



# Development of a silicon ball for electron scattering coincidence experiments at the S-DALINAC\*

DPG Tagung  
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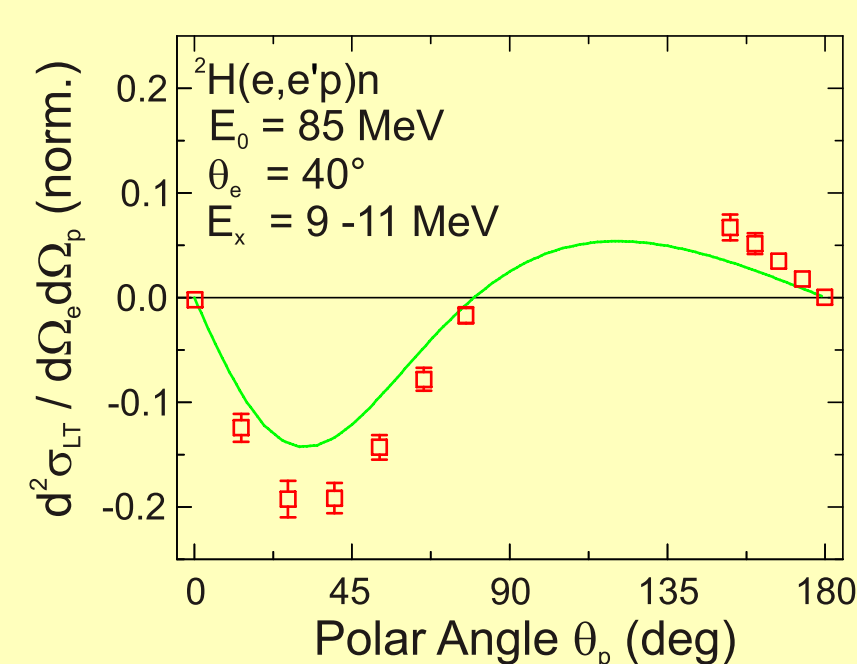
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\*Supported by the DFG through SFB 634

## Motivation

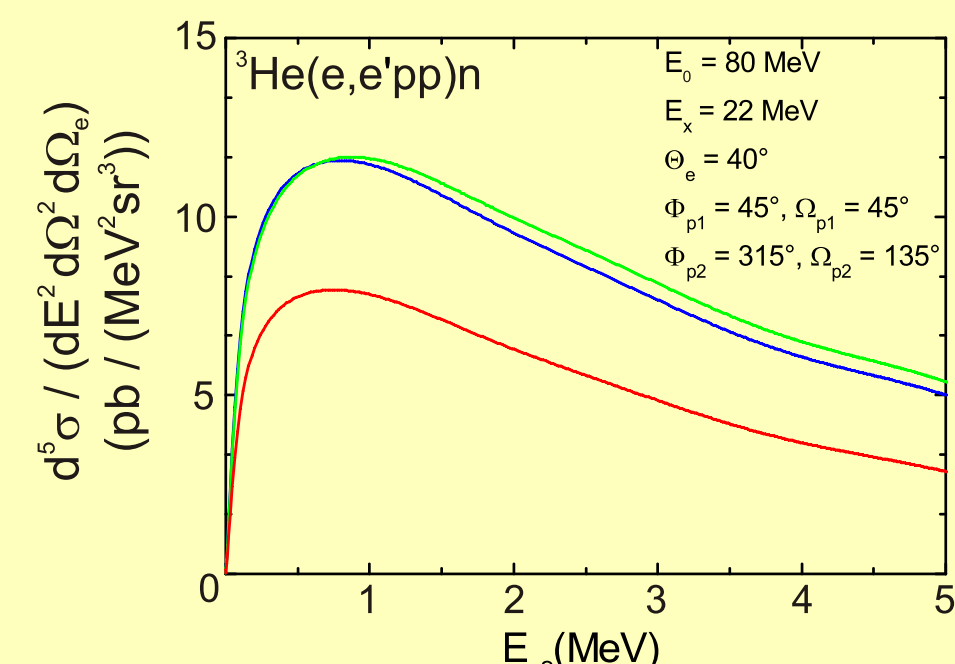
- Kinematically complete breakup experiments  $^2\text{H}(e,e'p)$ ;  $^3\text{He}(e,e'p)$ ;  $^3\text{He}(e,e'pp)$
- Test of the effective field theory
- Role of the three body forces
- Almost no data at low momentum transfer

### Deviations from potential models



P. von Neumann-Cosel et al., Phys. Rev. Lett. **88** (2002) 202304

### Role of the three-body force

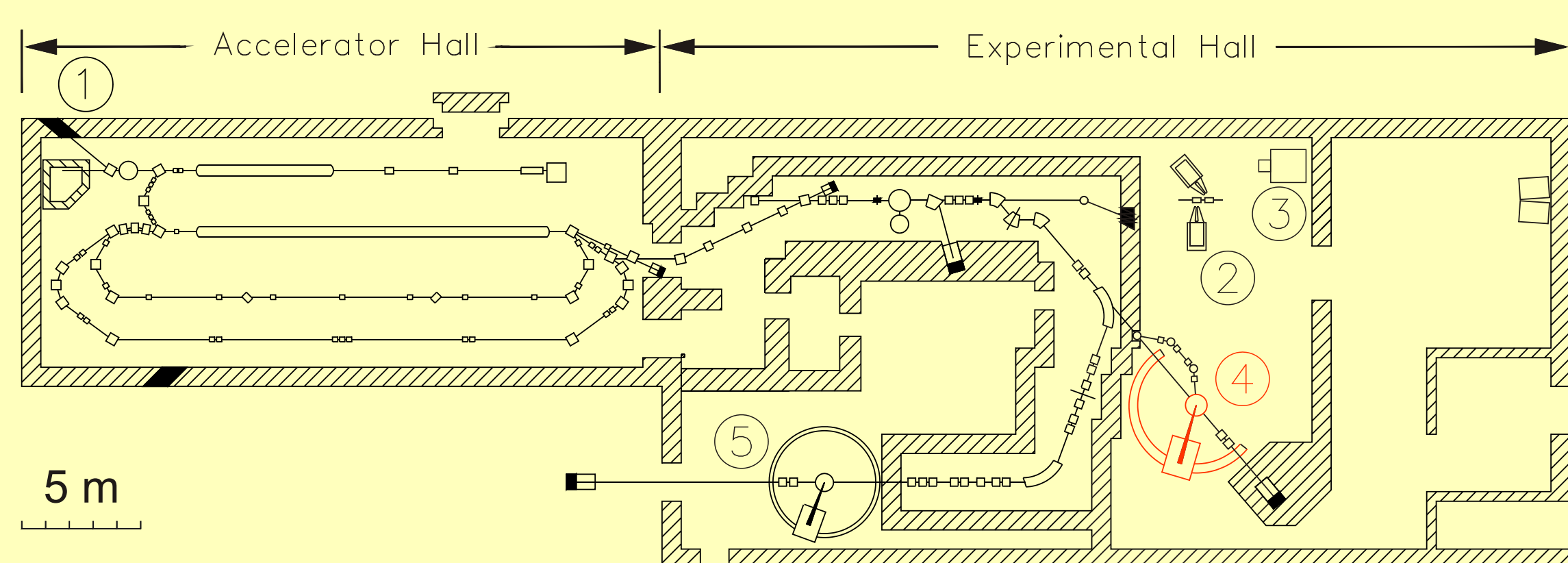


J. Golak, private communication

## Requirements

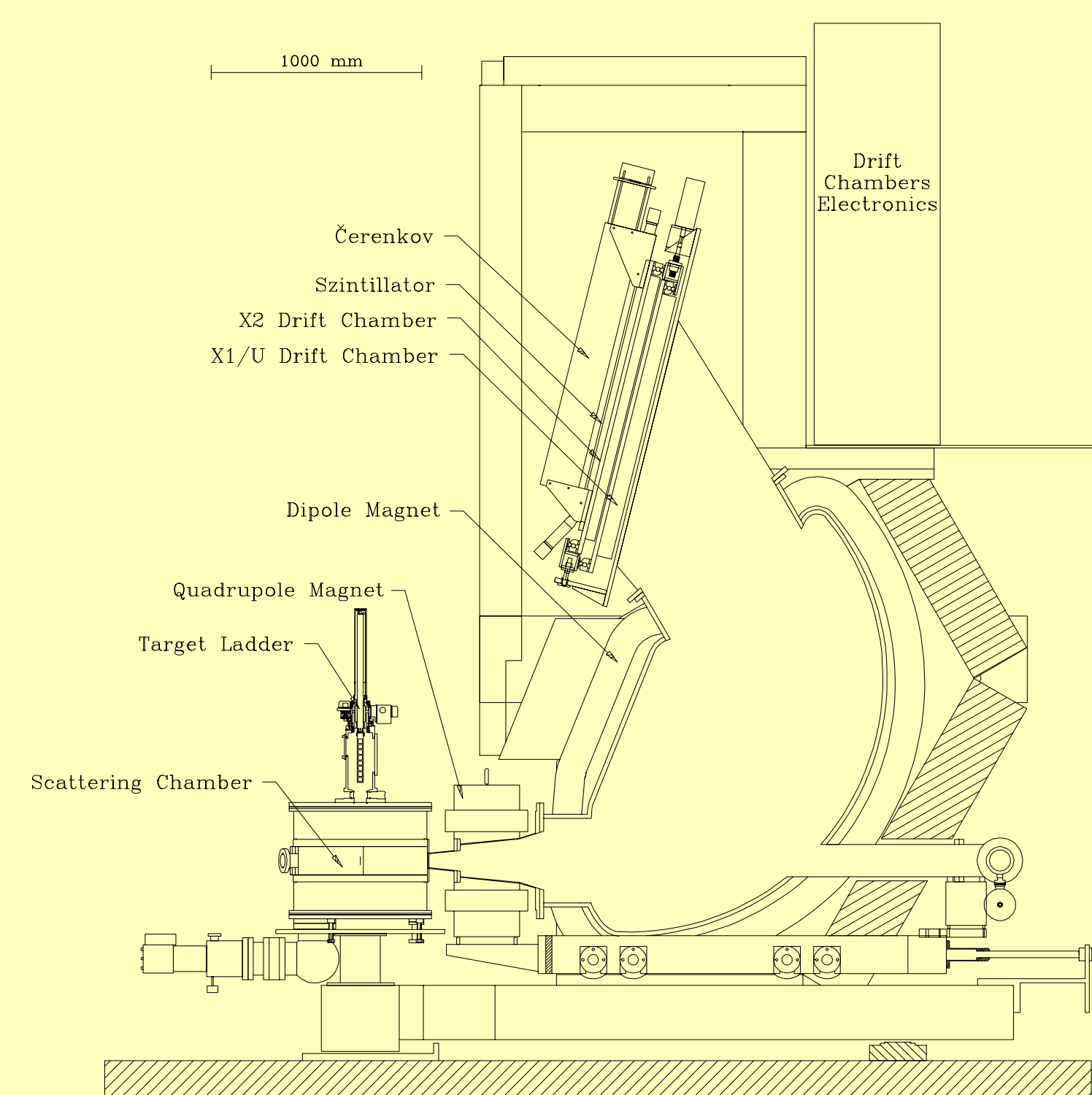
- Compact design
- Replaceability for individual detectors
- 10 MeV Protons → at least 750 μm Si thickness
- No particle separation needed
- Veto detectors

## S-DALINAC

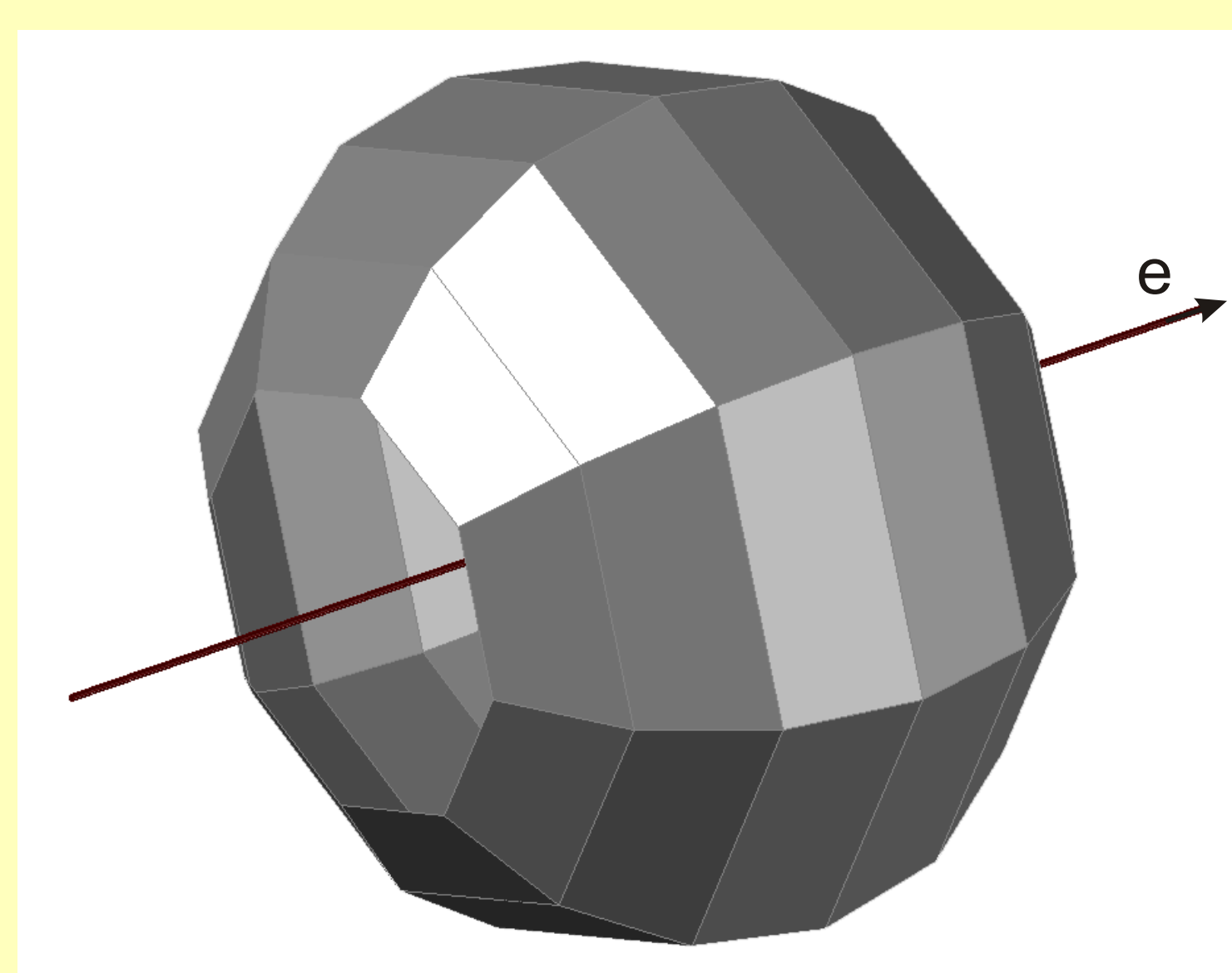
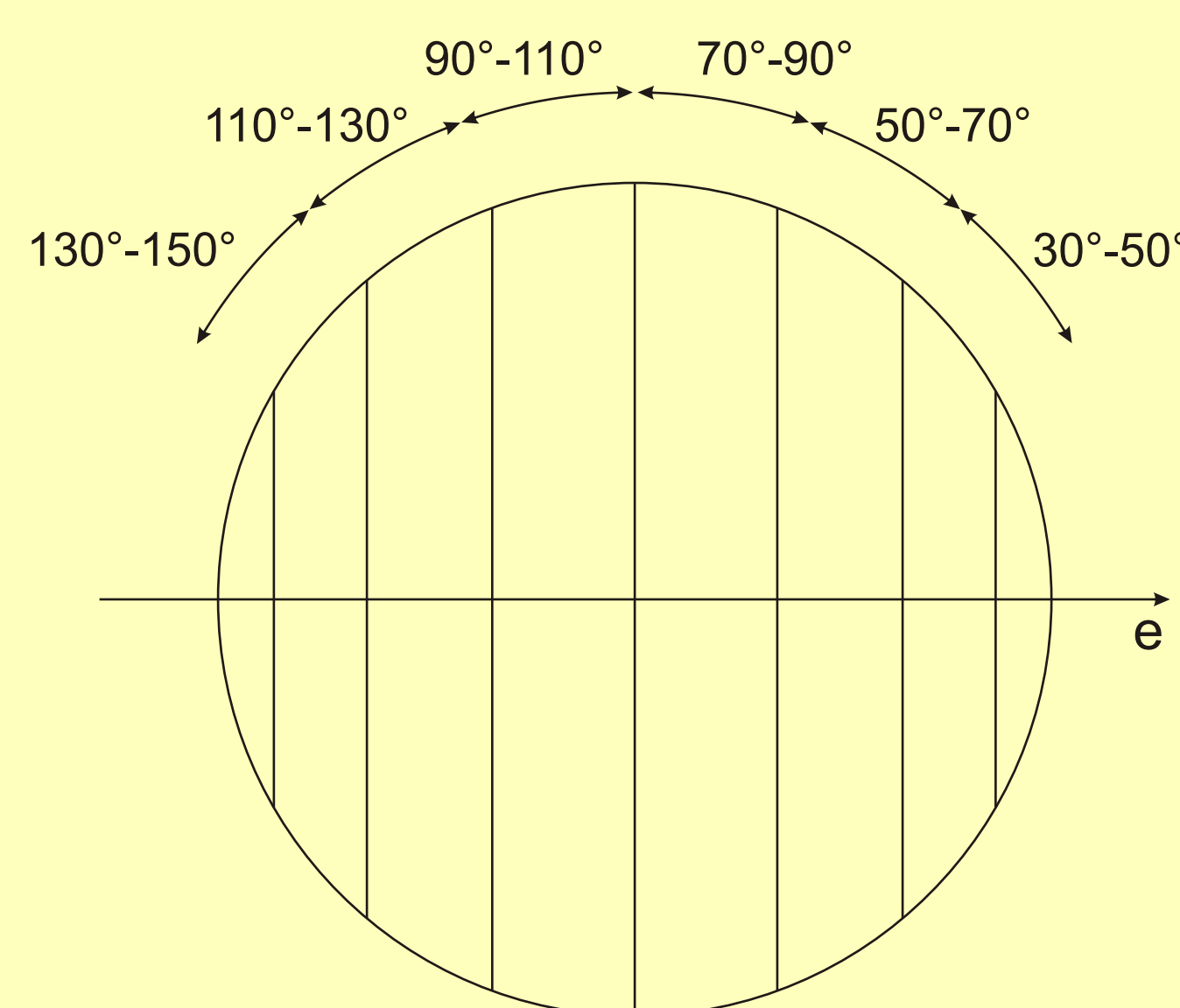


- ①  $(\gamma,\gamma')$  Experiments
- ② Compton Scattering off the Nucleon
- ③  $(\gamma,x)$  Experiments & Photon Tagger
- ④  $(e,e')$  and  $(e,e'x)$  Experiments
- ⑤  $(e,e')$  Experiments

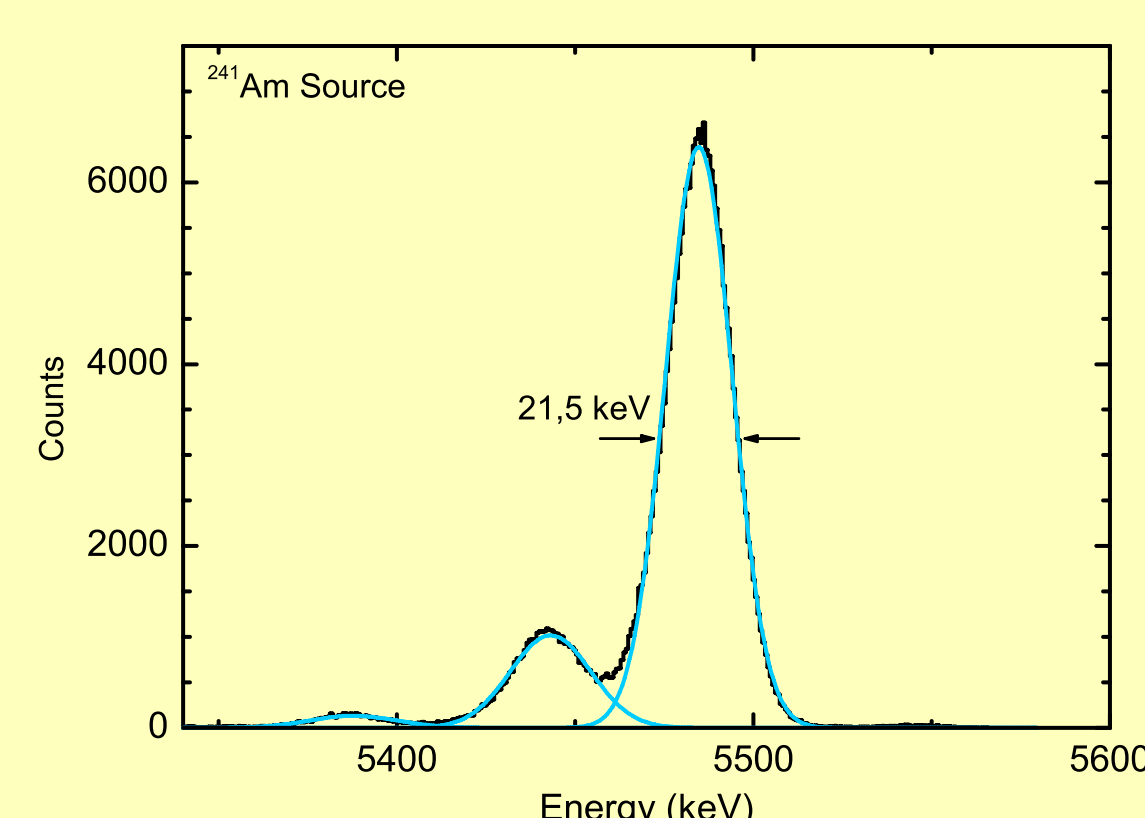
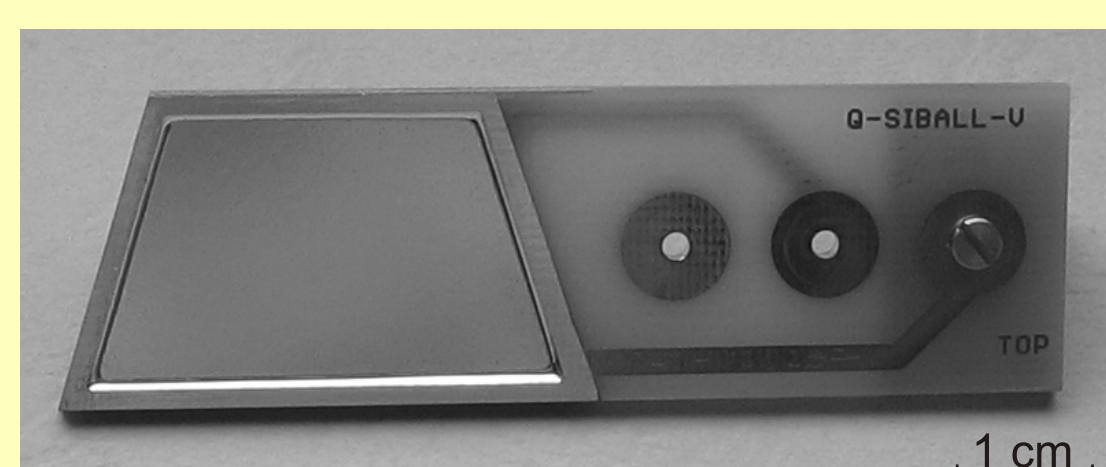
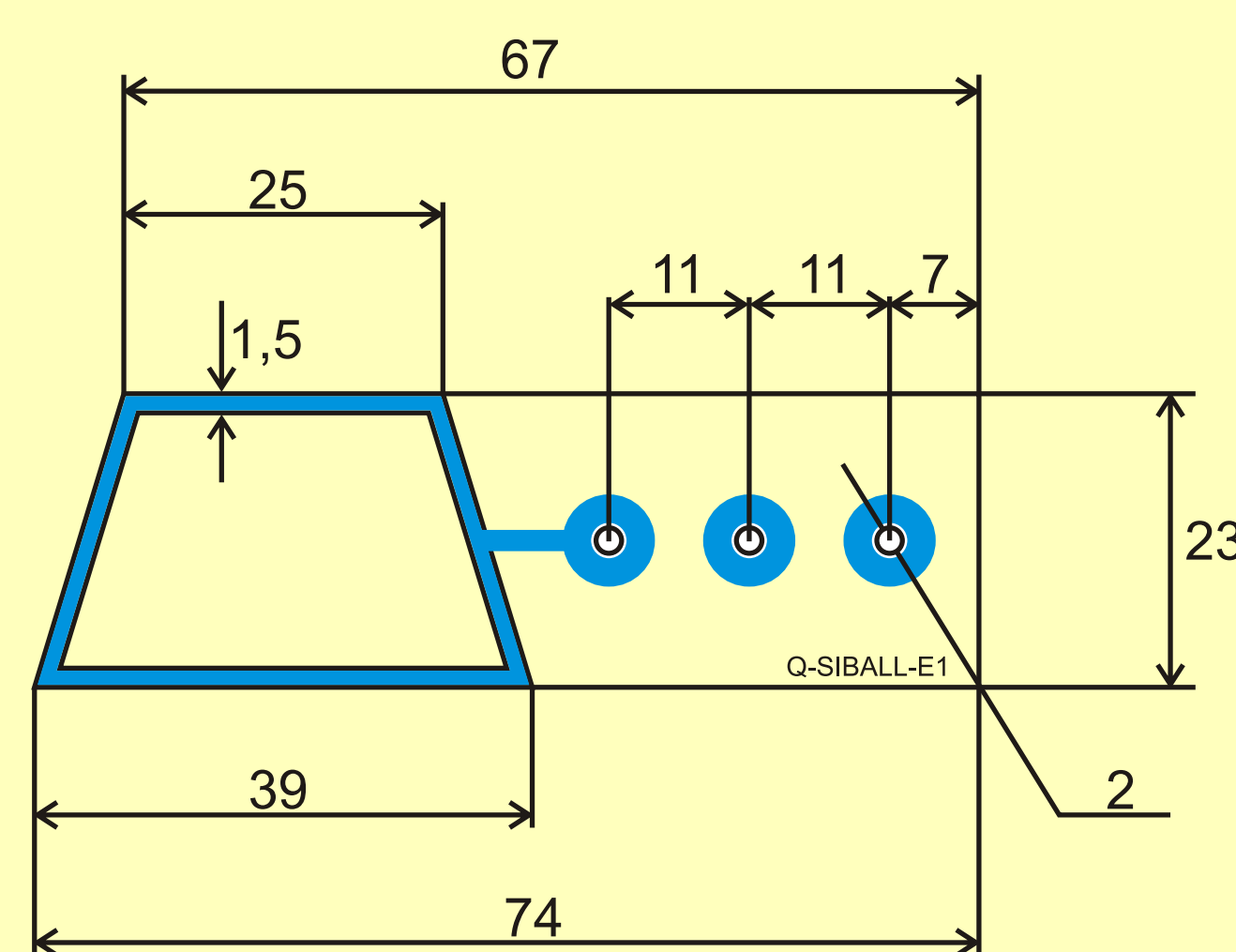
## QCLAM Spectrometer



## Basic Design Principle



## Detectors



## Holding Rack

