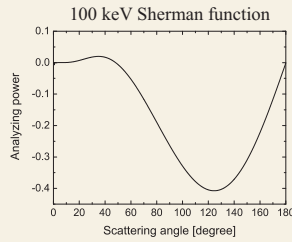
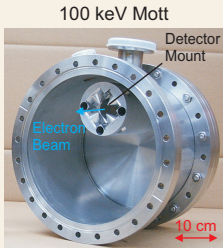


Polarimetry and Planned Experiments at the Superconducting Darmstadt Electron Linac S-DALINAC*

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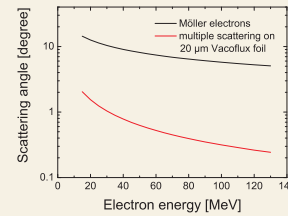
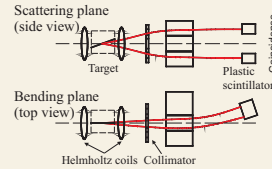
Mott Polarimeter at 100 keV and 5-10 MeV



Asymmetry $A(0) = (13.8 \pm 0.4)\%$
 Spin polarization
 - Bulk: $P = (35.5 \pm 1.4)\%$
 - Superlattice: $P = (86 \pm 3)\%$

5-10 MeV Mott polarimeter design
 Sherman function: min at 173° or more
 Difficult geometric shape
 Selected detector angle: 165°

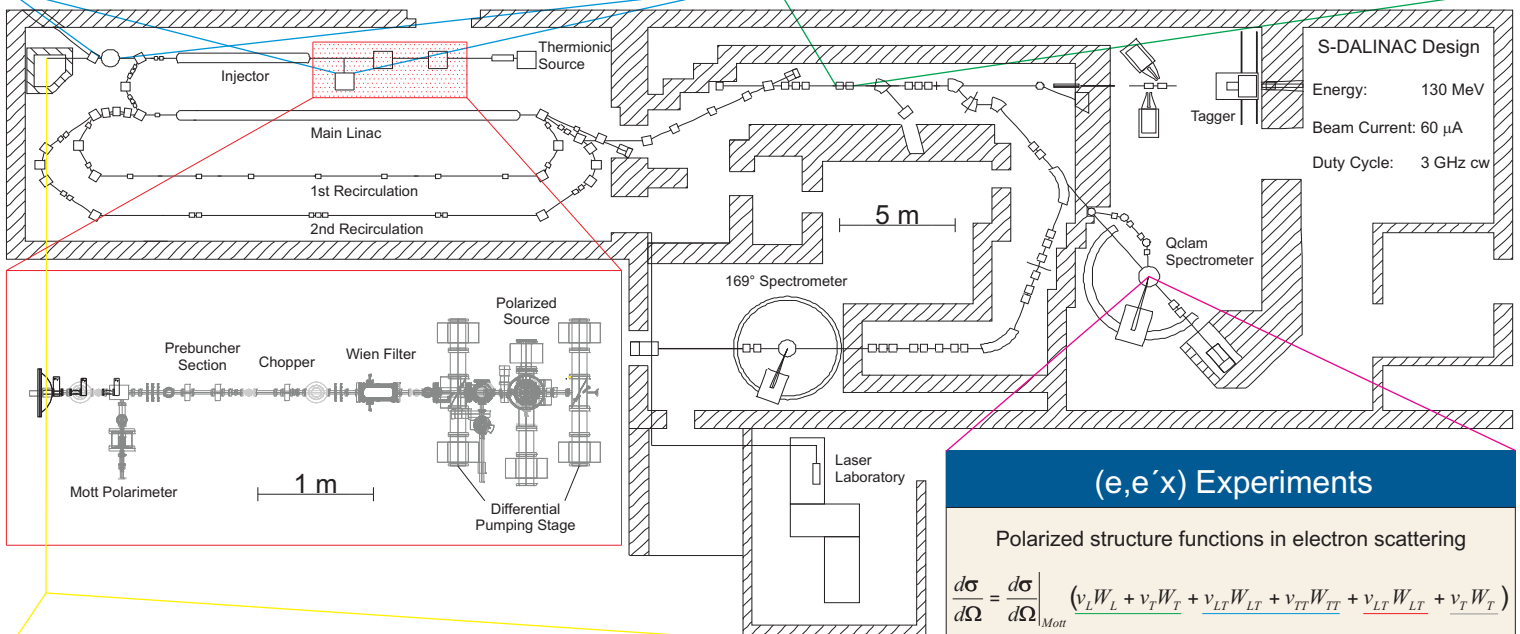
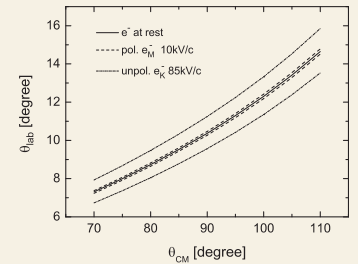
Möller Polarimeter at 30-130 MeV



Polarization dependent cross section

$$\frac{d\sigma}{d\Omega} = \left(\frac{d\sigma}{d\Omega}\right)_{unpol} \left[1 + \sum a_{ij} P_i^B P_j^T\right]$$

Möller scattering angle



Photofission

Polarized bremsstrahlung for fission of ^{238}U

Active target setup

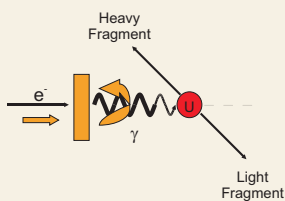
Parity violation experiments

Neutron induced fission
 - Thermal neutrons

Neutron scattering
 - Low-lying resonances

Effects in the order of 10^{-4}

Alternate probe: photons



Solid target sensitivity: 10^{-3}

Yield estimate: $0.1/(\mu\text{A s})$

Improvement: gas target device

Gas mixture of $^{238}\text{UF}_6$ and Argon?

(e,e'x) Experiments

Polarized structure functions in electron scattering

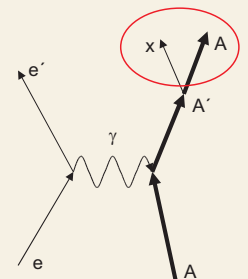
$$\frac{d\sigma}{d\Omega} = \frac{d\sigma}{d\Omega}_{Mott} \left(v_L W_L + v_T W_T + v_{LT} W_{LT} + v_{TT} W_{TT} + v_{LT} W_{LT} + v_T W_T \right)$$

Inclusive scattering

Exclusive scattering

Polarized scattering
 P or T violation
 Final state interaction

Polarized targets
 Polarization transfer



Measurement of fifth structure function at low momentum transfer

Break-up reaction of ^3He for investigation of three-body force

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