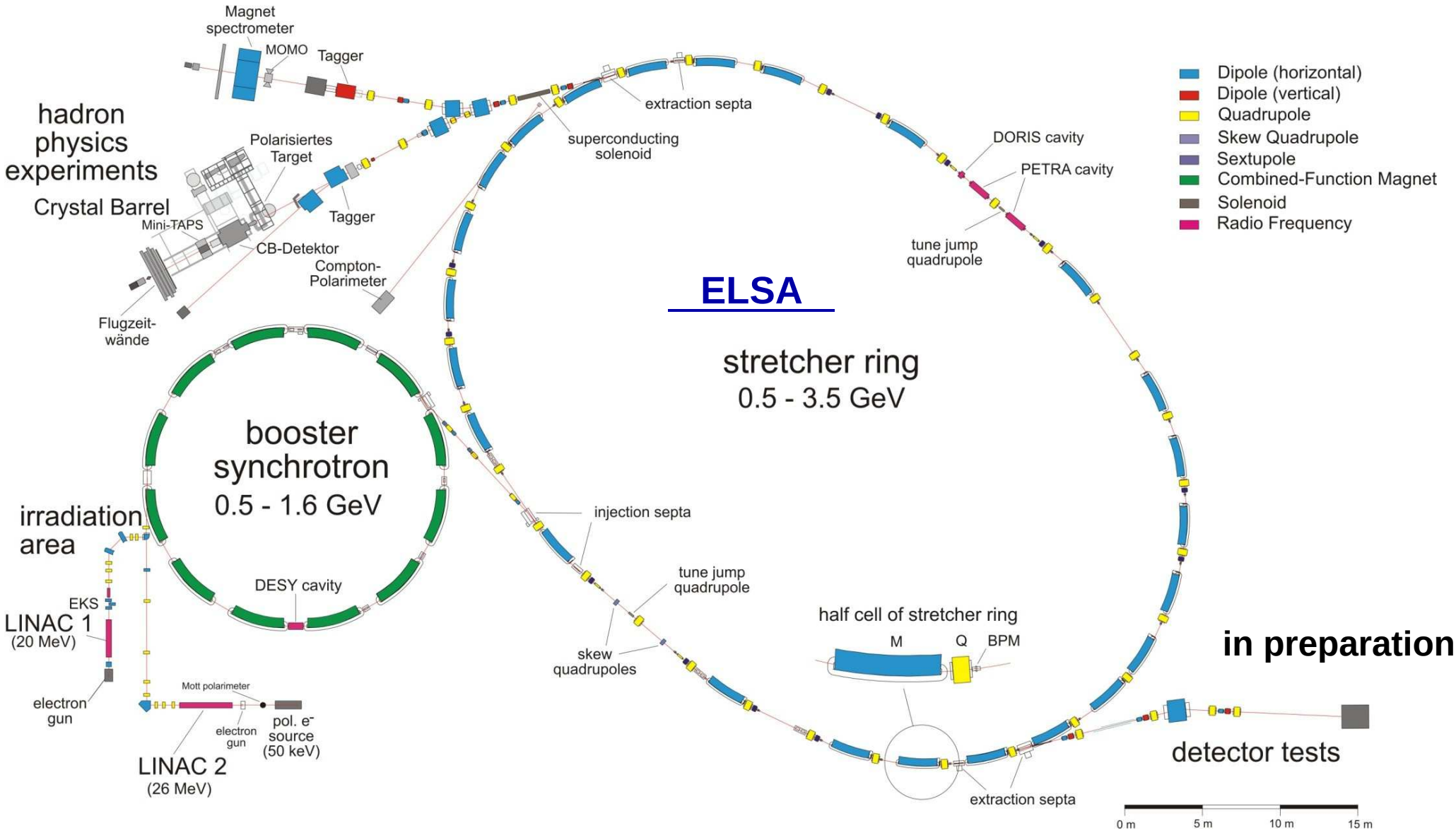
The accelerator ELSA (Bonn) as test facility for the PANDA-EMC

U.Thoma, Bonn University



in preparation

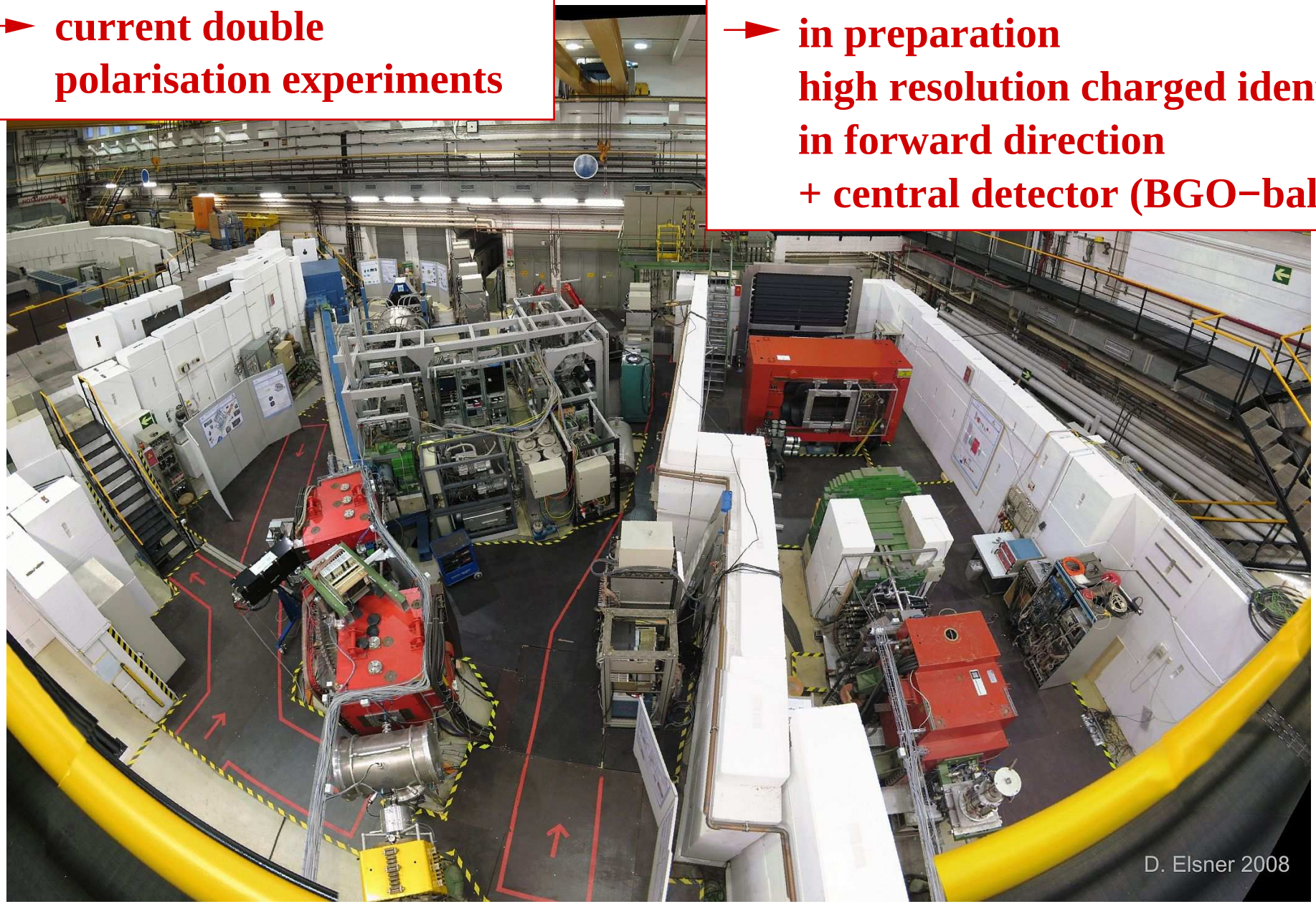
Baryon spectroscopy and meson photoproduction

CBELSA/TAPS

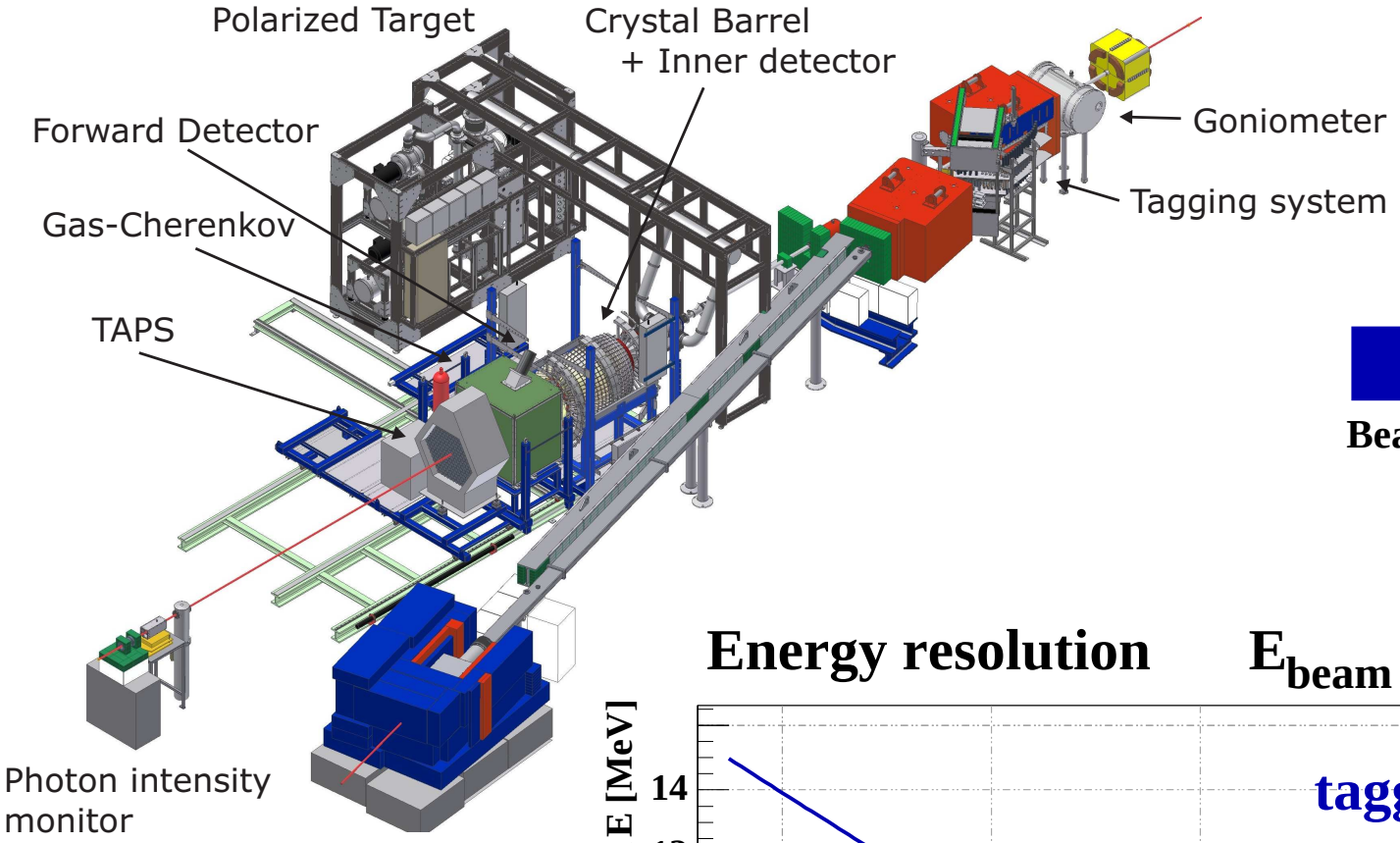
→ current double polarisation experiments

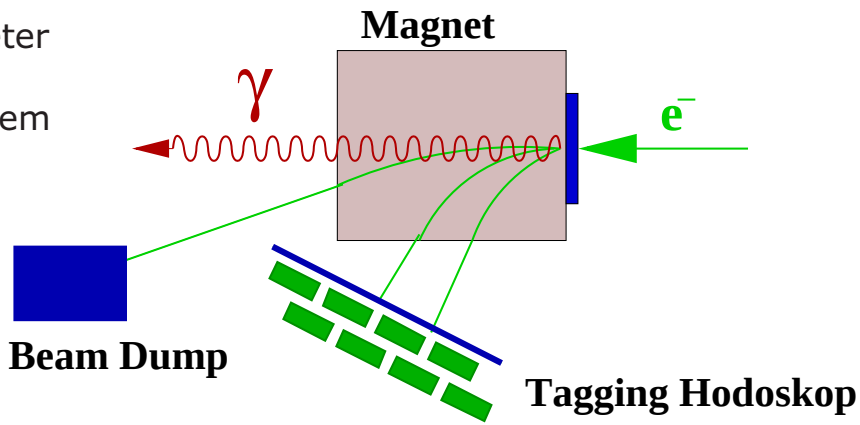
B1

→ in preparation
high resolution charged ident.
in forward direction
+ central detector (BGO−ball)

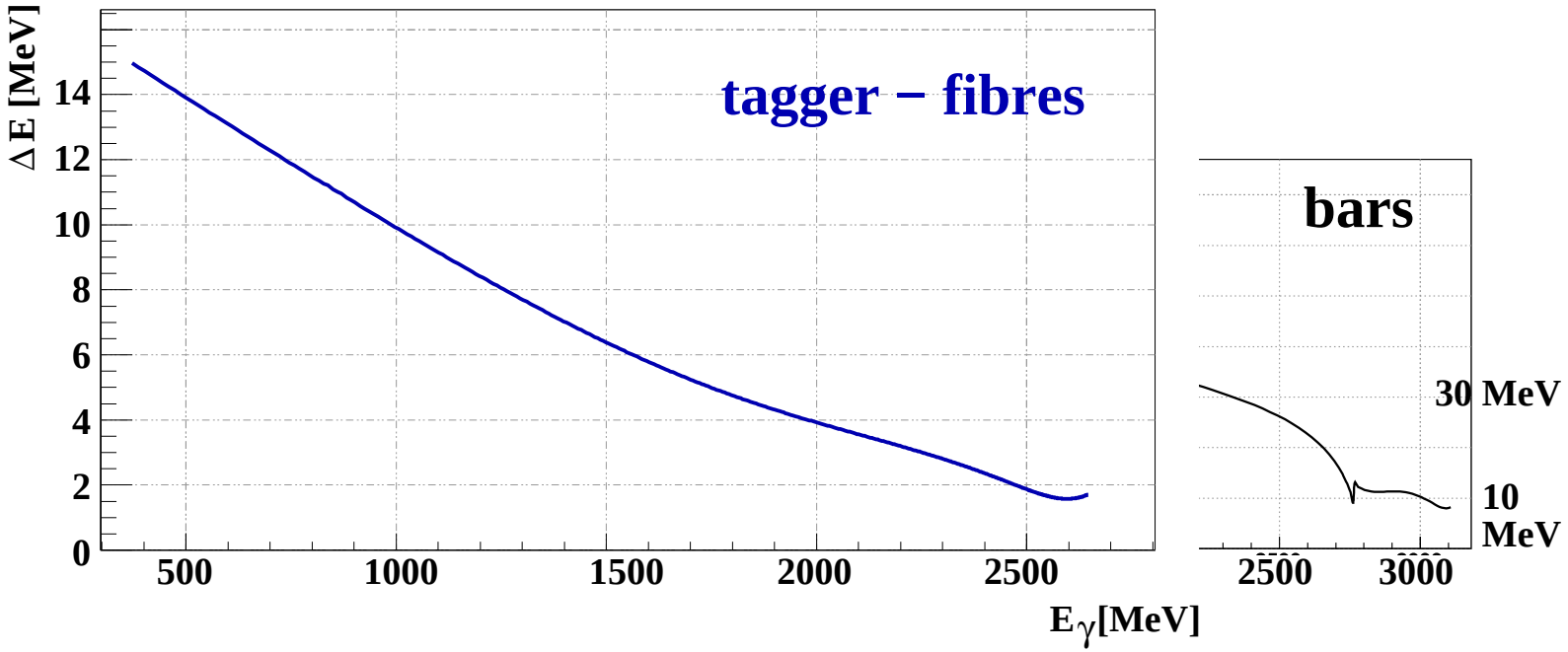


Measurements with high energy tagged photons at ELSA





Energy resolution $E_{beam} = 3.2$ GeV



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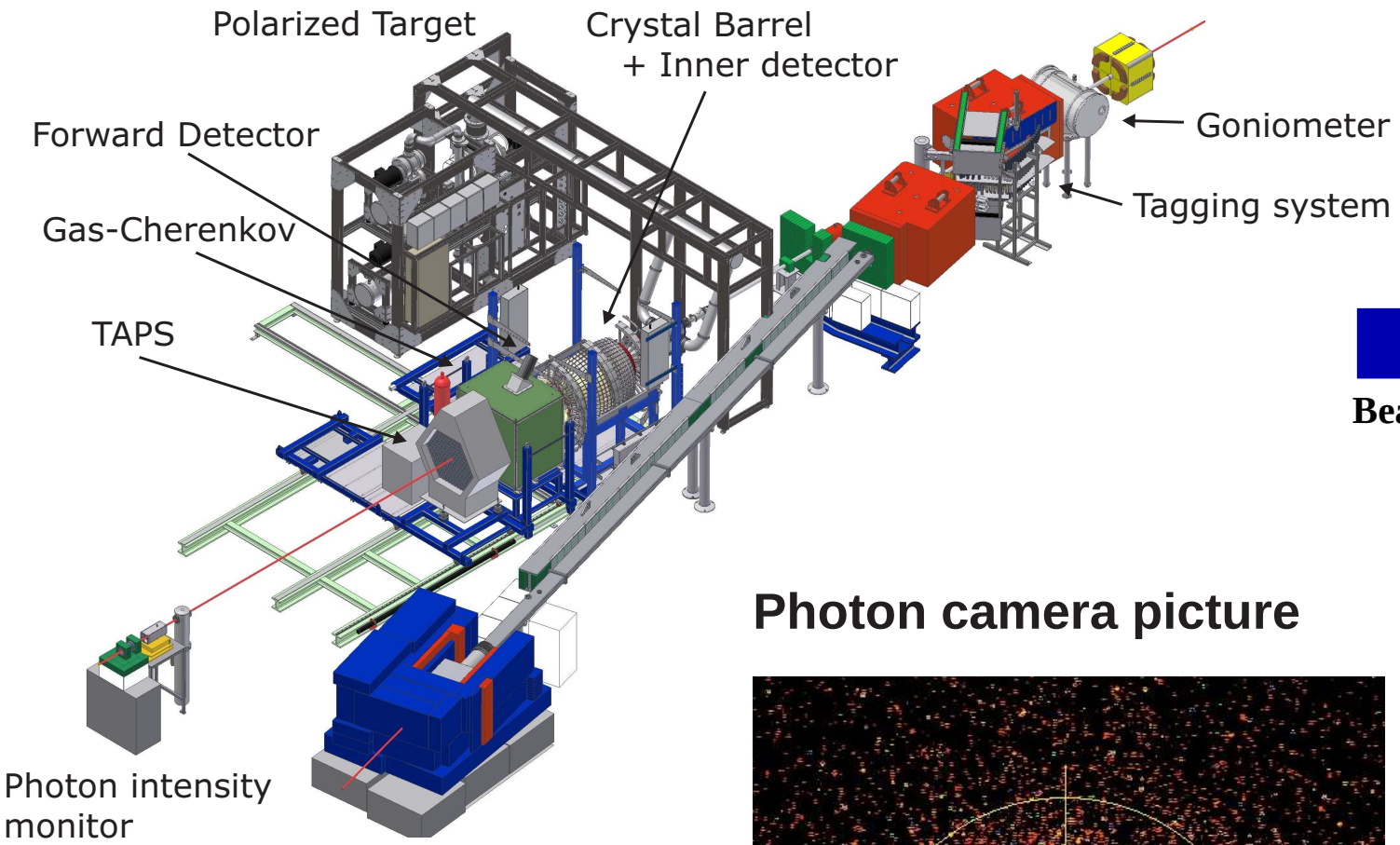
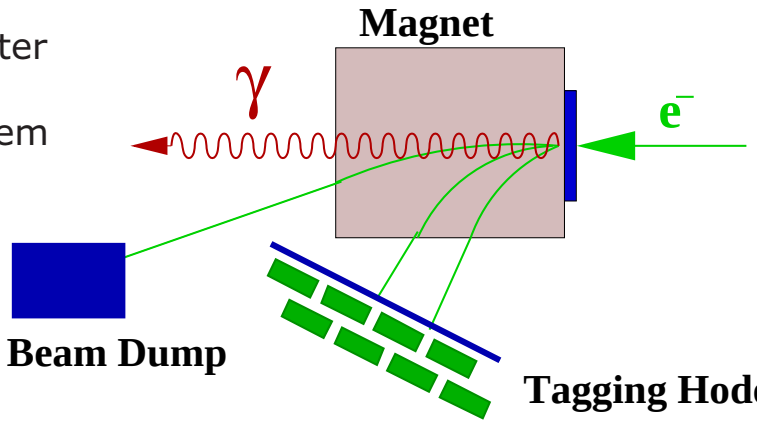
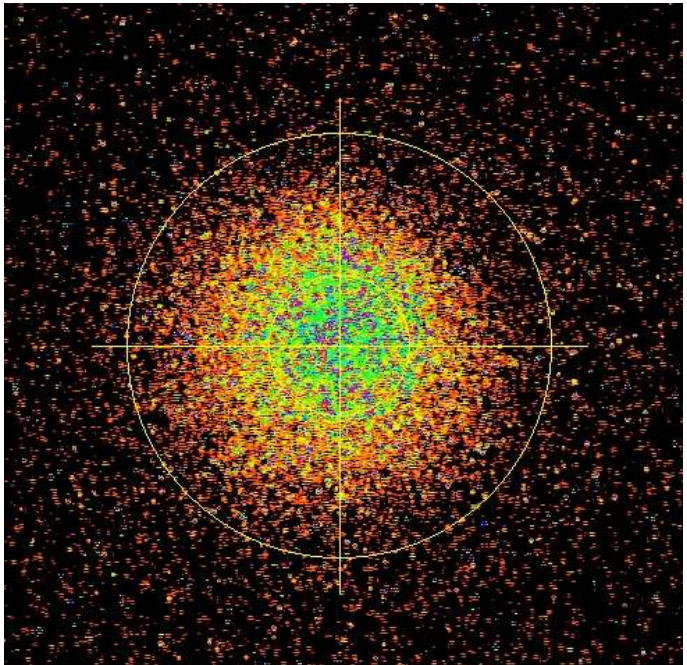
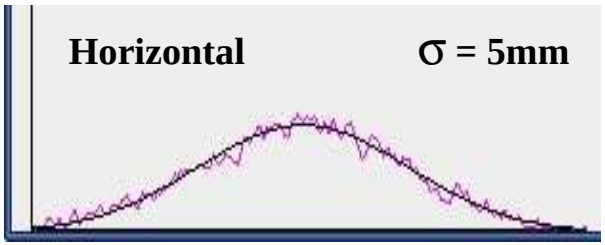
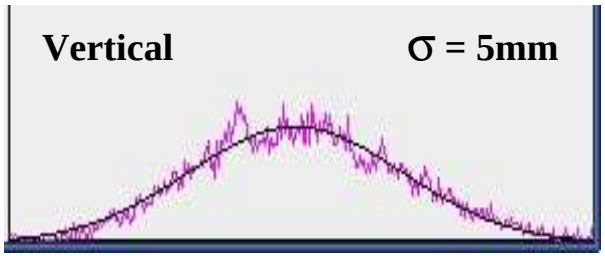




Photon camera picture





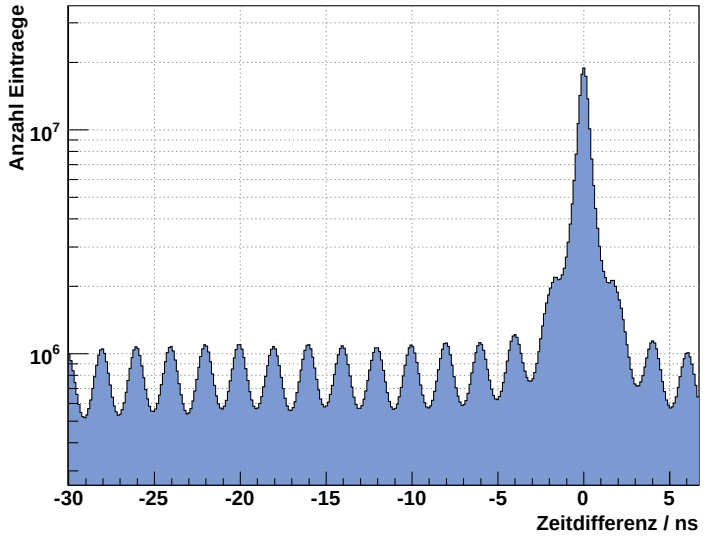


Tests with tagged photons at ELSA:

- The PANDA -test array could be included in the existing DAQ

  $\Leftrightarrow$ all tagger channels available for analysis

- Energy resolution: 2.8% - 0.1%
- Time resolution: σ= 260 ps (tagger)
- Rates: typically down to $\sim$ kHz-rates



Tests with electrons:

would allow a quite exact measurement of the e^- entry point into the crystal (optimisation of the reconstruction)

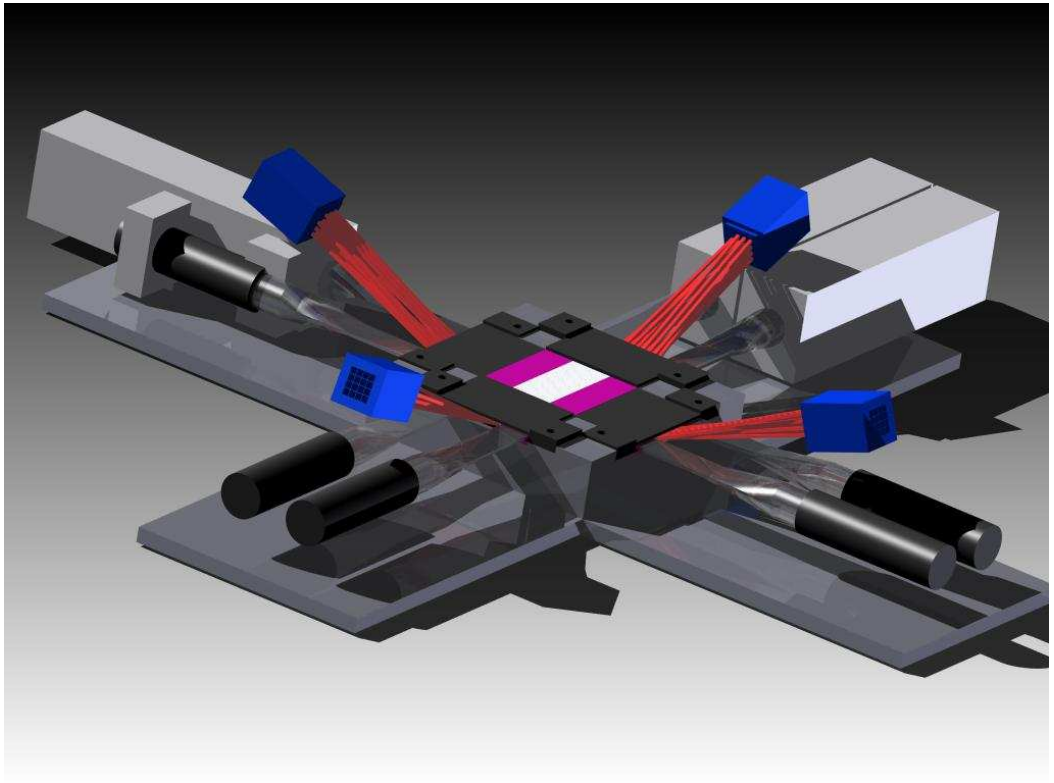
- New e^--test area in preparation

  beam energy: 1.0 GeV $\leq$ E $\leq$ 3.5 GeV, beam current: 1 fA $\leq$ I $\leq$ 100pA

  beam radius: 0.5 mm $\leq$ σ $\leq$ 7mm, + single bunch operation

- Energy range: 1 - 3 GeV, rate $\geq$ 10 kHz ($\leq$ 10 MHz)

Beam monitor:



presently in preparation

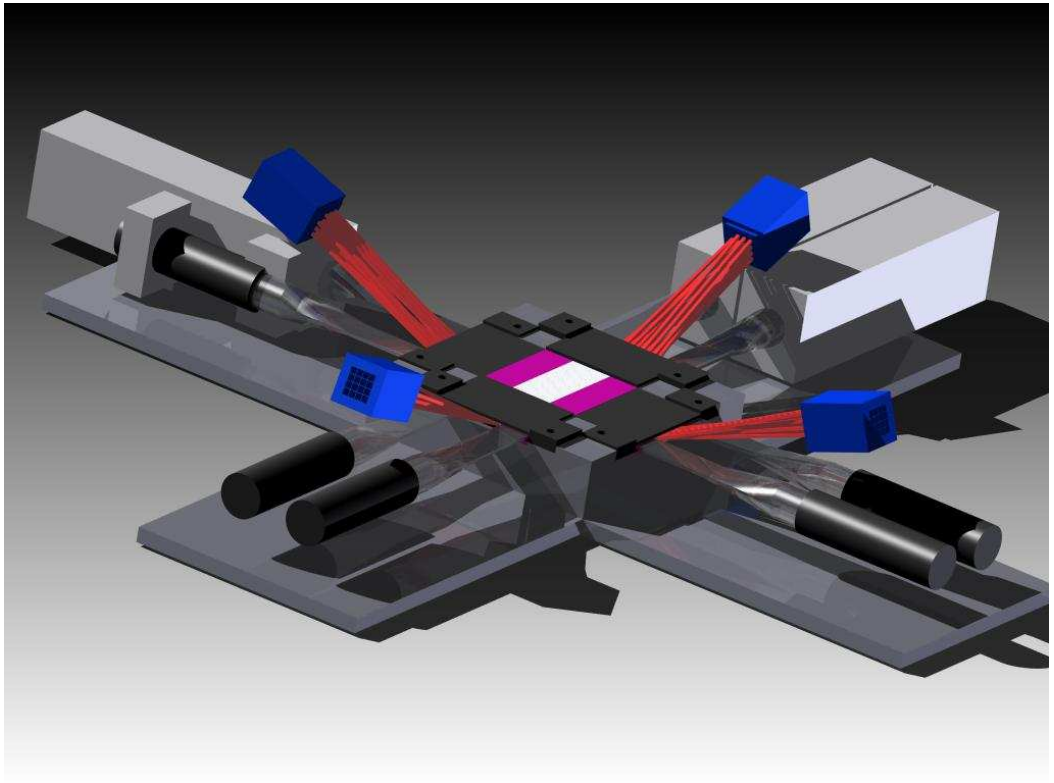
$\leftrightarrow$ allows the determination of the e^- position just in front of the detector array

- two times two crossed layers,

- central area: 2mm x 2mm fibres square fibres (2.6 x 2.6 cm^2)

- total active area 10 x 10 cm^2 ; rest: plastic scintillators

Beam monitor:



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Thank you for your attention !

The CBELSA/TAPS set up

Experiments with: - linear or circular polarised beam

- longitudinal polarised target (frozen spin butanol)