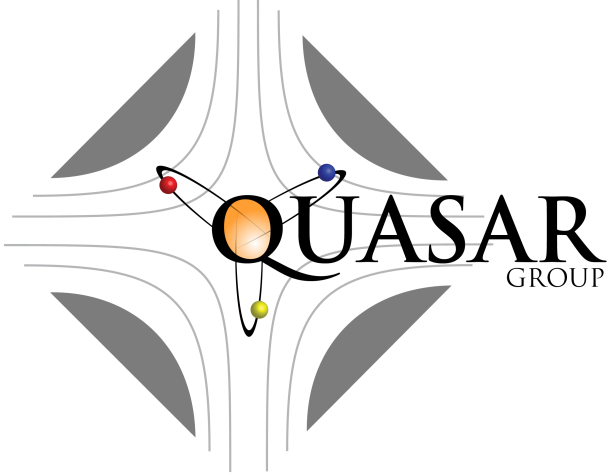


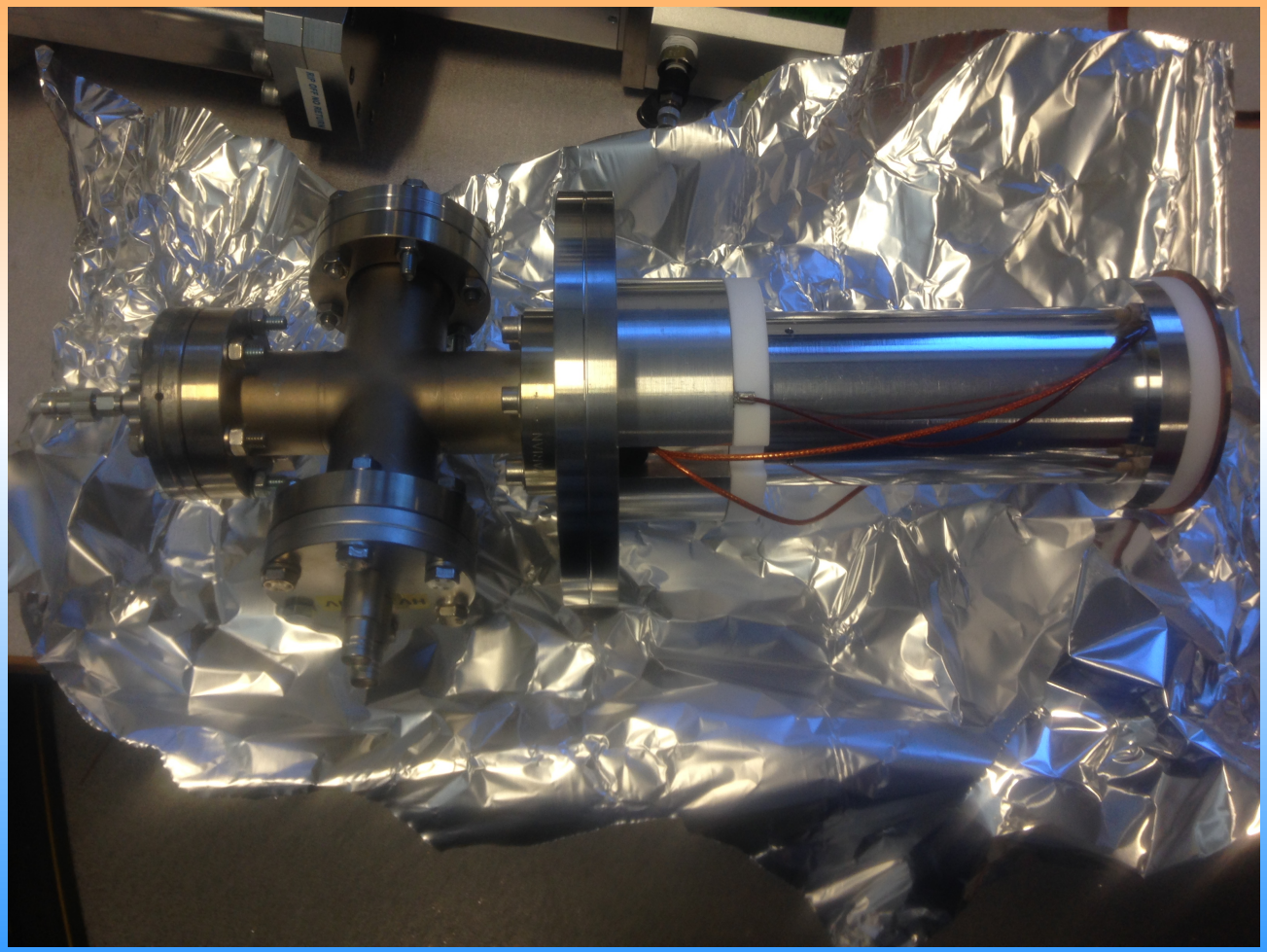
UNIVERSITY OF
LIVERPOOL

The Cockcroft Institute
of Accelerator Science and Technology

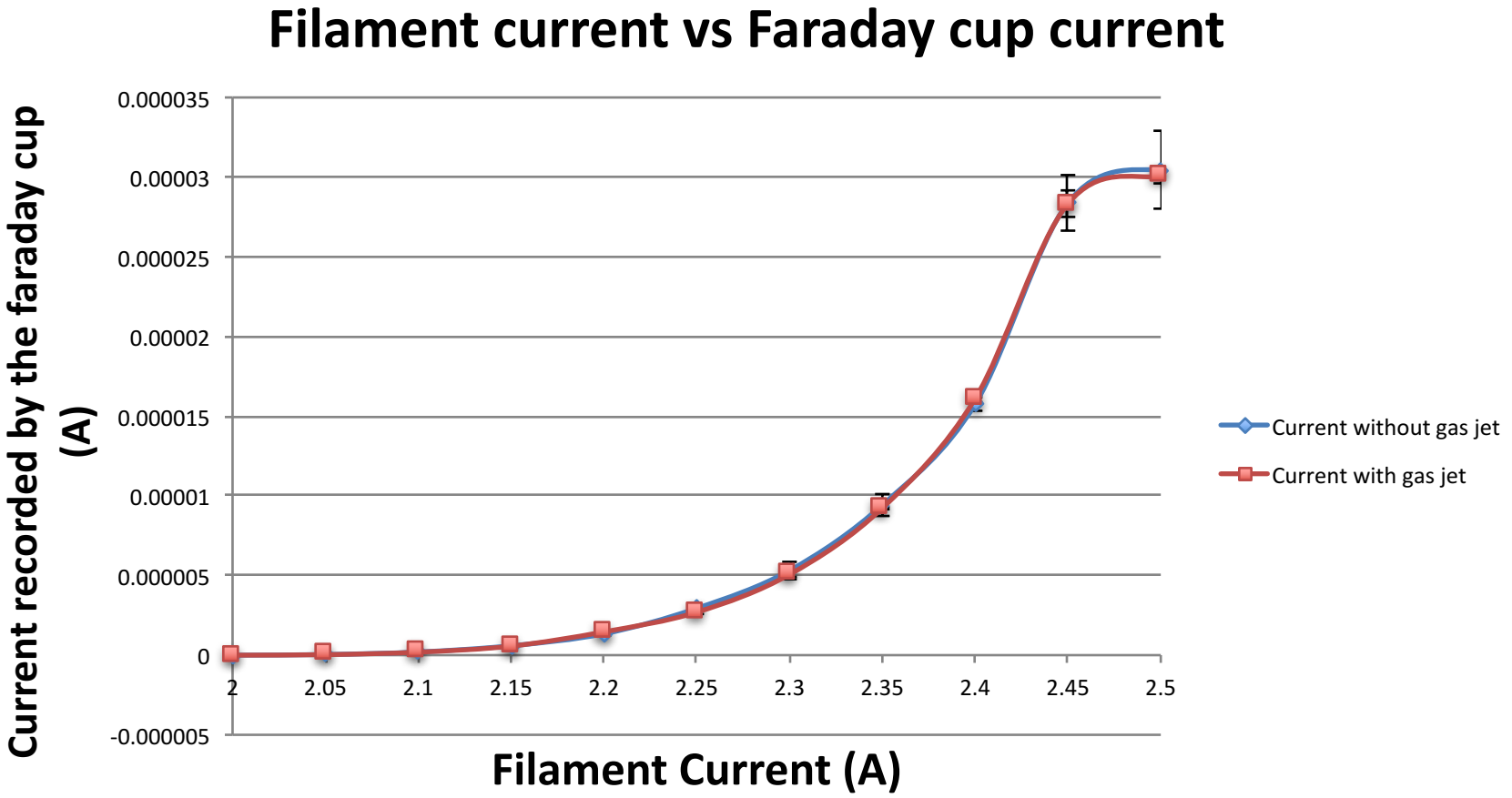
Project Update

Edward Martin

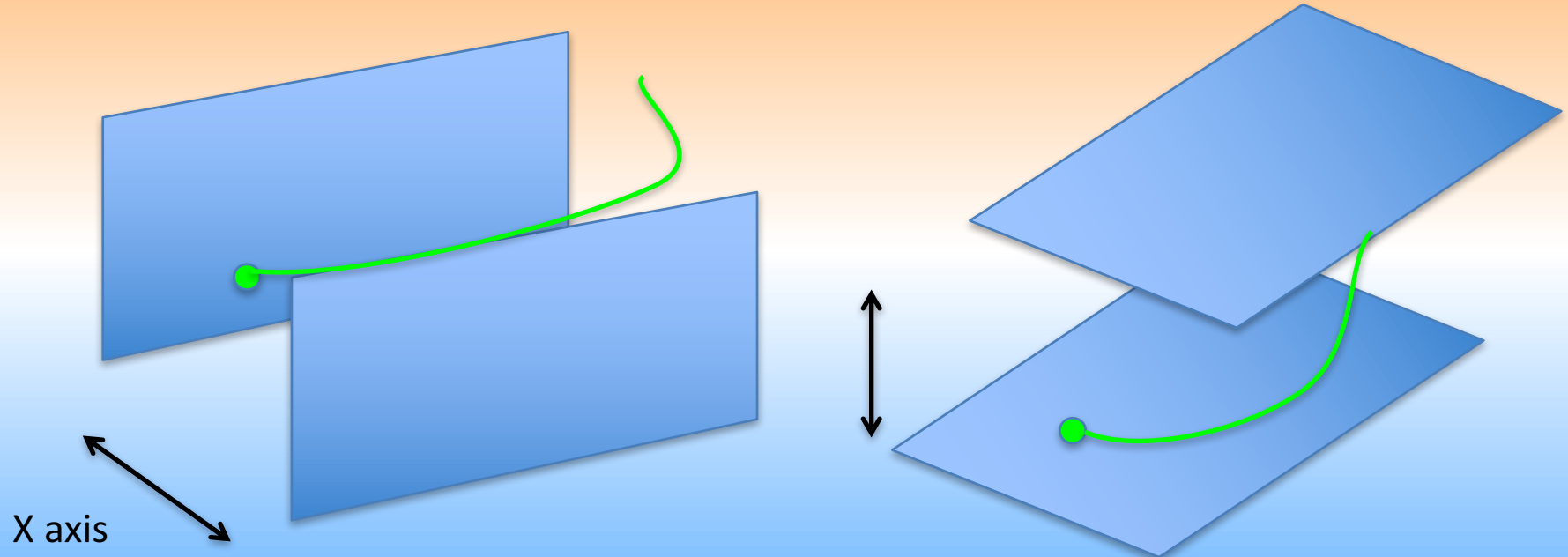
Faraday cup



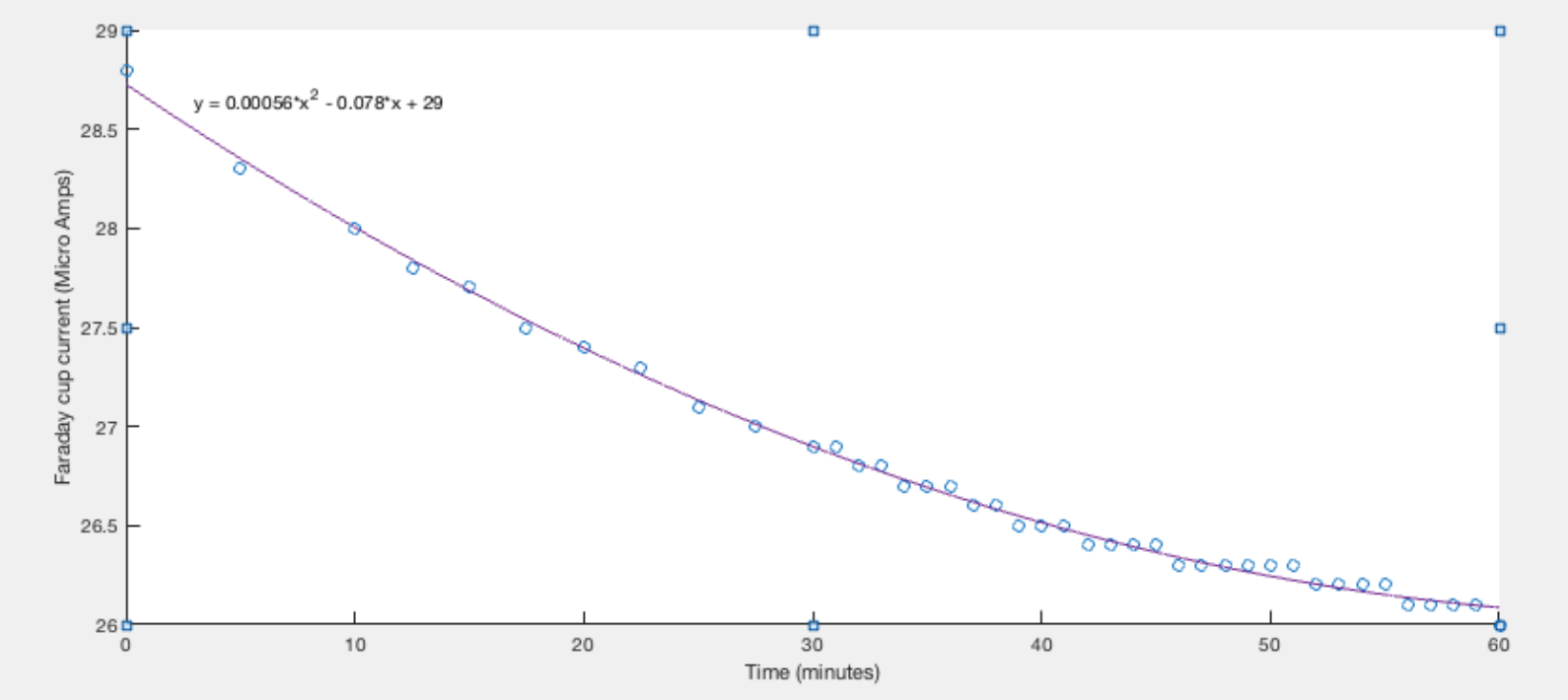
Testing the Faraday Cup



Scanning x-y deflection



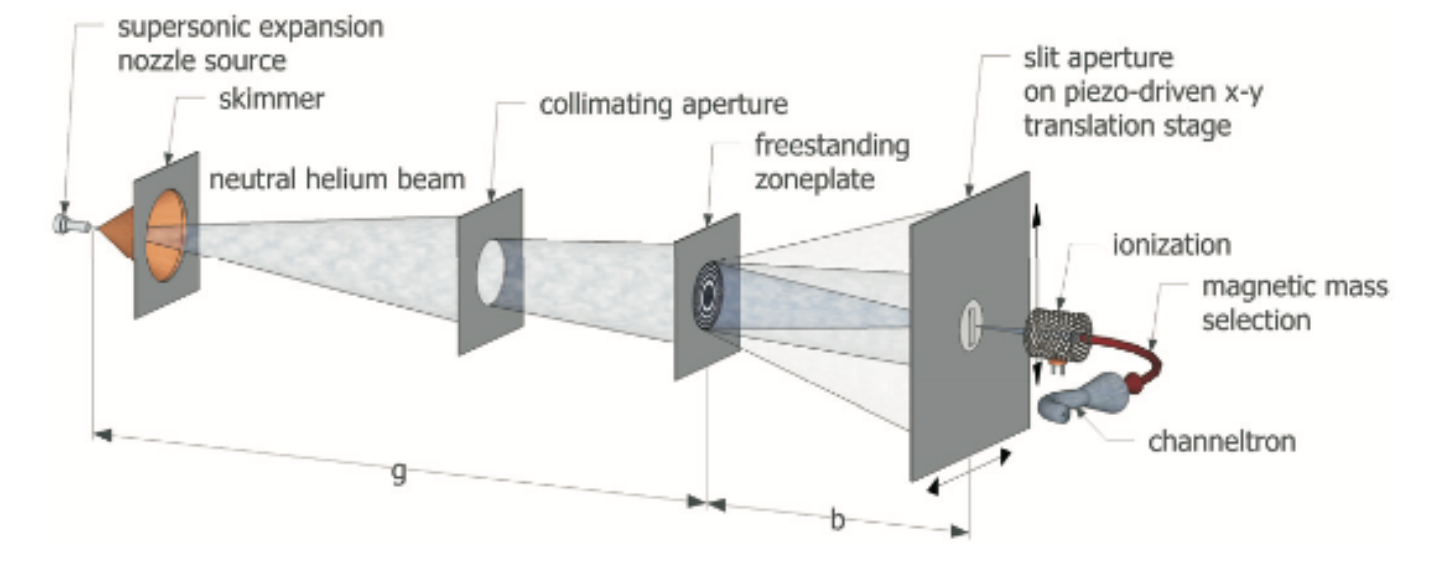
Influence of gas jet on current over time



Recent work and 6 month plan - The move and new set up

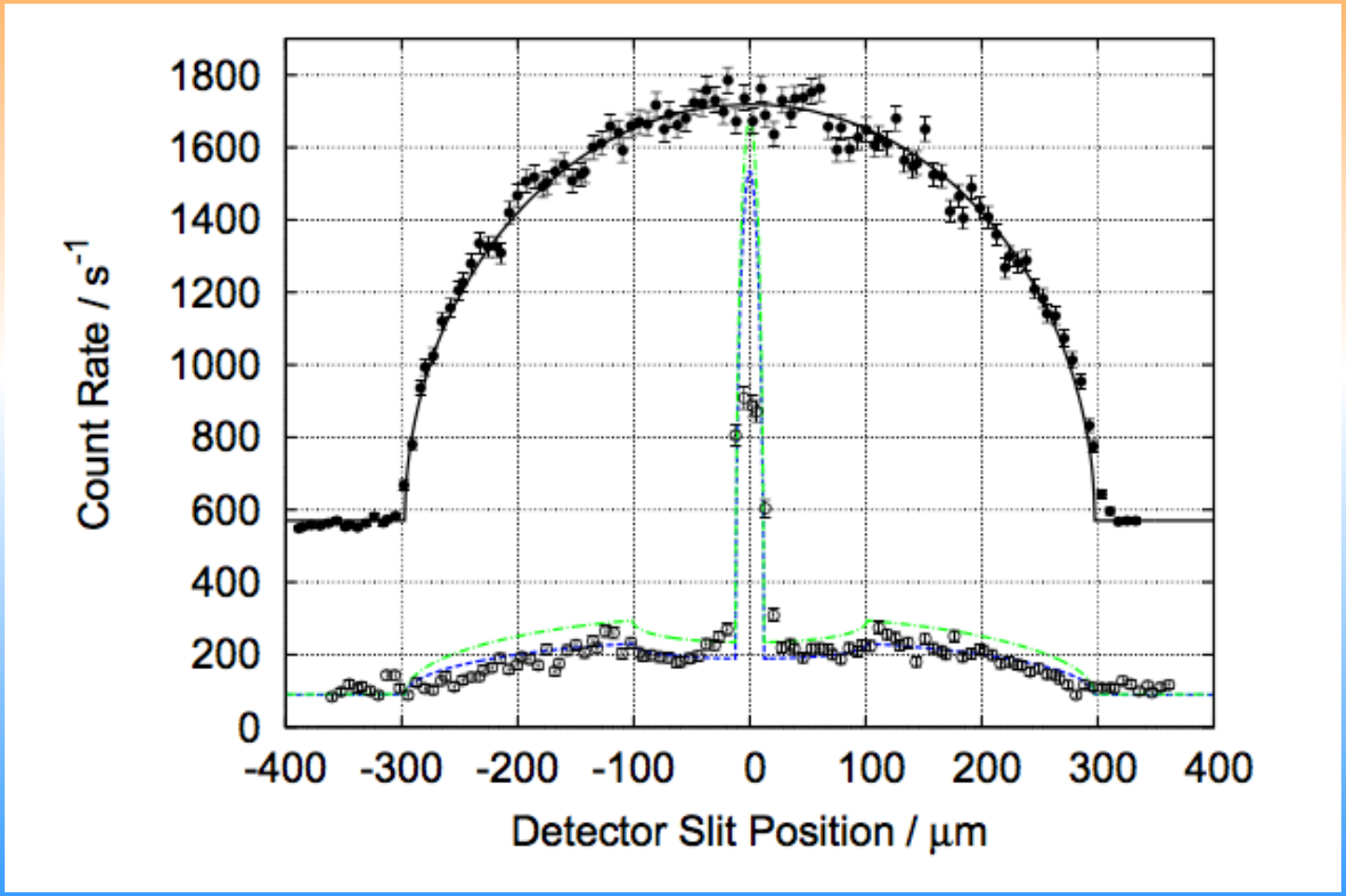
- Measurements with Faraday Cup showed good stability of electron beam during sweeps and over time
- Continued measurements with vacuum gauge, currently analysing data
- Expected move date 20th Feb – mid March.
- Waiting for new electron gun.
- Obtaining quotations for vacuum parts, target delivery in May/June
- Assemble the new gas jet over the summer
- Incorporation of a mass spectrometer to measure gas jet width

Mass spectrometer

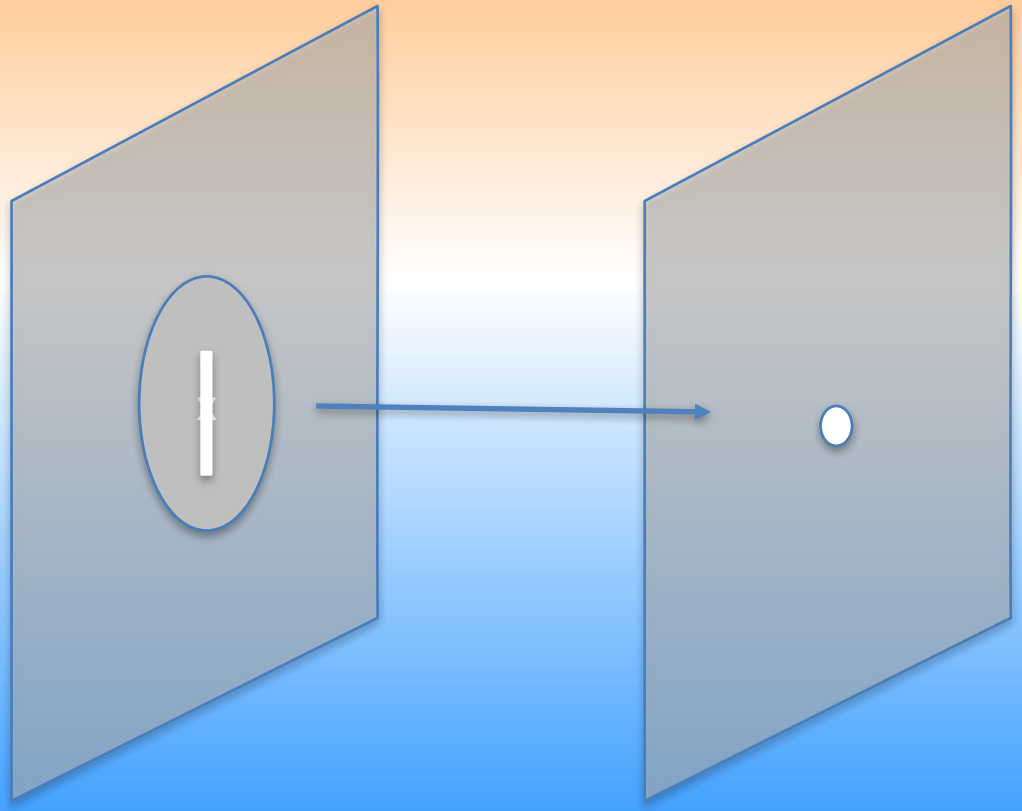


S D Eder, T Reisinger, M M Greve, G Bracco, B Holst. Focusing of a neutral helium beam below one micron "Focusing of a neutral helium beam below one micron" Department of Physics and Technology, University of Bergen, Allegaten 55, 5007 Bergen, Norway

Slit scan


Count Rate / s-1
1800
1600
1400
1200
1000
800
600
400
200
0
-400
-300
-200
-100
0
100
200
300
400
Detector Slit Position / µm

From a slit to a pin-hole



Simulation studies

- Have model of the electric field distribution in the setup which allows tracking
- Have done initial simulations into gas jet dynamics using Gas Dynamics toolkit and STFC in-house software
- Looking for comprehensive simulation toolkit, which could involve MolFlow (currently recruiting PhD student).