

Novel Technique to Measure the Polarizability of the Nucleon*



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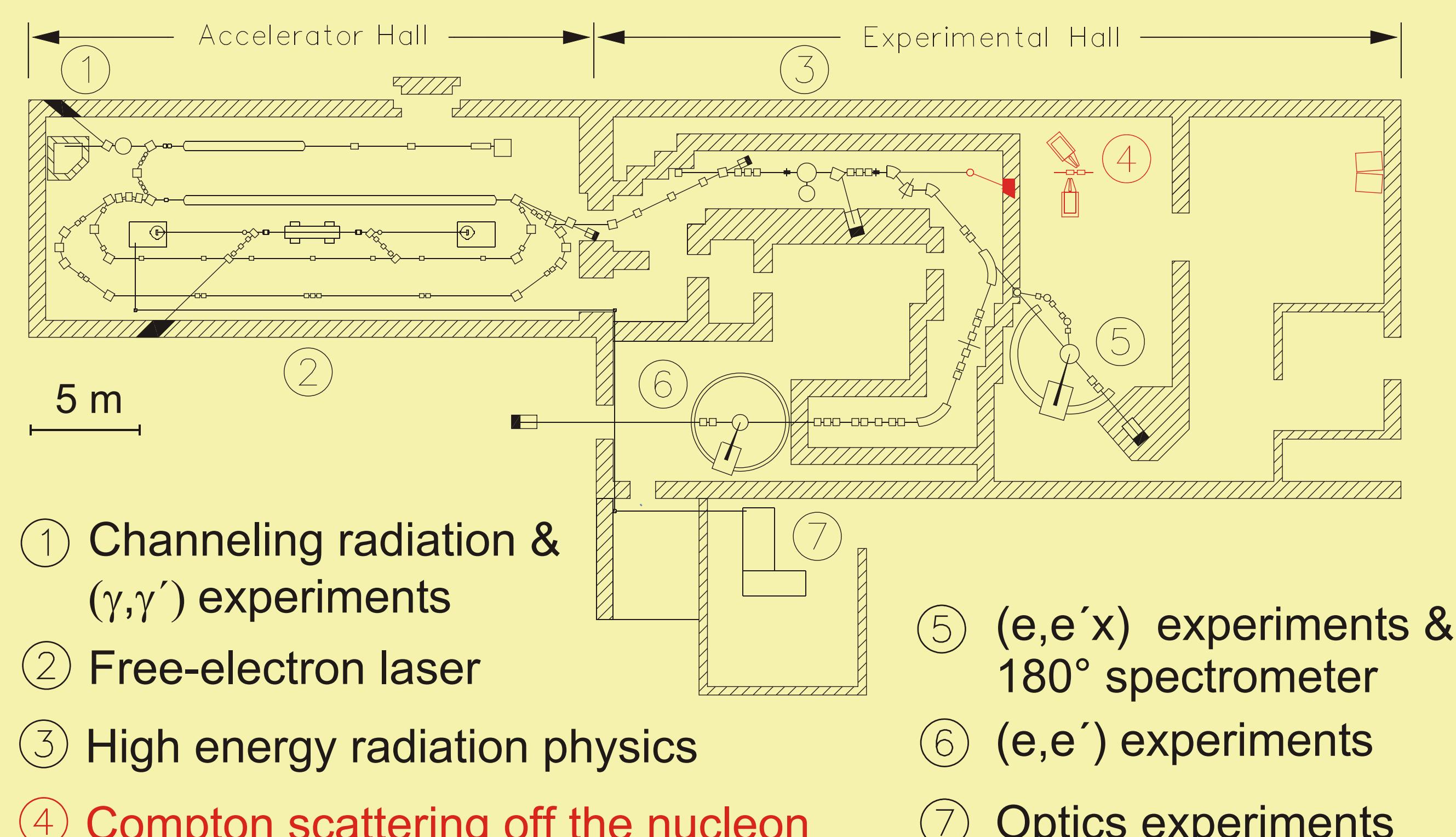
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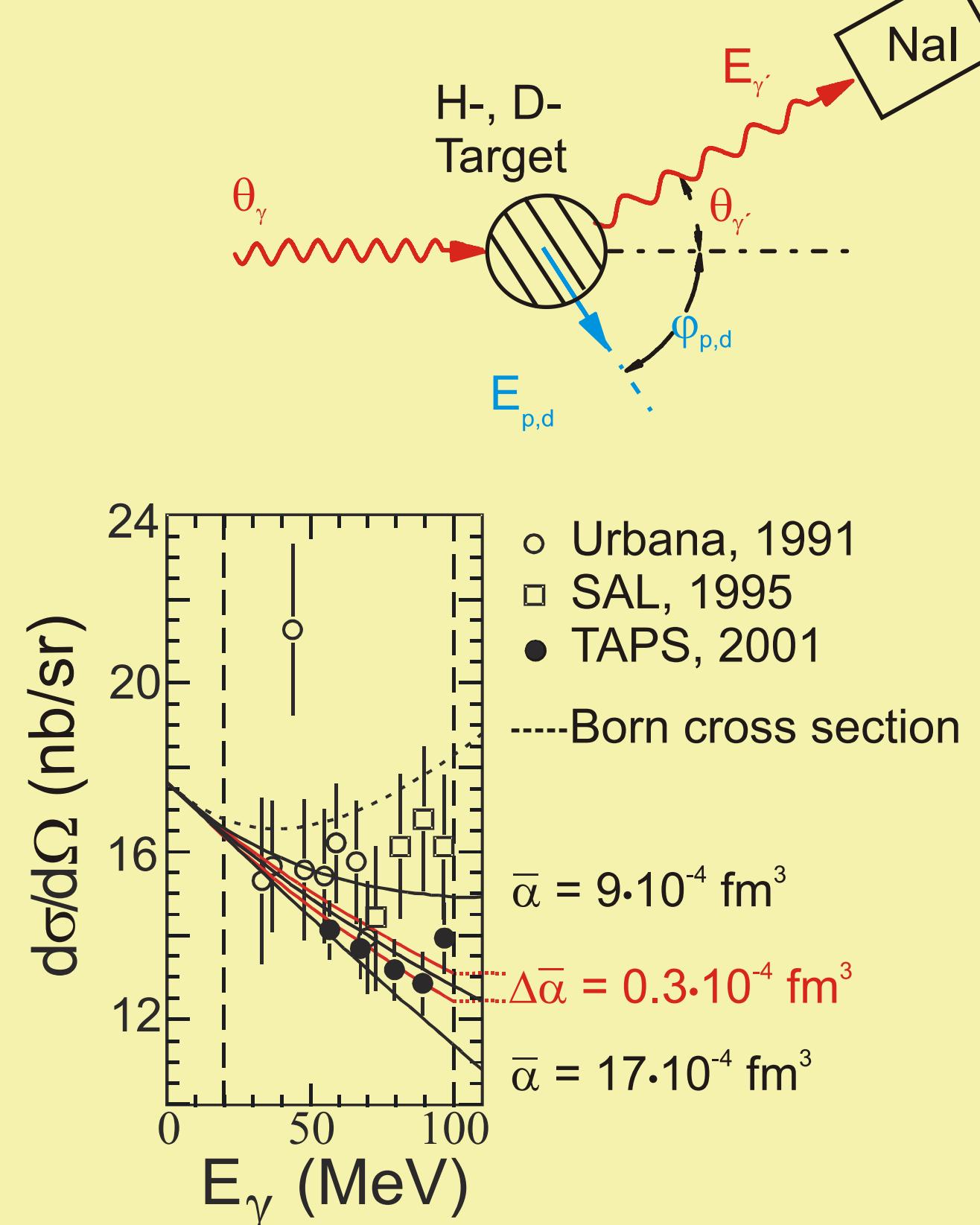
DPG - 2007
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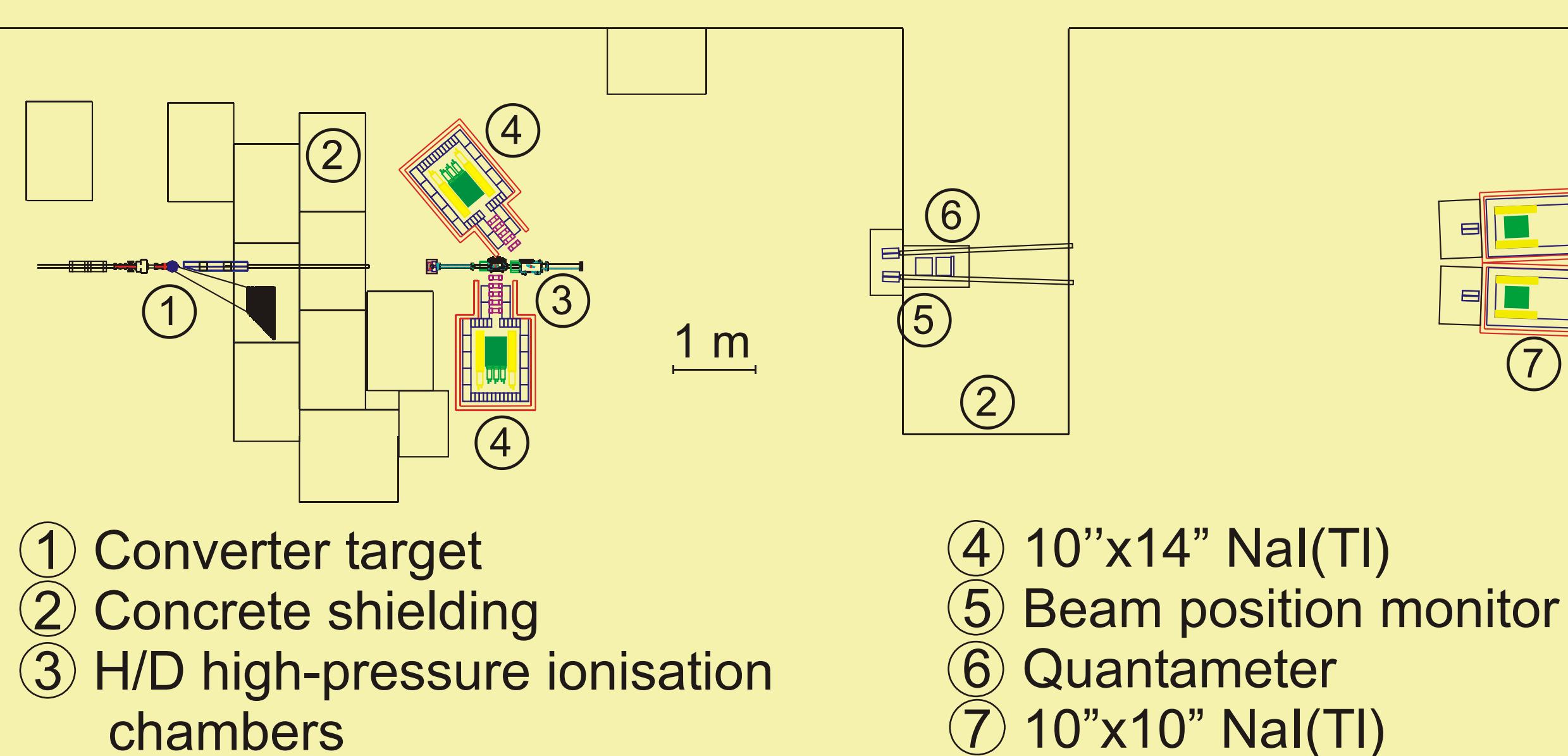
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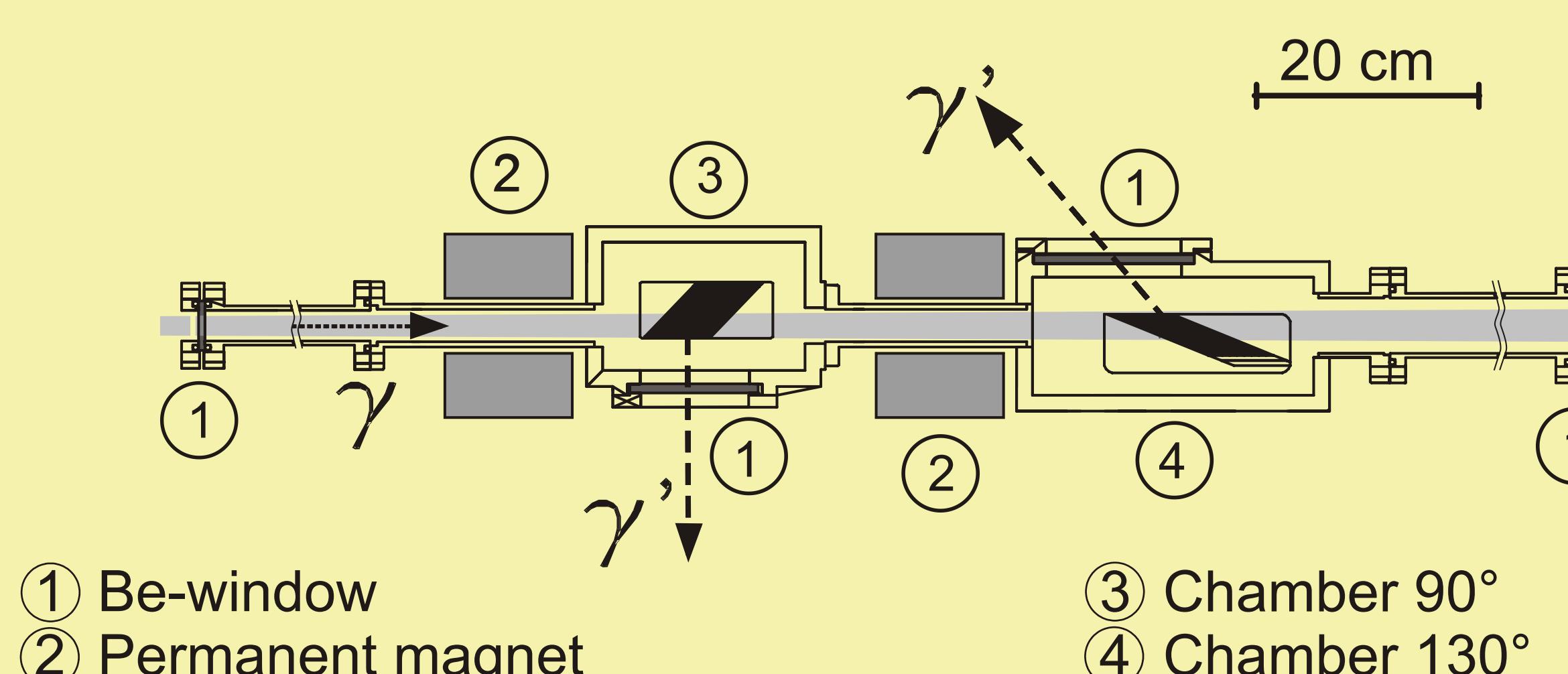
New Experimental Technique



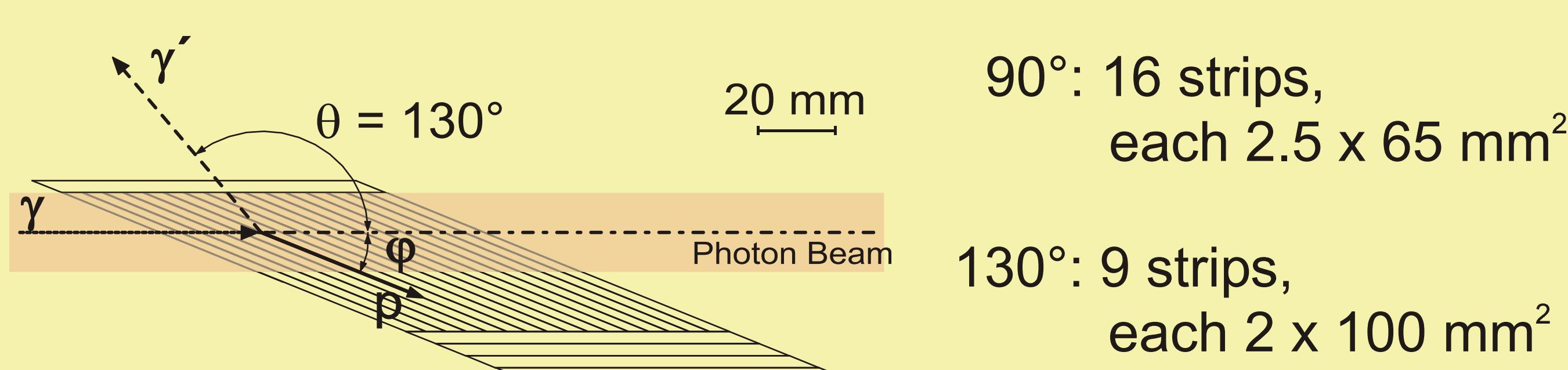
Experimental Setup



H/D High-Pressure Ionisation Chambers



Multi-Strip Anode



Simulations

Proton signal:

- Response function of NaI(Tl)
- Ionisation chamber

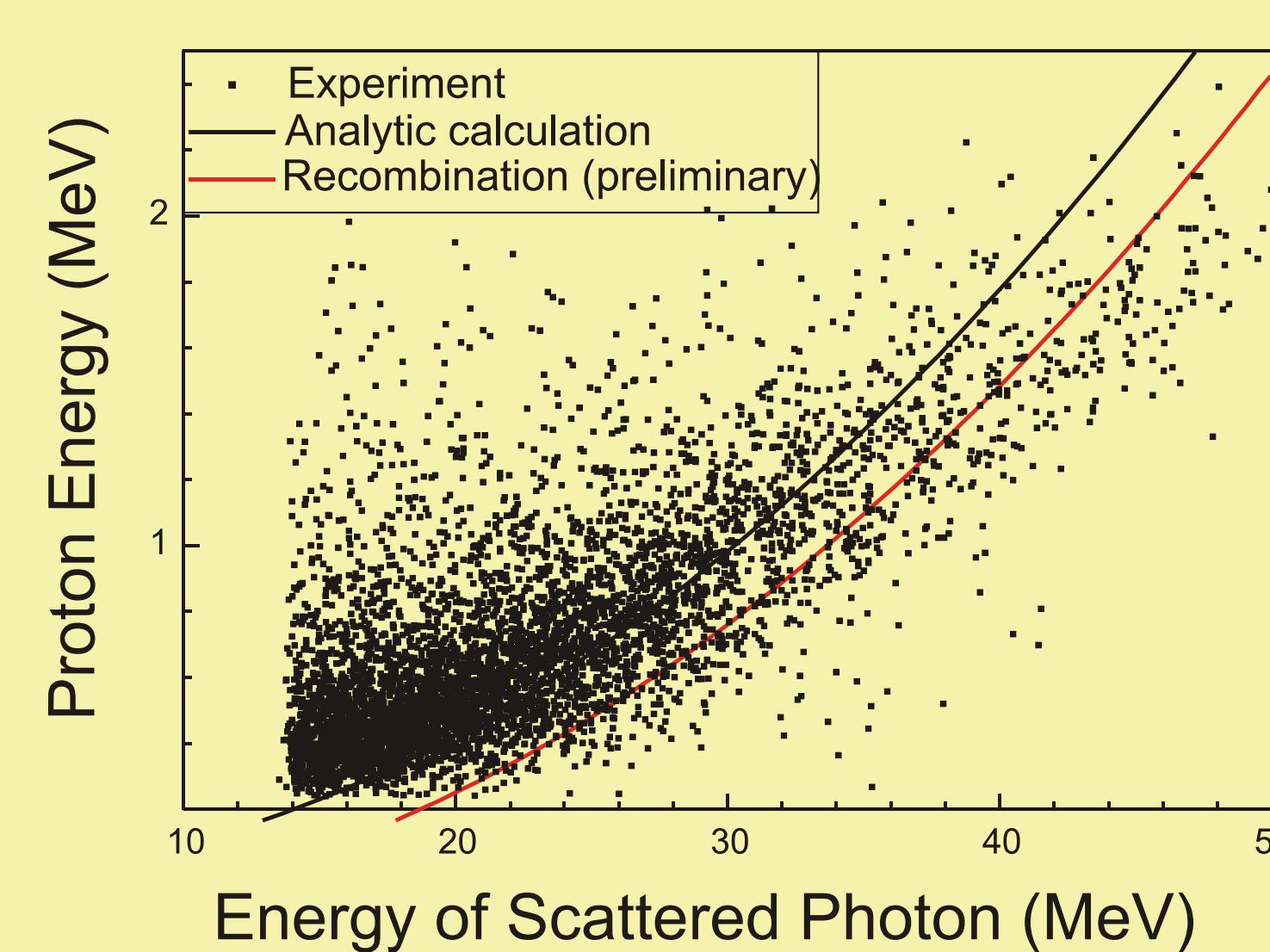
Whole setup (GEANT4):

- Bremsstrahlung production
- Collimation
- Compton scattering

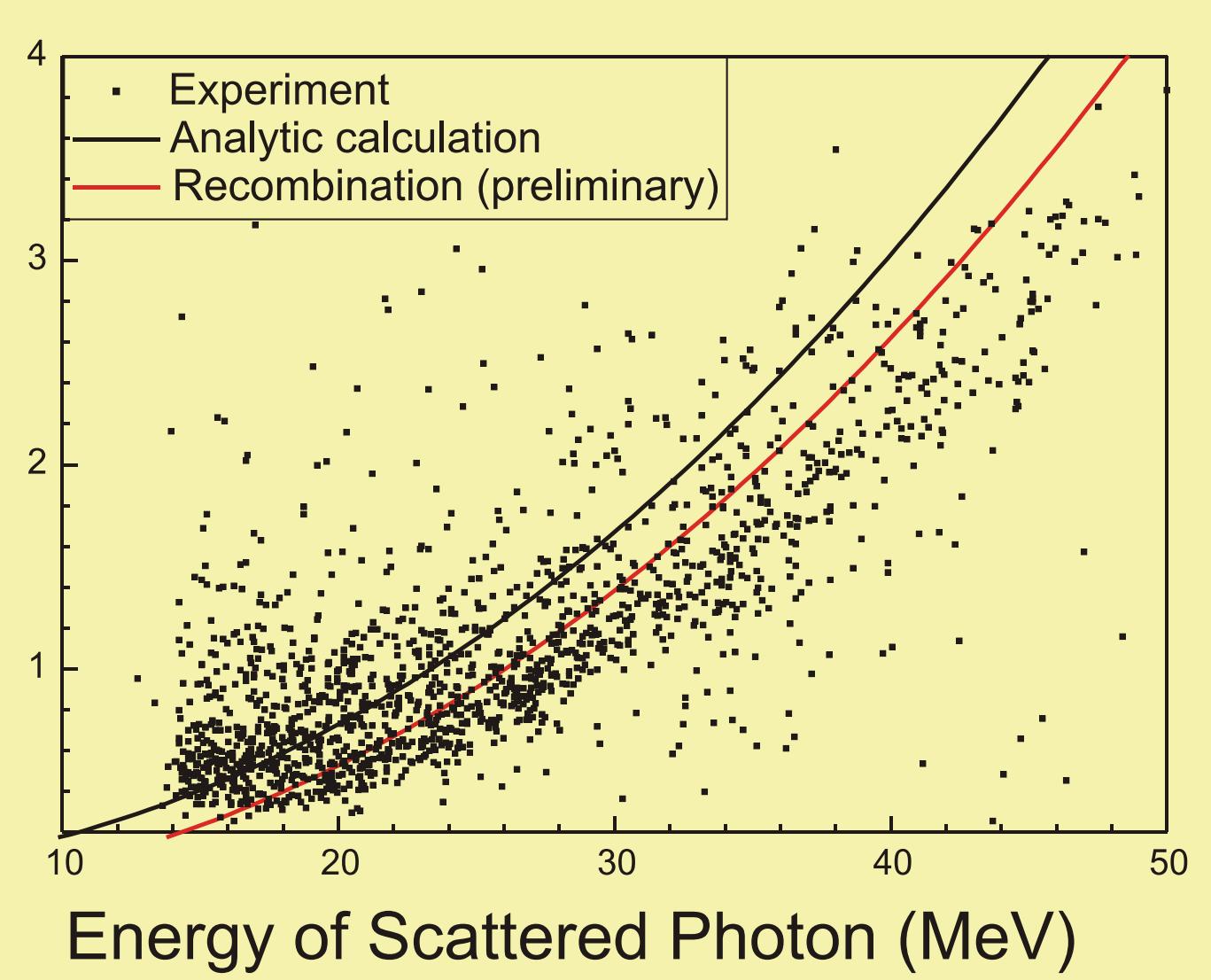
First Experimental Results

Energy correlation: experiment vs. calculation

Chamber 90°



Chamber 130°



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$$E_e = 60 \text{ MeV}$$

$$I_e = 1 - 7 \mu\text{A}$$

Beam time: 369 hours

Identified protons: 7000

Outlook

$$E_e = 80 \text{ MeV}$$

$$I_e = \text{up to } 8 \mu\text{A}$$

Beam time: 5 weeks

BETTER STATISTICS