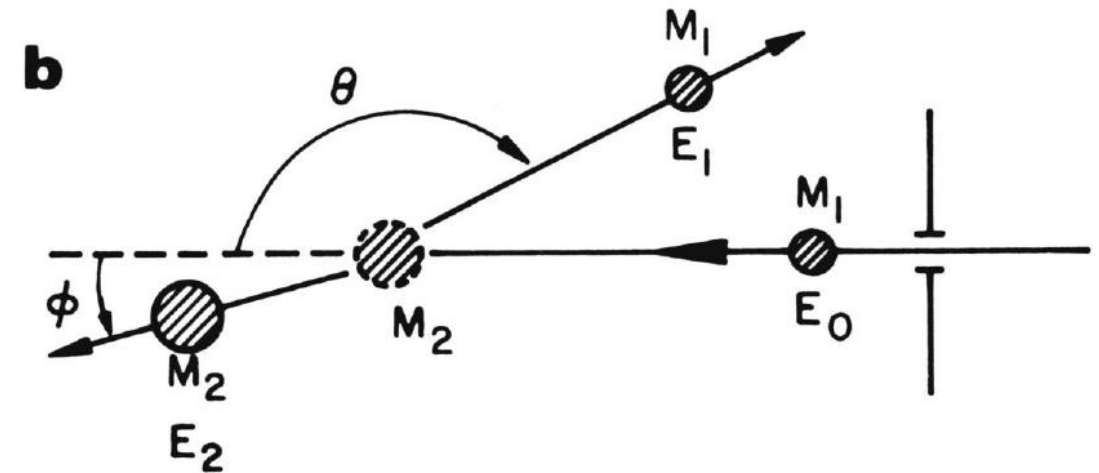


# RBS on the 90keV Au-197 sample

Michael Heines

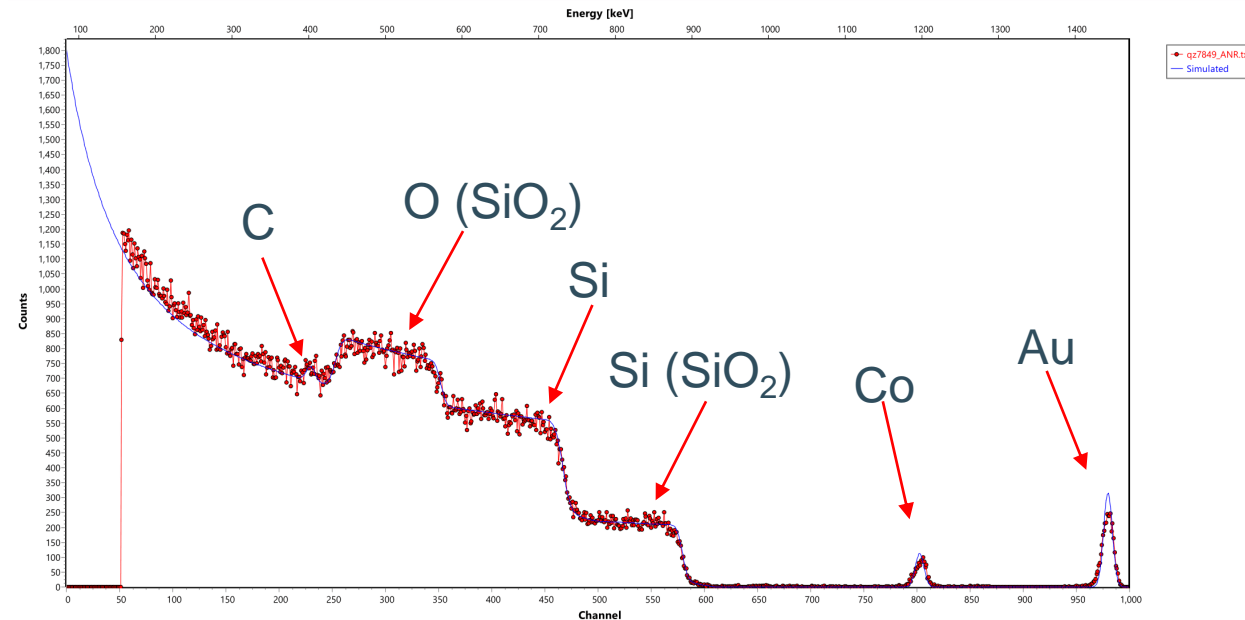
# Concept of RBS

- Low mass ions on heavier target
- Breach through electron screening
- $\sim 2 \text{ MeV } ^4\text{He}^+$
- Measure energy  $\rightarrow$  Info on present elements
- Measure relative count rates  $\rightarrow$  Information about concentrations
- Stopping effects induce widened structures  $\rightarrow$  Depth dependence



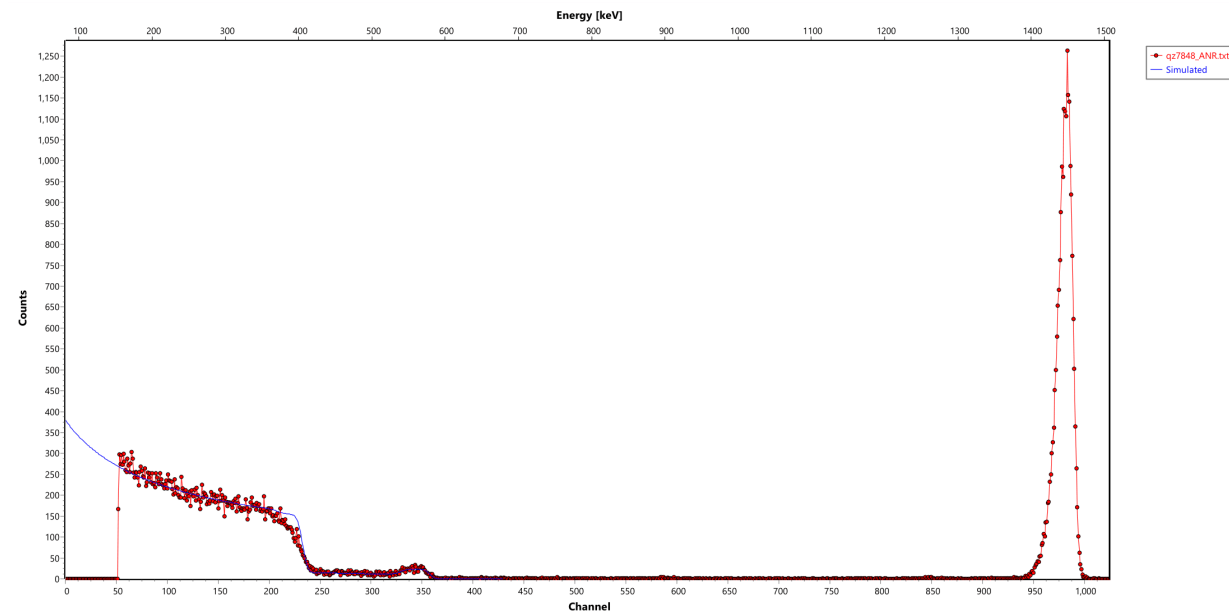
# Calibration sample

- Si/SiO<sub>2</sub>/Au-Co
- 1.57 MeV <sup>4</sup>He scattered at 161.5°
- Old calibration sample → Thin layer of carbon on top
- Not accounting for carbon → GC sample had gold implanted at negative depths
- Fit layered spectrum with SIMNRA



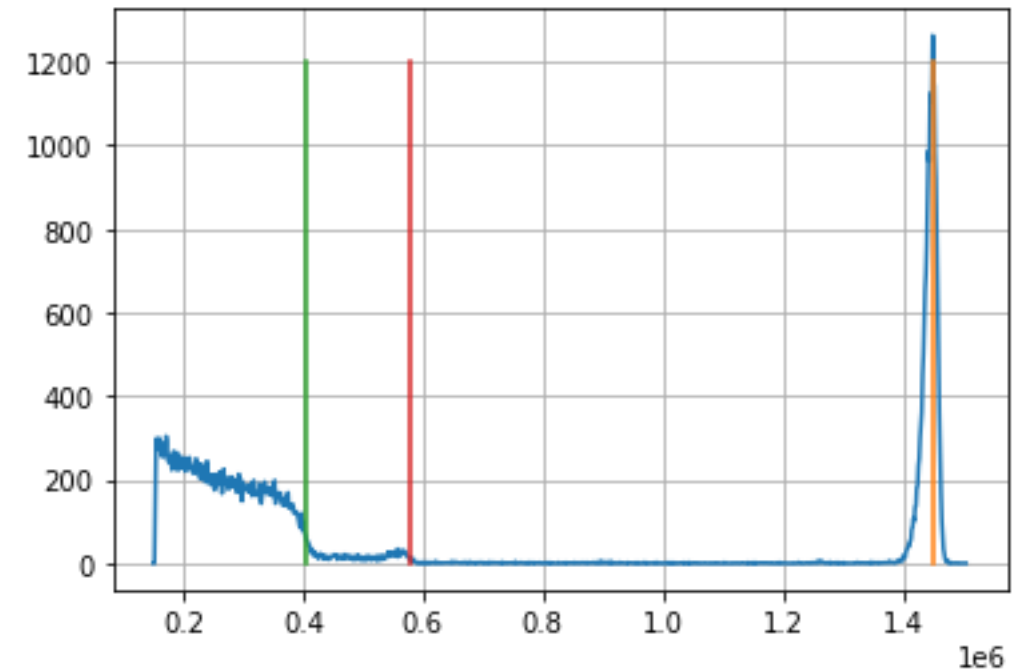
# Glassy carbon sample (ongoing)

- 90 keV sample from Surrey
- Clear presence of carbon, oxygen and gold
- Oxygen most likely between grain boundaries in the glassy carbon
- Measure “empty” sample to compare

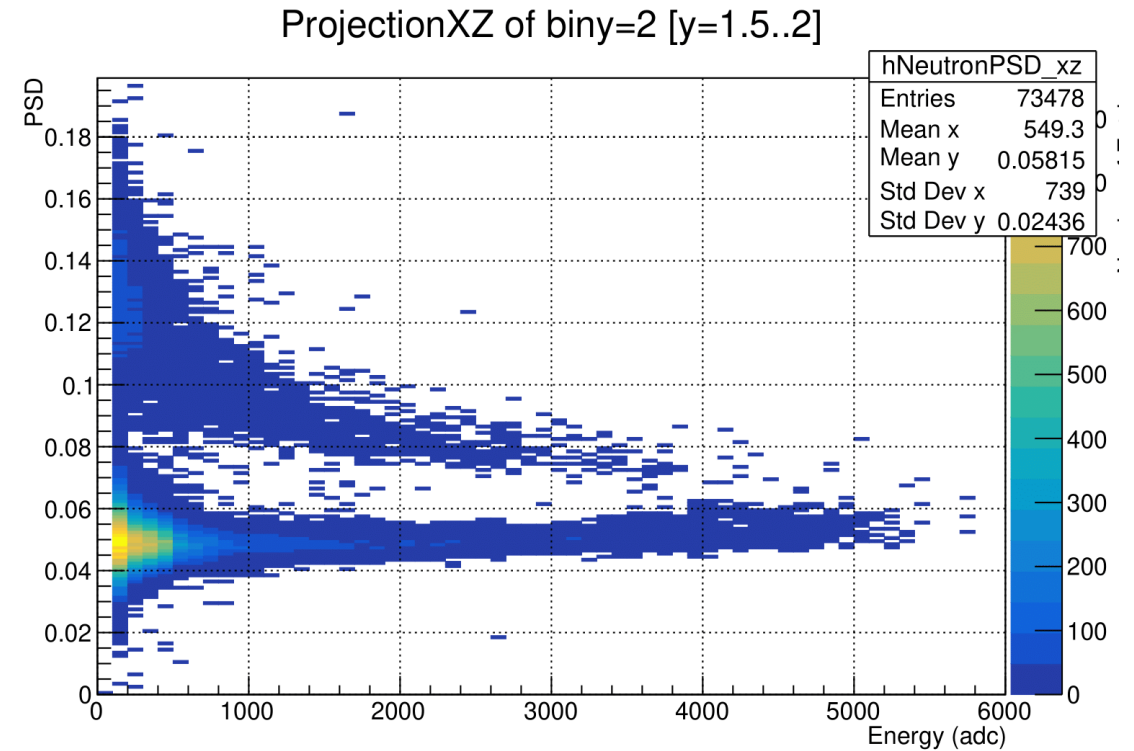
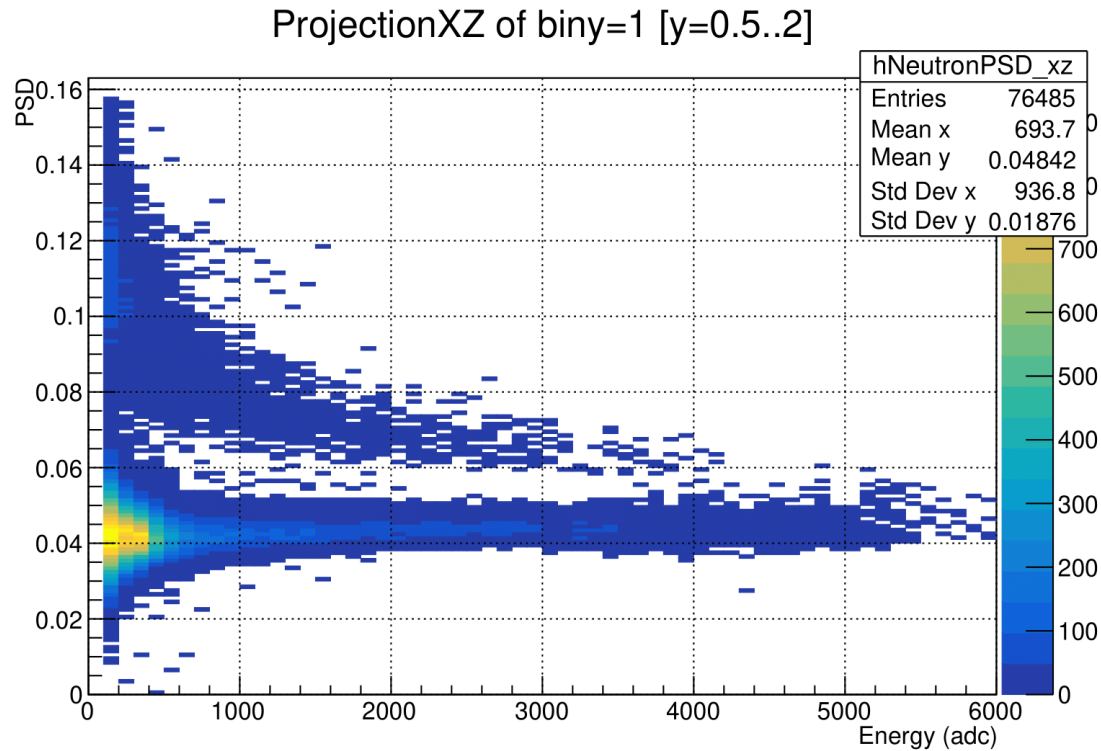


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- Clear presence of carbon, oxygen and gold
- Oxygen most likely between grain boundaries in the glassy carbon
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# Neutron PSD overflows



# What's next?

- Sample preparation
  - Extract implanted fraction and implantation profile
  - Measure “empty” sample
  - More samples from Surrey/Dresden/Leuven
- Neutron Analysis
  - Recover more overflows → Fit waveform to extract rise time
  - Correlation histograms?

