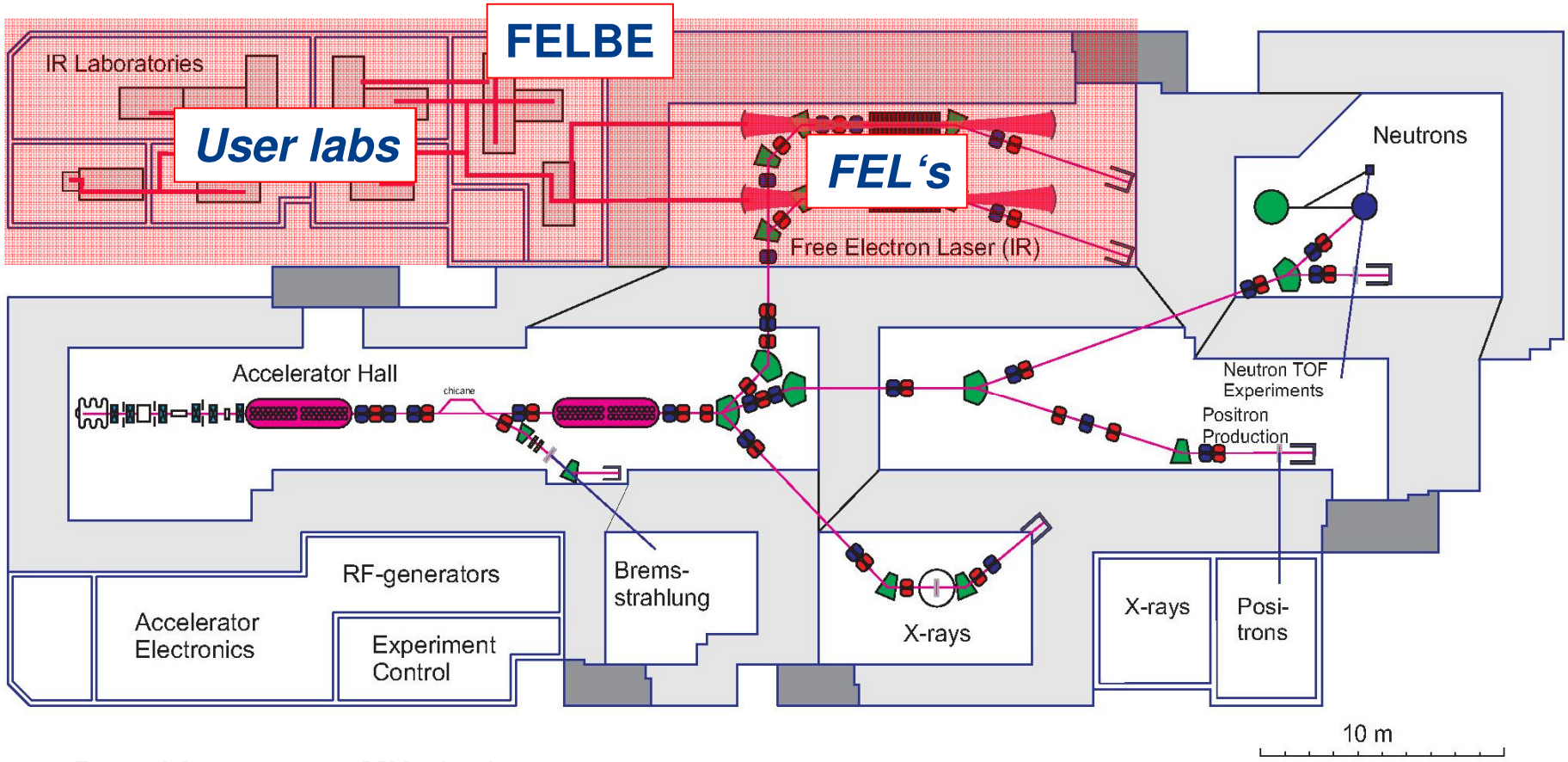
Schedule

Task + collaborators	**Year 1**				**Year 2**				**Year 3**			
WP2.1: Optimized optical gate operated at 1 kHz FZD, Budker, LITP, DESY, TUKL, UDE		✦			✦							
WP2.2: Optimized optical gate operated in the 100 kHz range FZD, Budker, LITP, DESY, TUKL, UDE								✦				✦
WP2.3: Detection and vacuum systems for picosecond beamline FZD, Budker, TUB												
WP2.4: Integration of the step-scan FTIR into the picosecond beamline FZD, FUB												
WP2.5: Integration of the SNIM into the picosecond beamline FZD, TUD												
WP2.6: Pioneering experiments FZD, FUB, TUD, DESY, UHH, ISP, Ioffe, SPbSPU, IPM, TUB												

Mile Stones

- 04/2011: commissioning of ps beamline with 1 kHz operation
- 01/2012: start of user operation
- 10/2012: commissioning of ps beamline with 100 kHz operation
- 07/2013: start of user operation

FELBE (as it is)



- **Repetition rate: 13 MHz (cw)**
- **Electron bunches: few ps**
- **Thermionic gun + SRF accelerator!**

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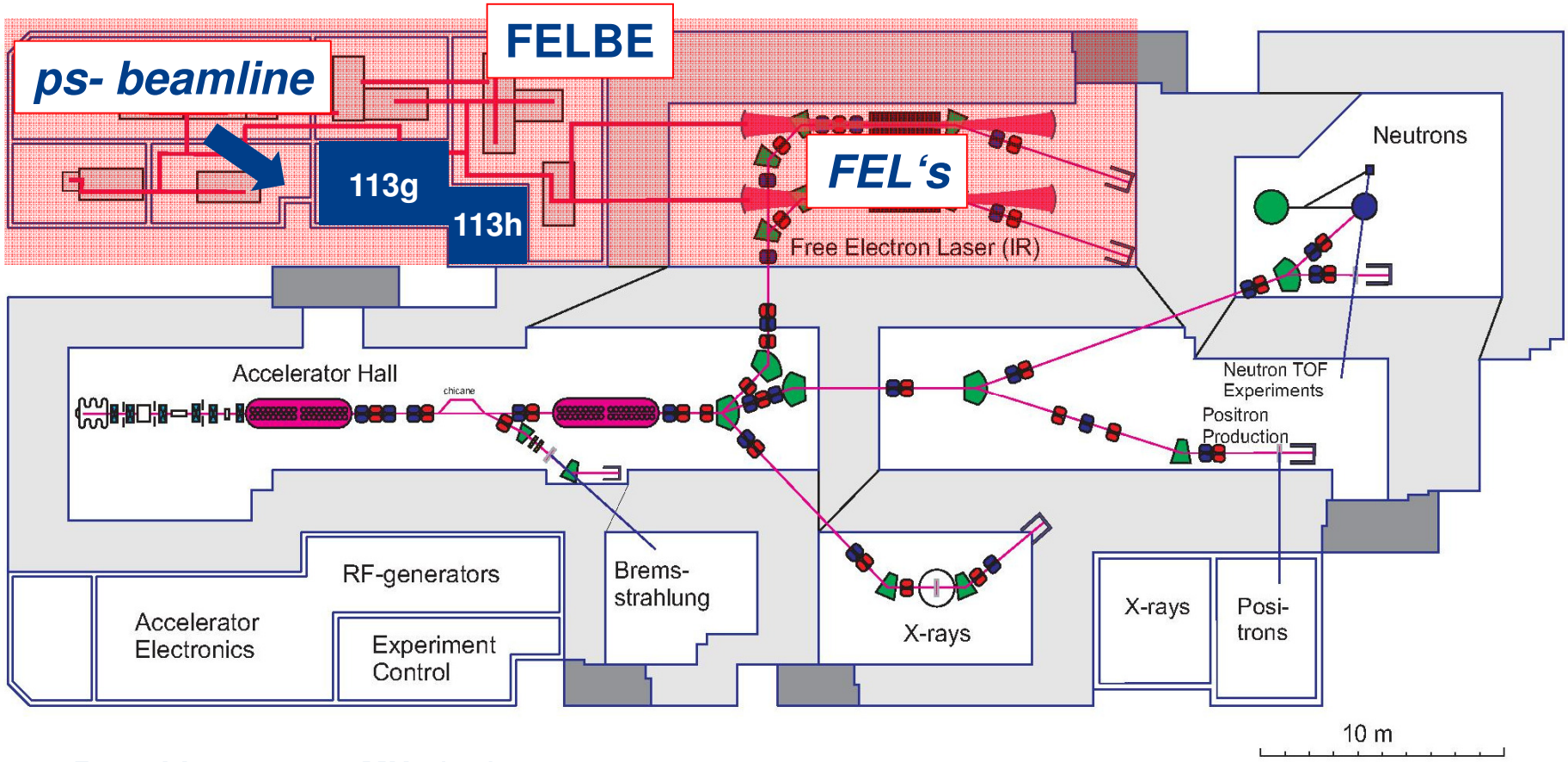

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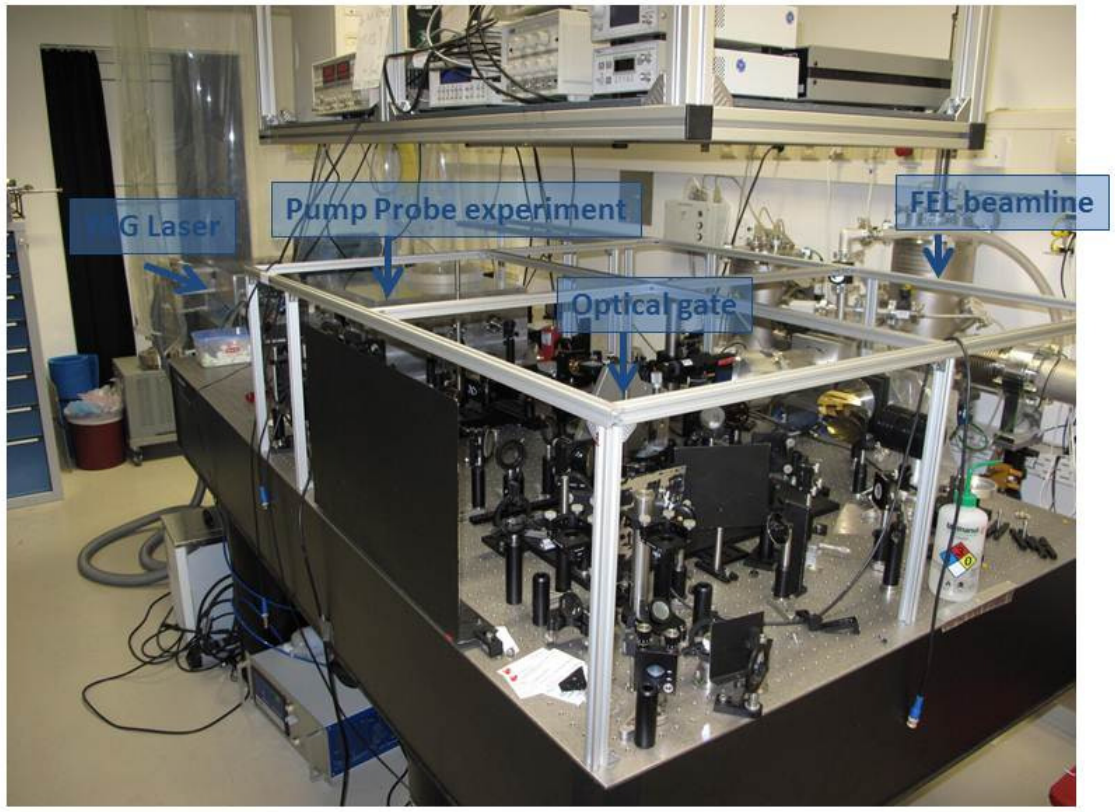
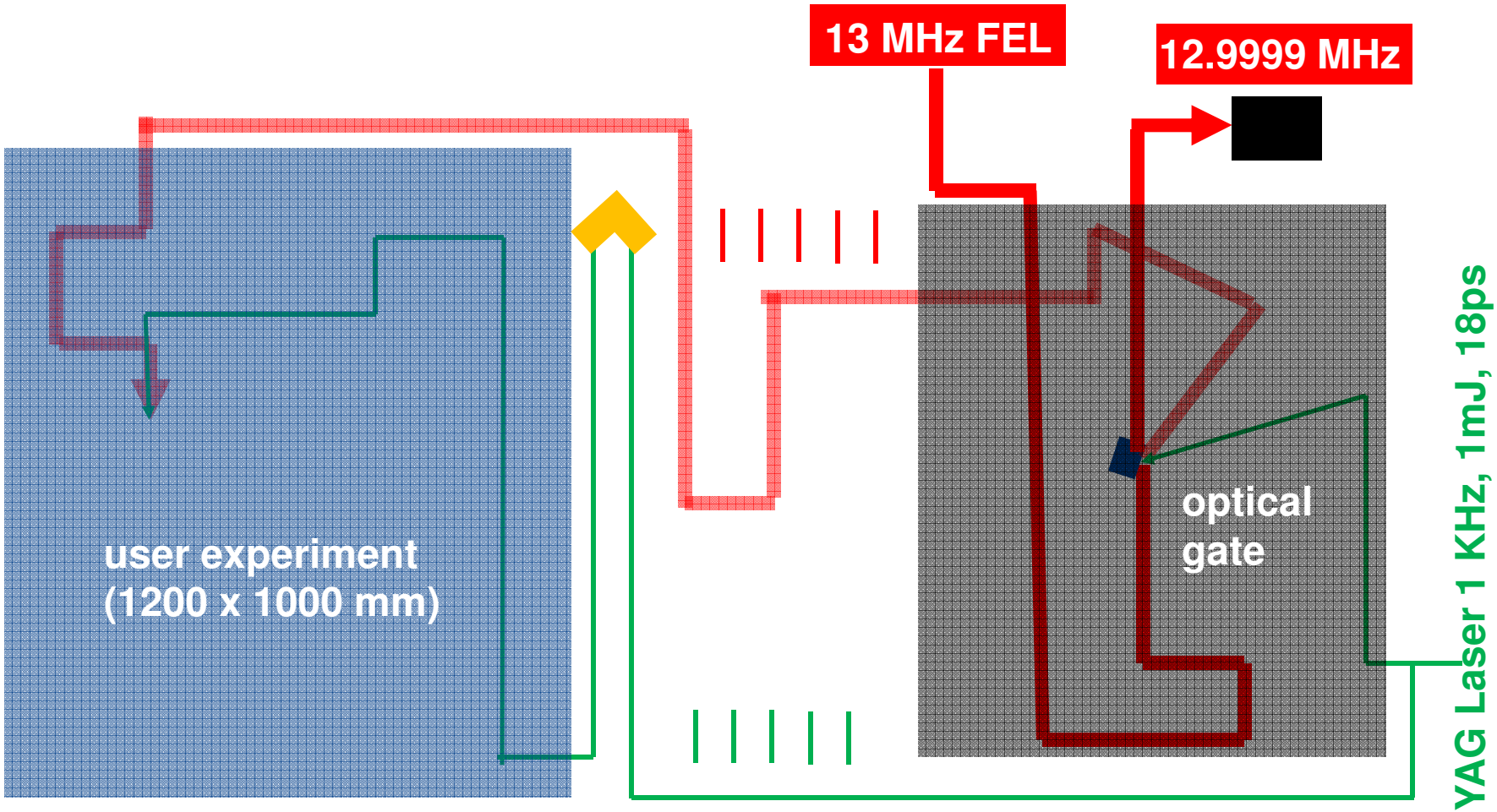
113h: step-scan FTIR spectrometer

WP3: time resolved spectrosc. on proteins

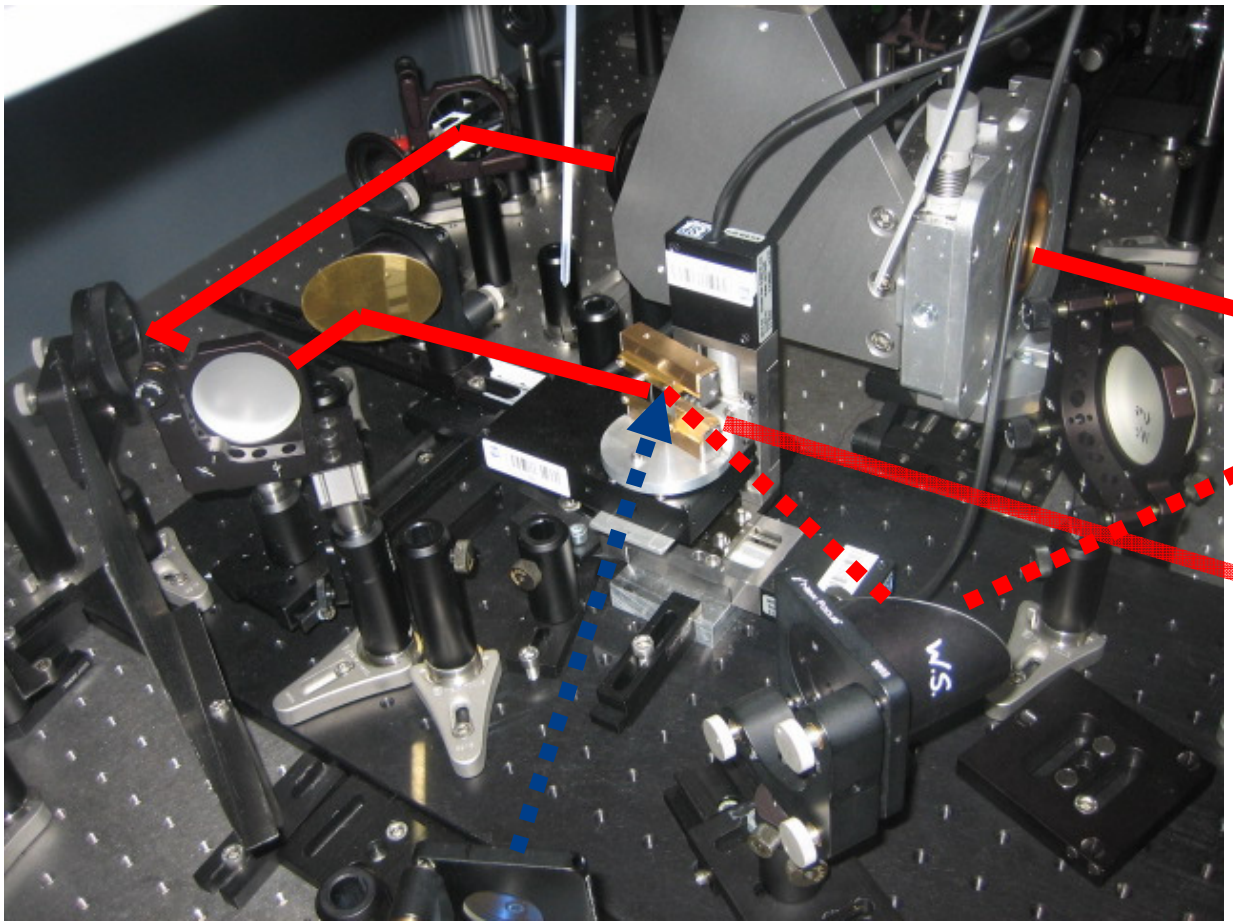
113g: ps beamline



113g: ps beamline



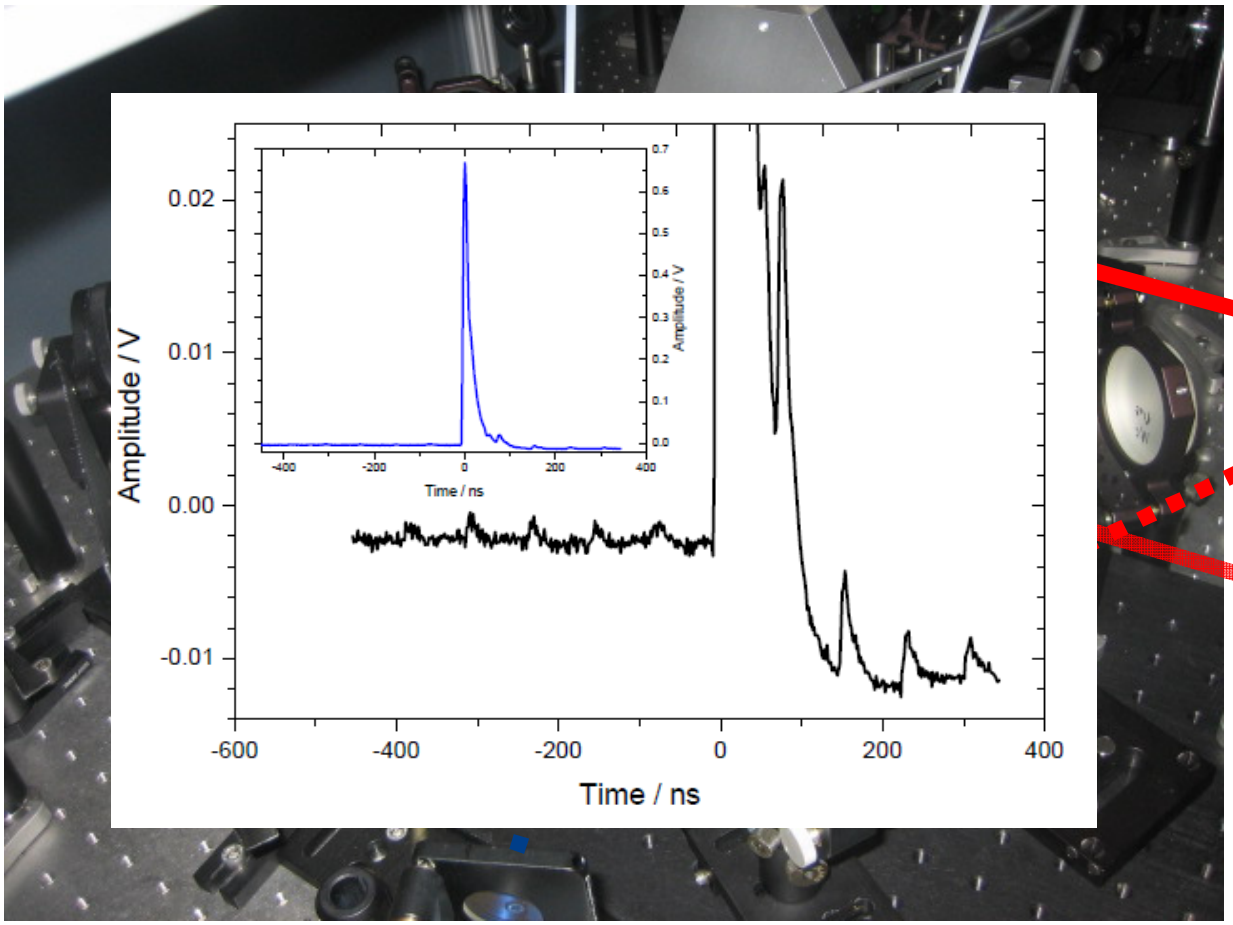
improved optical gate



to experiment:
- μW to mW
- 12.9999 MHz

to dump:
- sev. W to sev. 10 W
- 12.9999 MHz

improved optical gate



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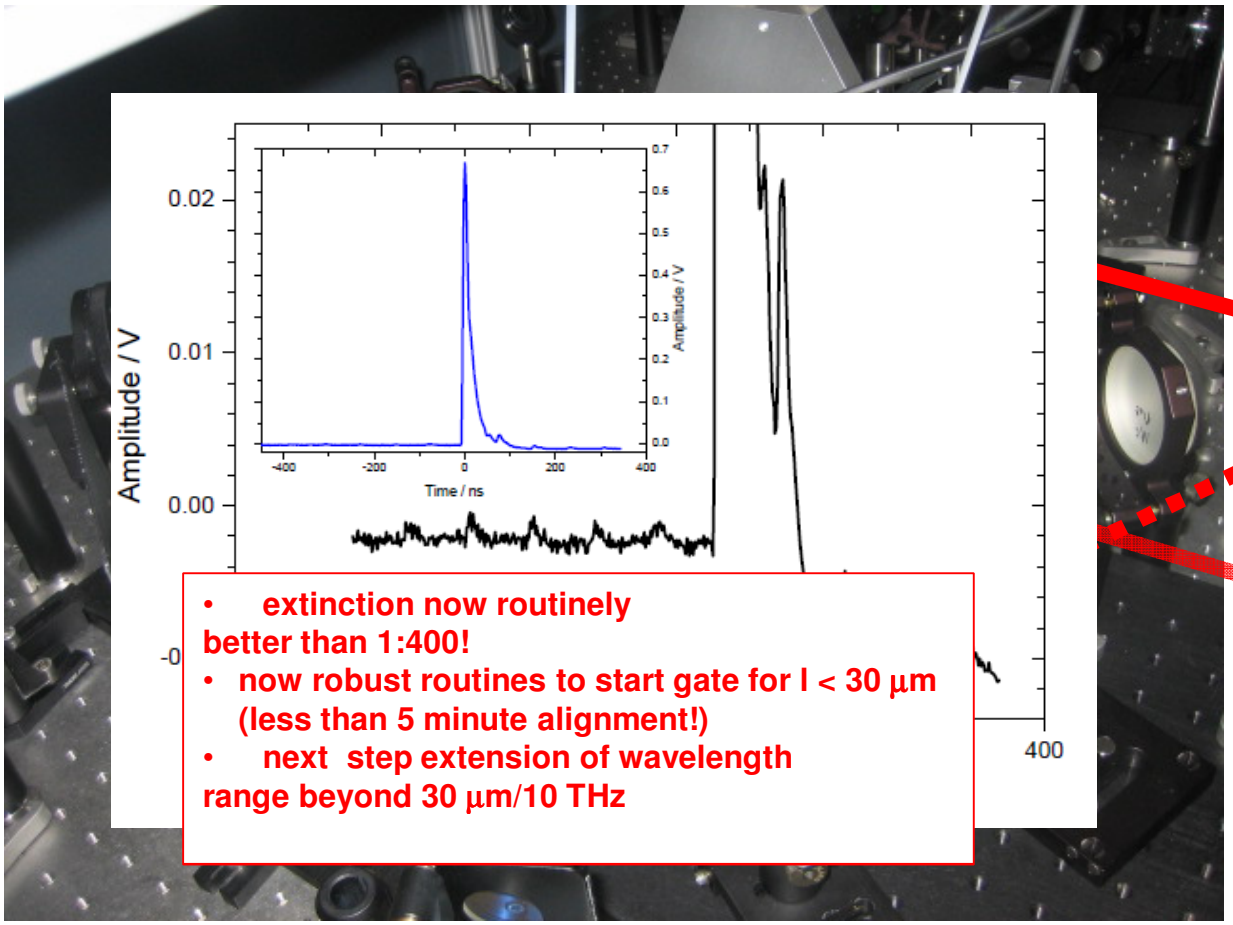

- extinction now routinely better than 1:400!
- now robust routines to start gate for l < 30 µm (less than 5 minute alignment!)
- next step extension of wavelength range beyond 30 µm/10 THz

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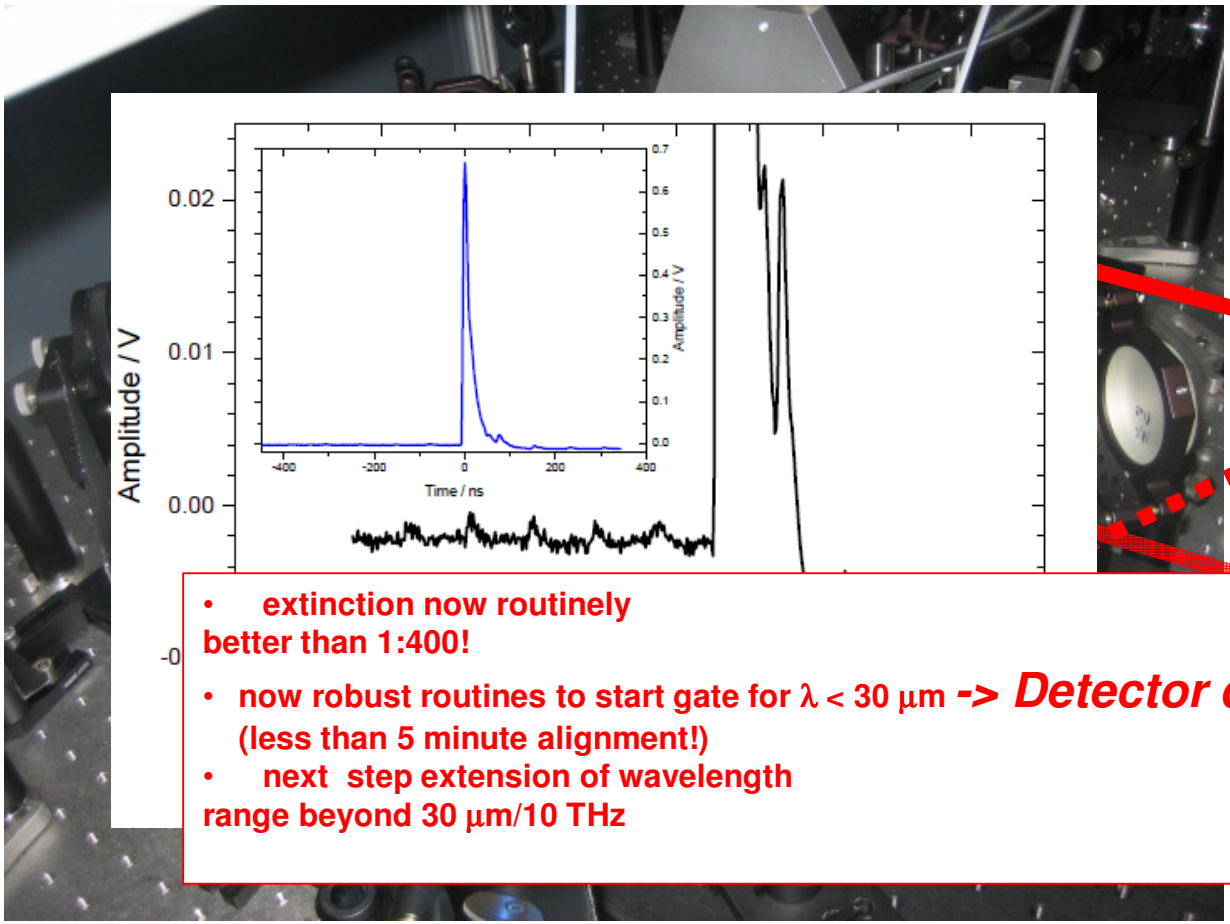

to experiment:
- μW to mW
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- extinction now routinely better than 1:400!
- now robust routines to start gate for λ < 30 μm **-> *Detector development WP5?***
  (less than 5 minute alignment!)
- next step extension of wavelength range beyond 30 μm/10 THz

0 W

first user experiment started in december 2012!

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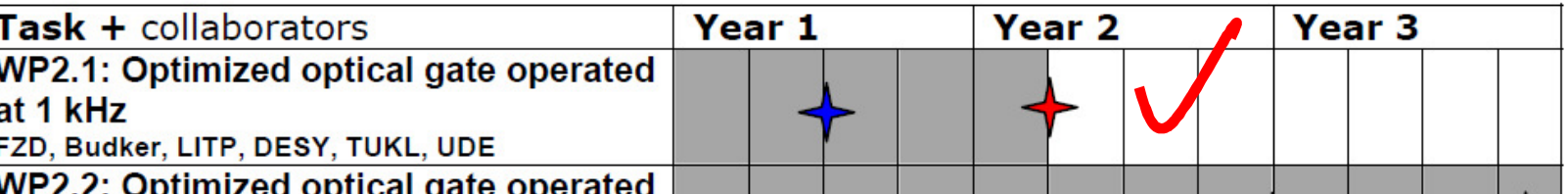

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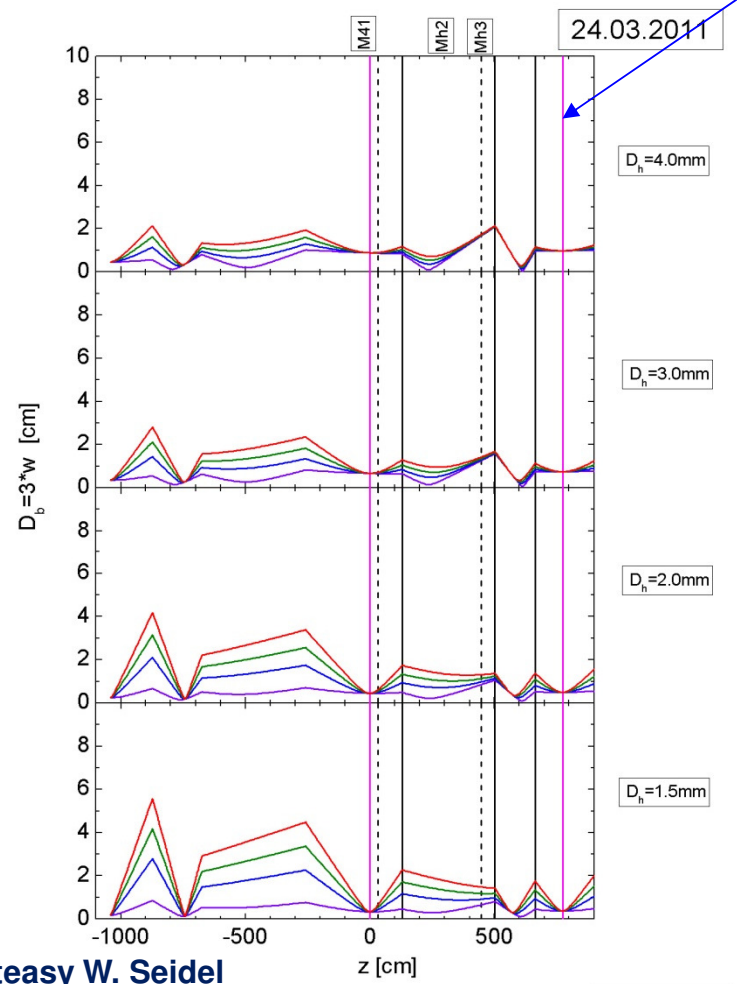
113h: beamline/opticalmechan. design

Durchmesser (3*w) des U27-Strahl

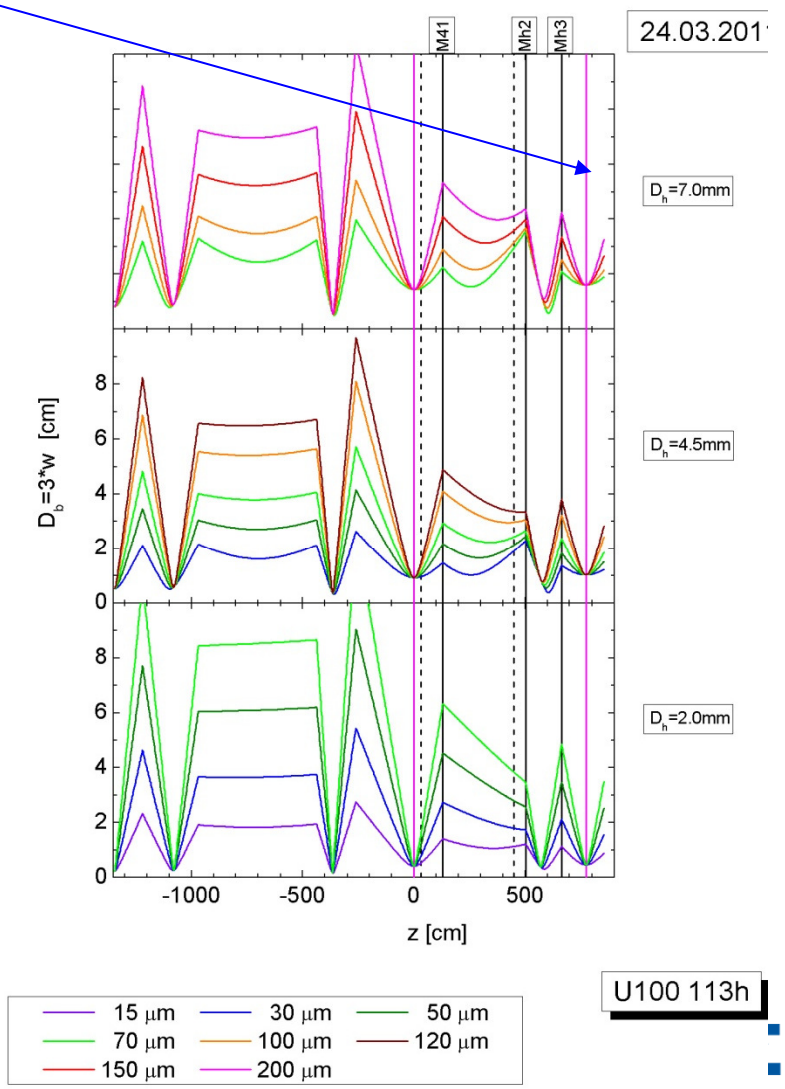
Waist in 113h

Durchmesser (3*w) des U110-Strahl



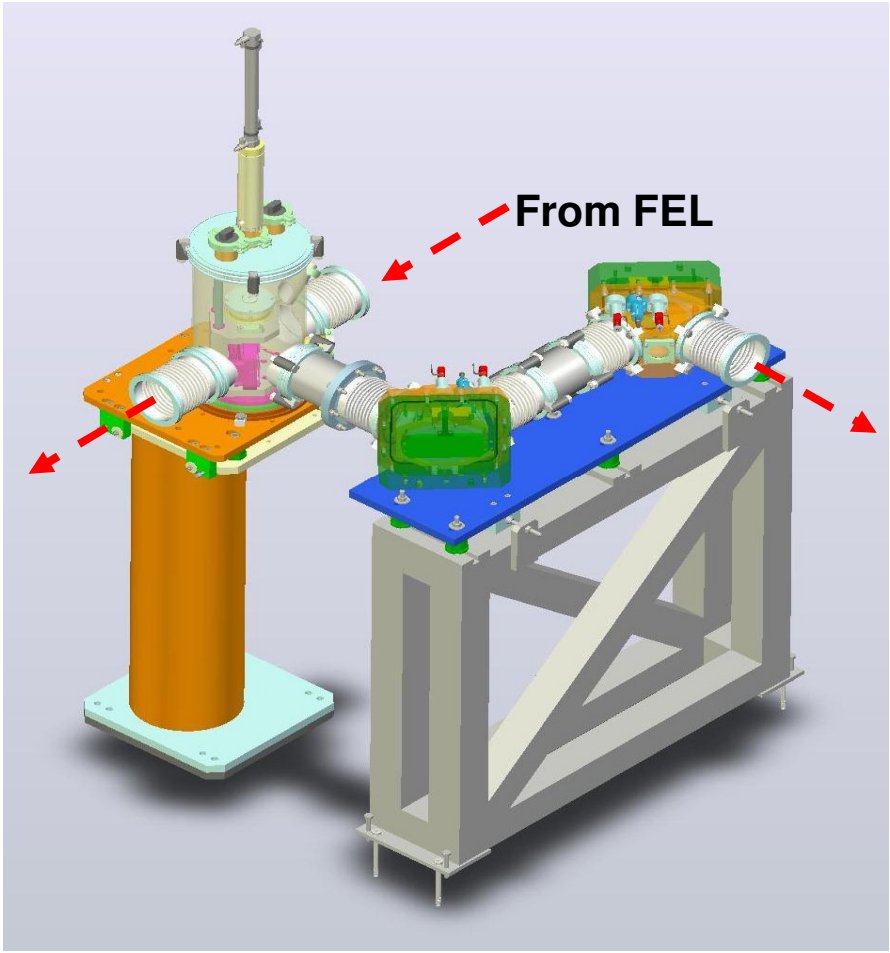
courteasy W. Seidel

U27 113h



U100 113h

113h: beamline/optical design



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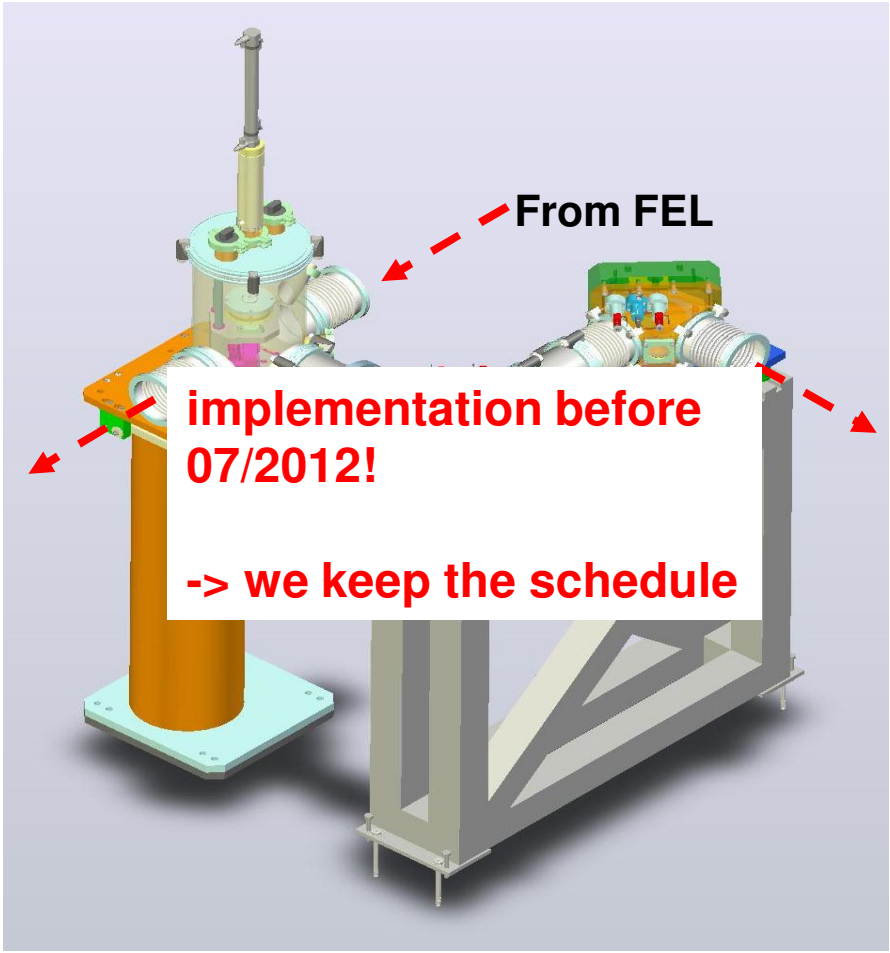

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