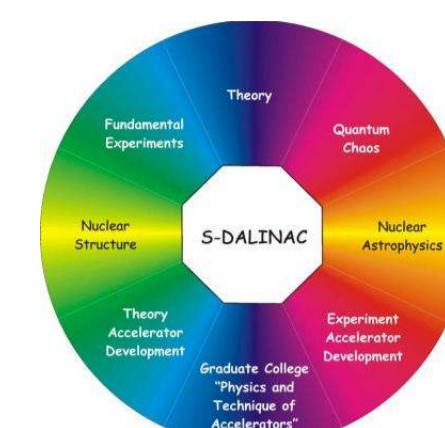


Breakup reactions ($e, e' pp$) on ${}^3\text{He}$

Simela Aslanidou, Jonny Birkhan, Anna-Lena Hartig, Thorsten Kröll, Dirk Martin, Peter v. Neumann-Cosel
Gabriel Schaumann and Mirko v. Schmid

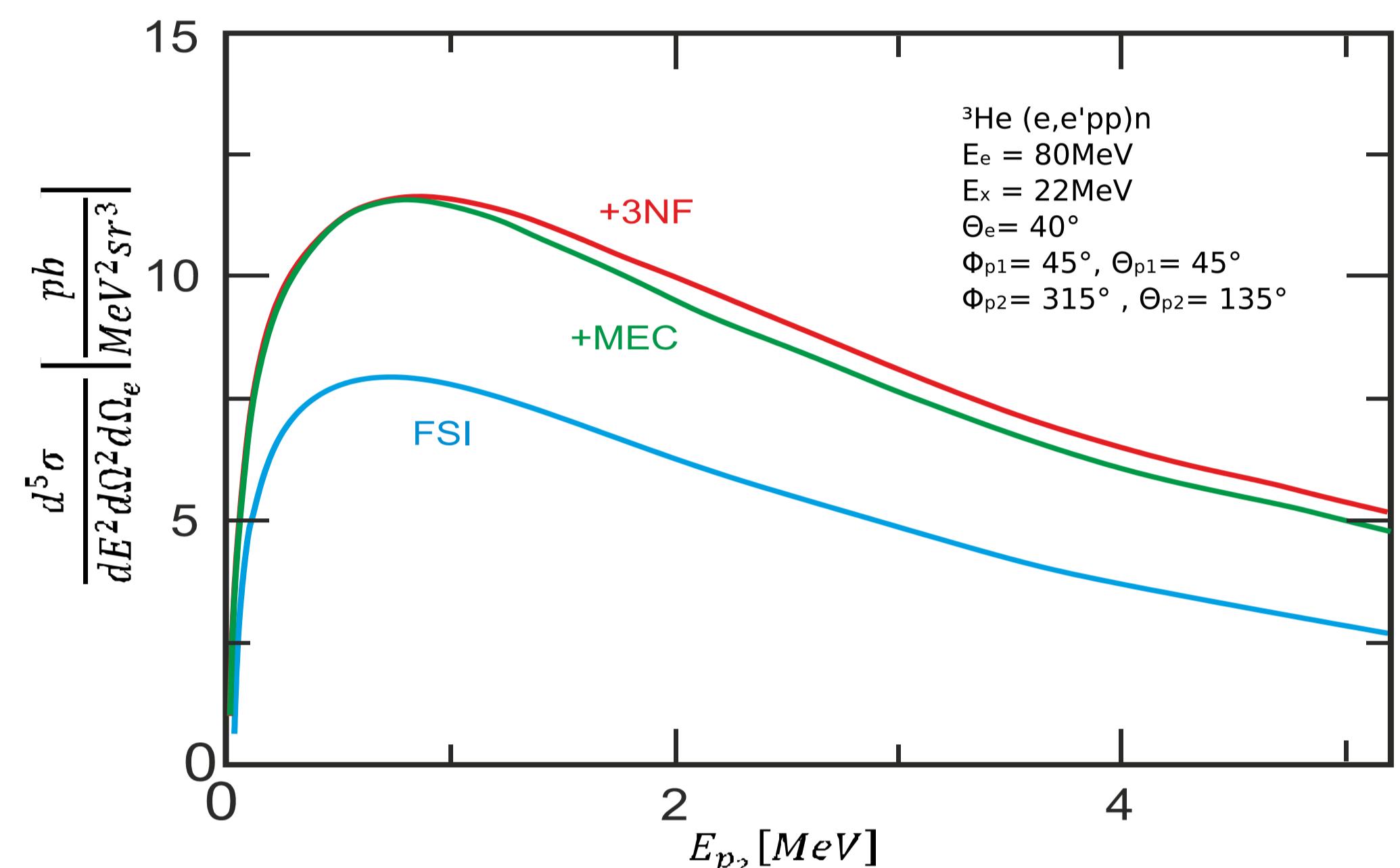
Institut für Kernphysik, Technische Universität Darmstadt



1| Motivation

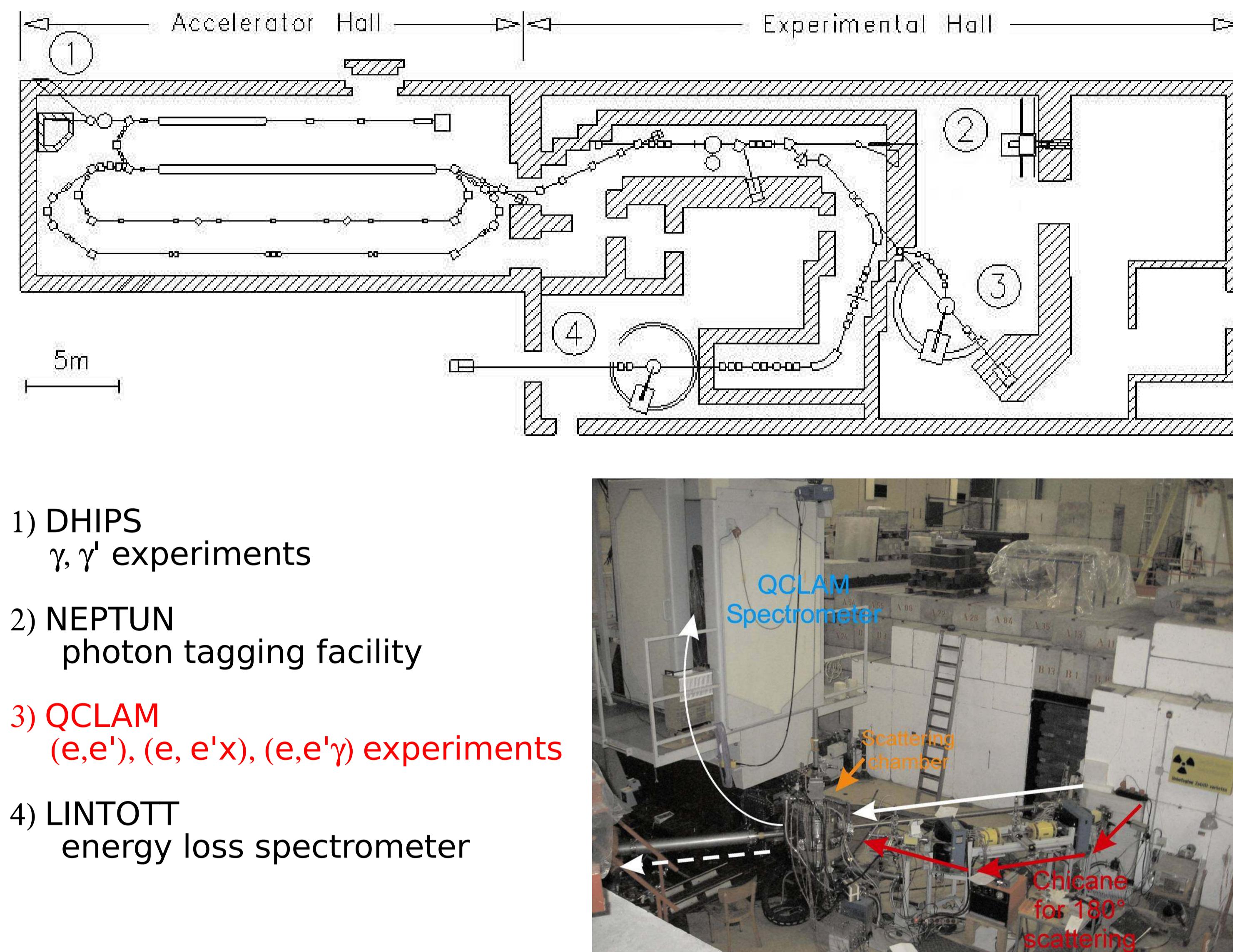
An experiment on the exclusive ${}^3\text{He}(e, e' pp)$ reaction with low momentum transfer Q is planned at the superconducting electron-accelerator S-DALINAC in Darmstadt

- ~ No data for complete kinematics available
- ~ Probing the role of final-state interactions, meson-exchange current and the 3N-forces[1]



Calculated fivefold diff. cross section for the S-DALINAC kinematics [1]

2| Experimental area



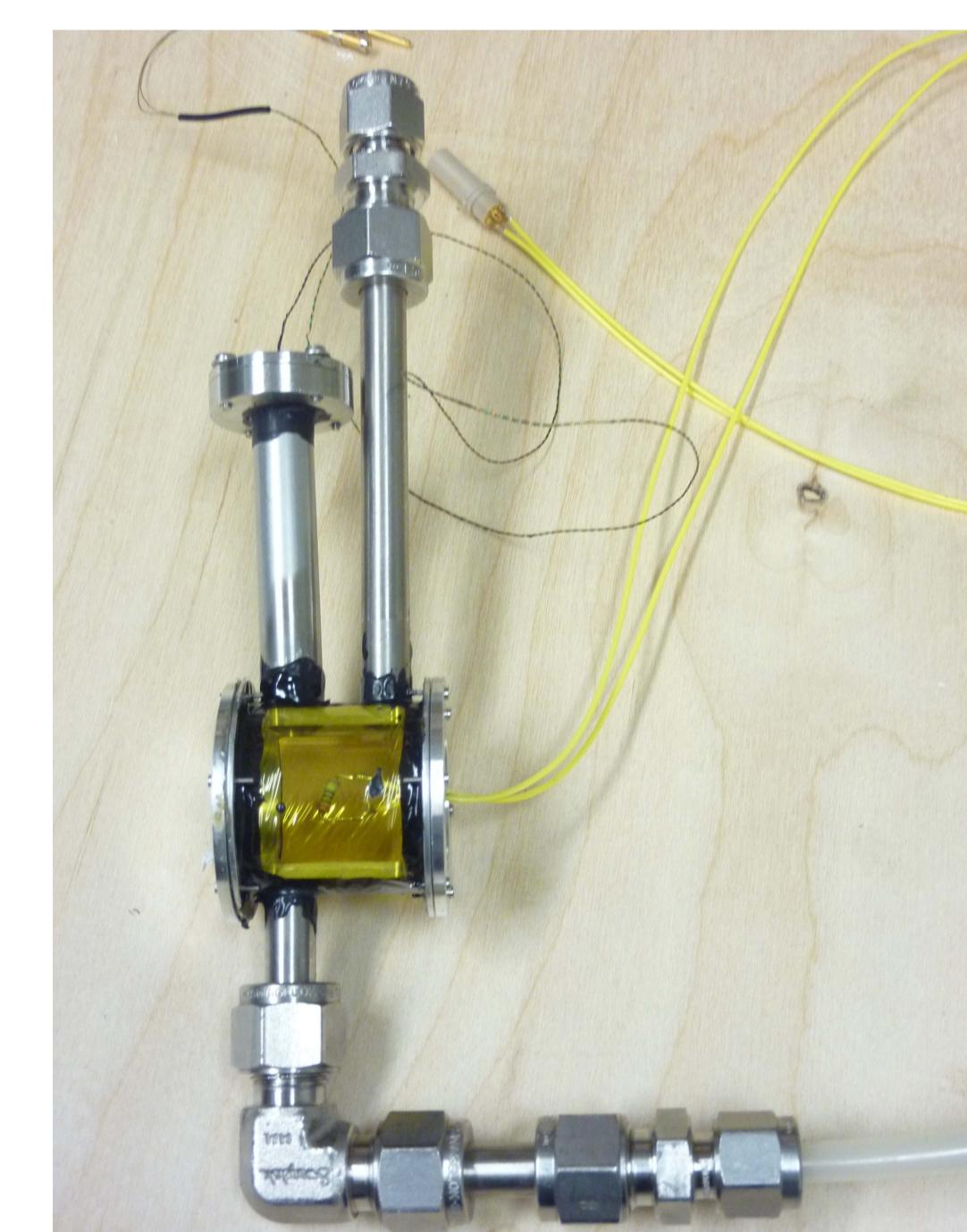
3| Test setup and target design



Test chamber for pressure and cooling tests

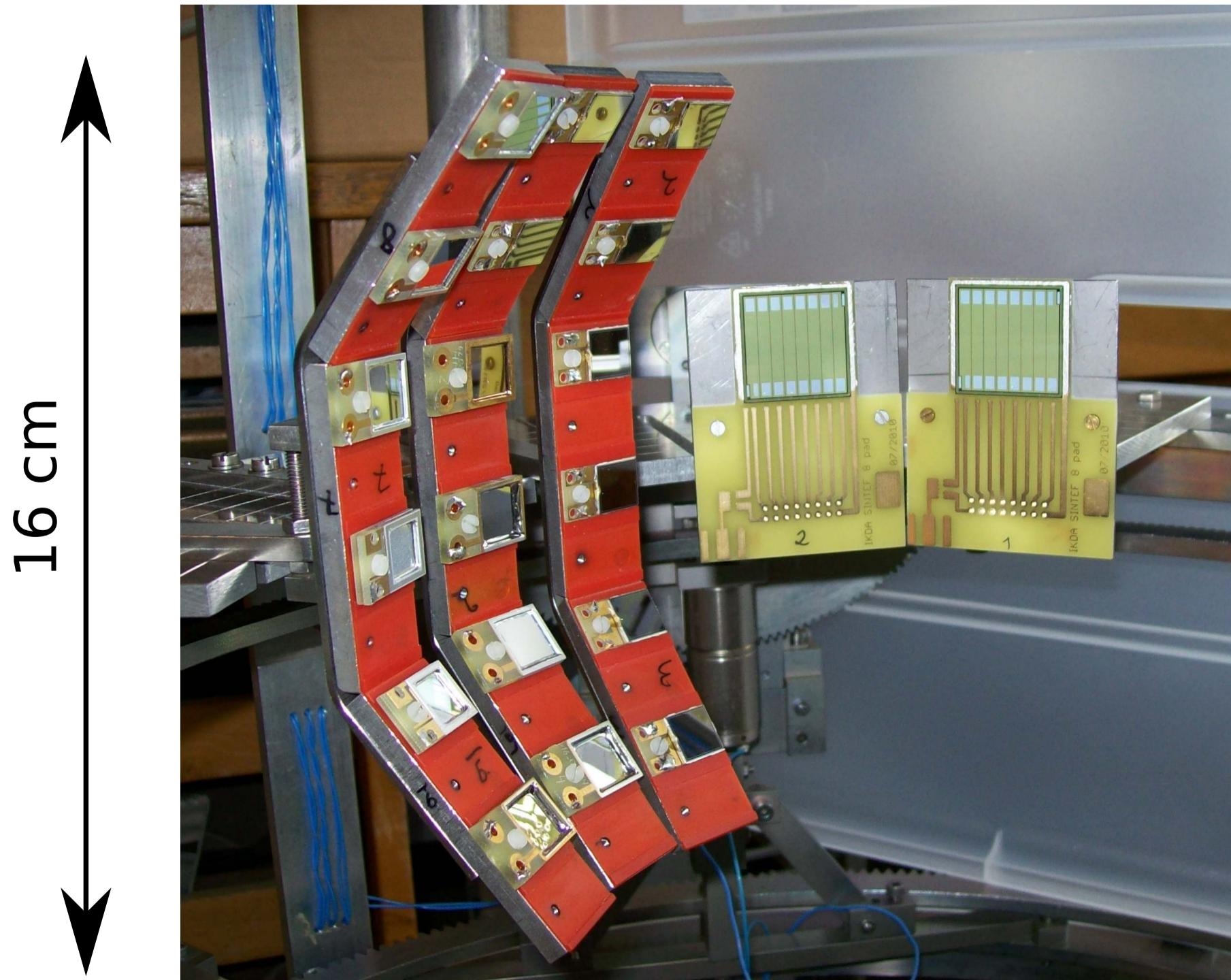
A concept for the target has been developed in [2].

- Energy of the protons $\sim 10\text{ MeV}$
↳ thin foil gas cell
to provide proton detection
- scattering rate $\dot{N} \sim p \sim \frac{1}{T}$
pressure limited → low-temperature-target
- Energy deposit of the electrons in the gas
requires cooling
pressure limited → free convection



Target prototype

4| Detection



Silicon detector array

Requirements

- ~ Large phase space coverage due to small cross sections.
- ~ Flexible mounting to enable correct adjustment for different setups

The silicon detector array for the detection of the breakup products is already set up.
The characterisation of the detectors has been performed by [3].

