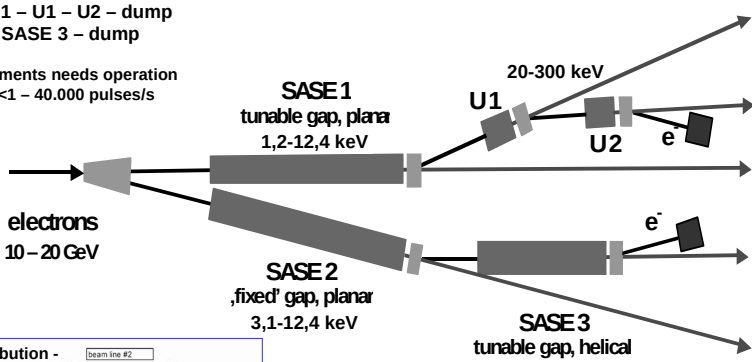
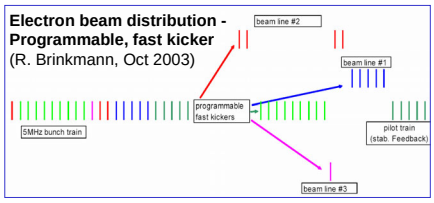
XFEL Laboratory –
Photon beam line & experimental hall concept

Layout of the photon beam line complex

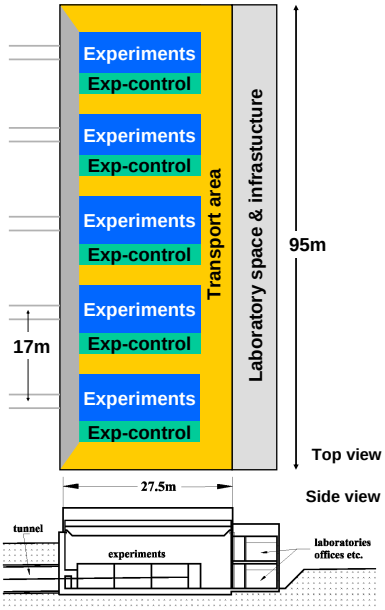
Distribute electron beam onto 2 beam lines
- either SASE 1 – U1 – U2 – dump
- or SASE 2 – SASE 3 – dump

Depending on experiments needs operation of each beam line at <1 – 40.000 pulses/s

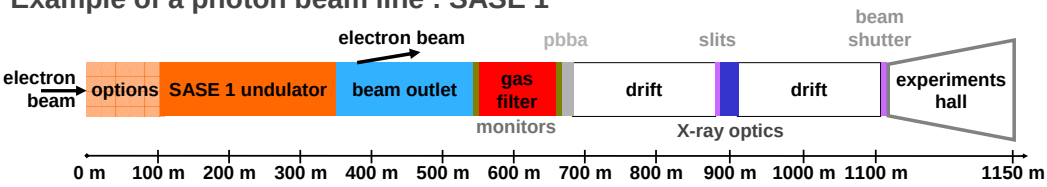




Experiments hall

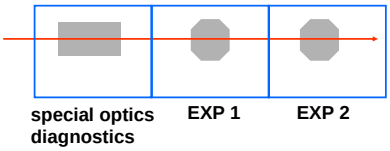


Example of a photon beam line : SASE 1



Conceptual layout of experiments

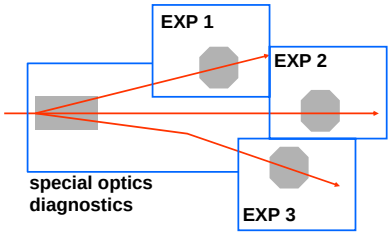
Linear arangement



Advantages:
- fewer optical elements
- common beam path for all experiments

Disadvantages:
- longer time for exchange of experiments
- breaking the vacuum necessary
- high-resolution pre-alignment

Fan arangement

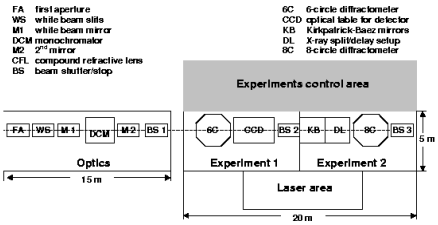


Advantages:
- experiments do not need to be moved
- easy off-line preperation of experiments

Disadvantages:
- relatively large angles required
- space consuming
- additional diagnostics
- stability of the beam

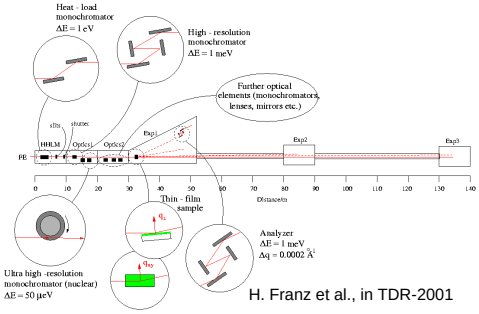
Examples of experiments

Beam line for time-resolved studies



D.M. Mills, APS in TDR-2001

Beam line for nuclear resonance spectroscopy



H. Franz et al., in TDR-2001

responsible author:
Th.Tschentscher., DESY
thomas.tschentscher@desy.de, Oct 2003