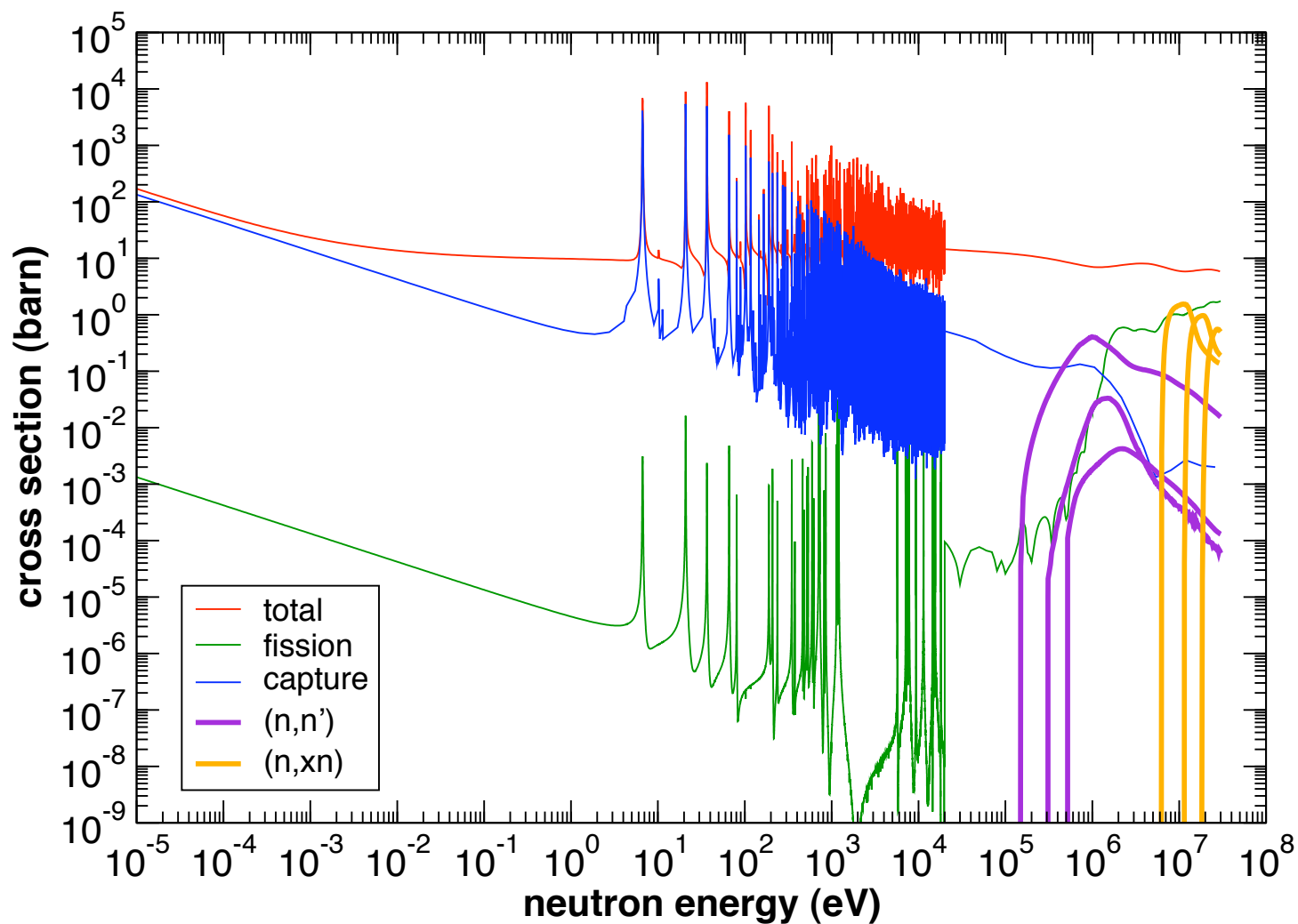
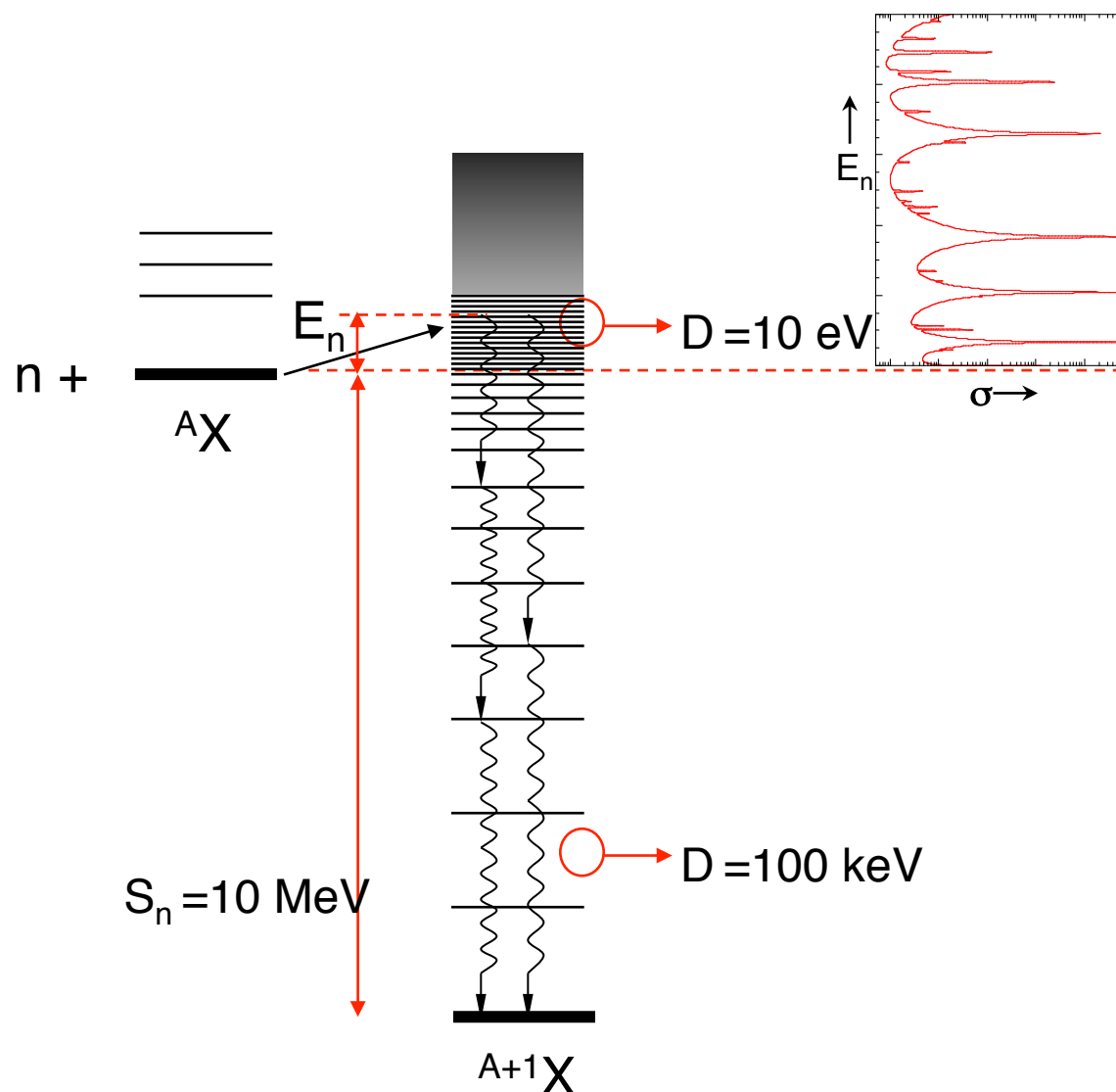
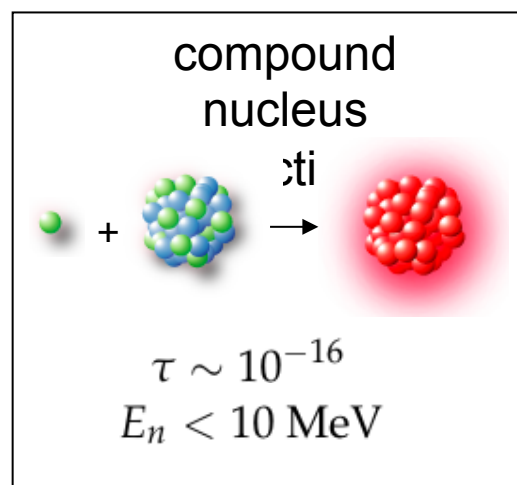


Status of the upgraded neutron time-of-flight facility n_TOF at CERN

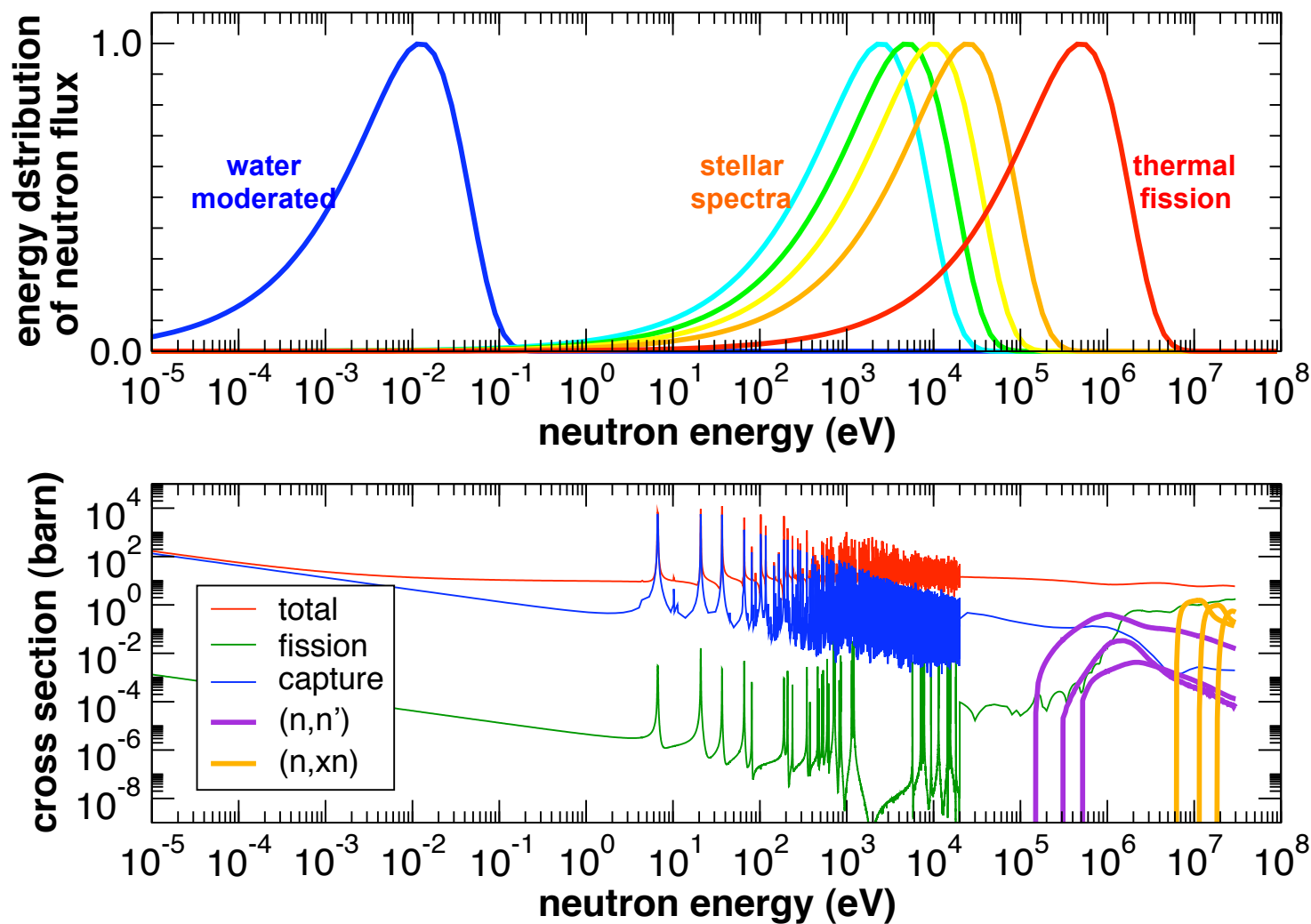
for the n_TOF Collaboration
Frank Gunsing
CEA Saclay

On leave at CERN as n_TOF physics coordinator

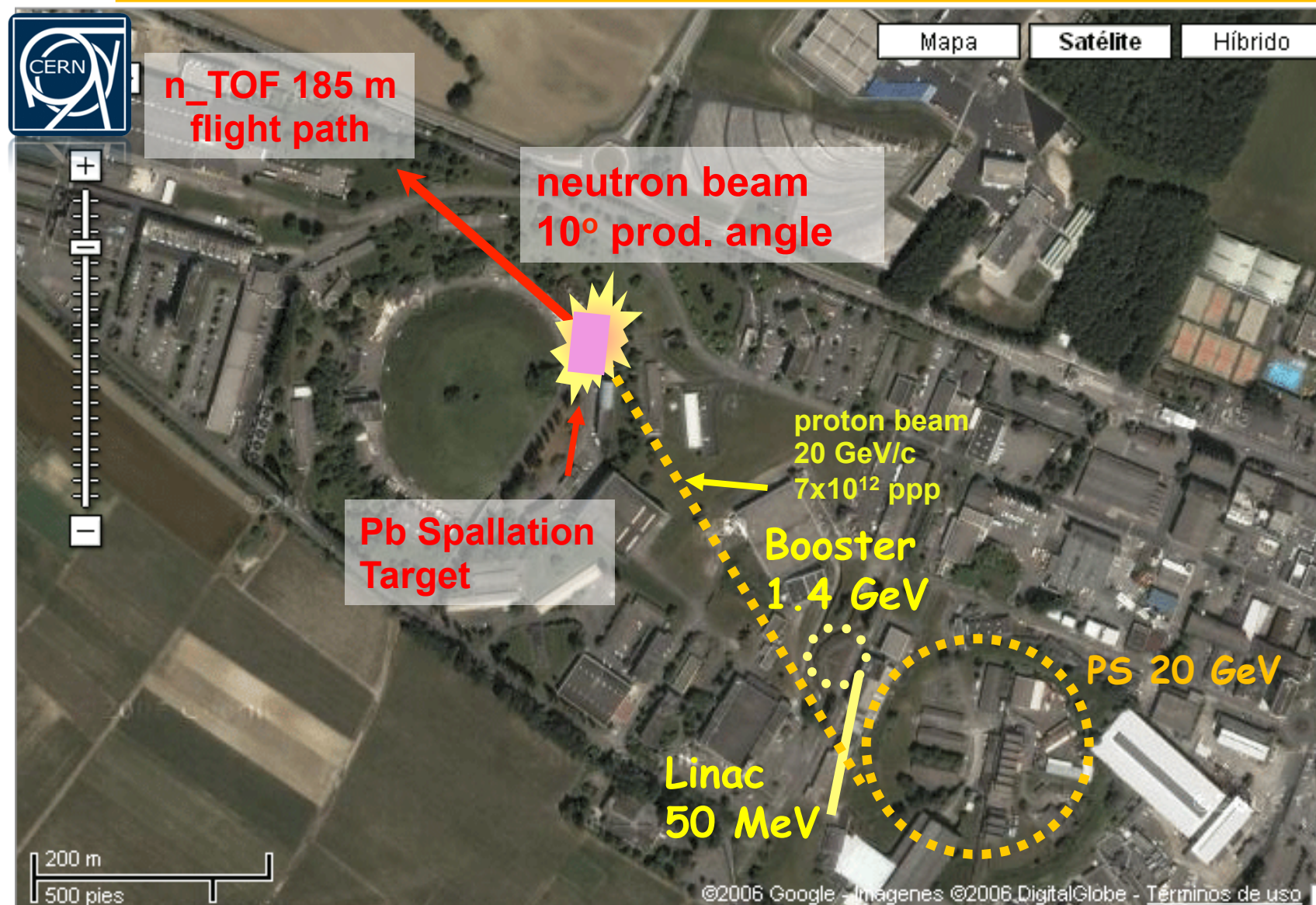


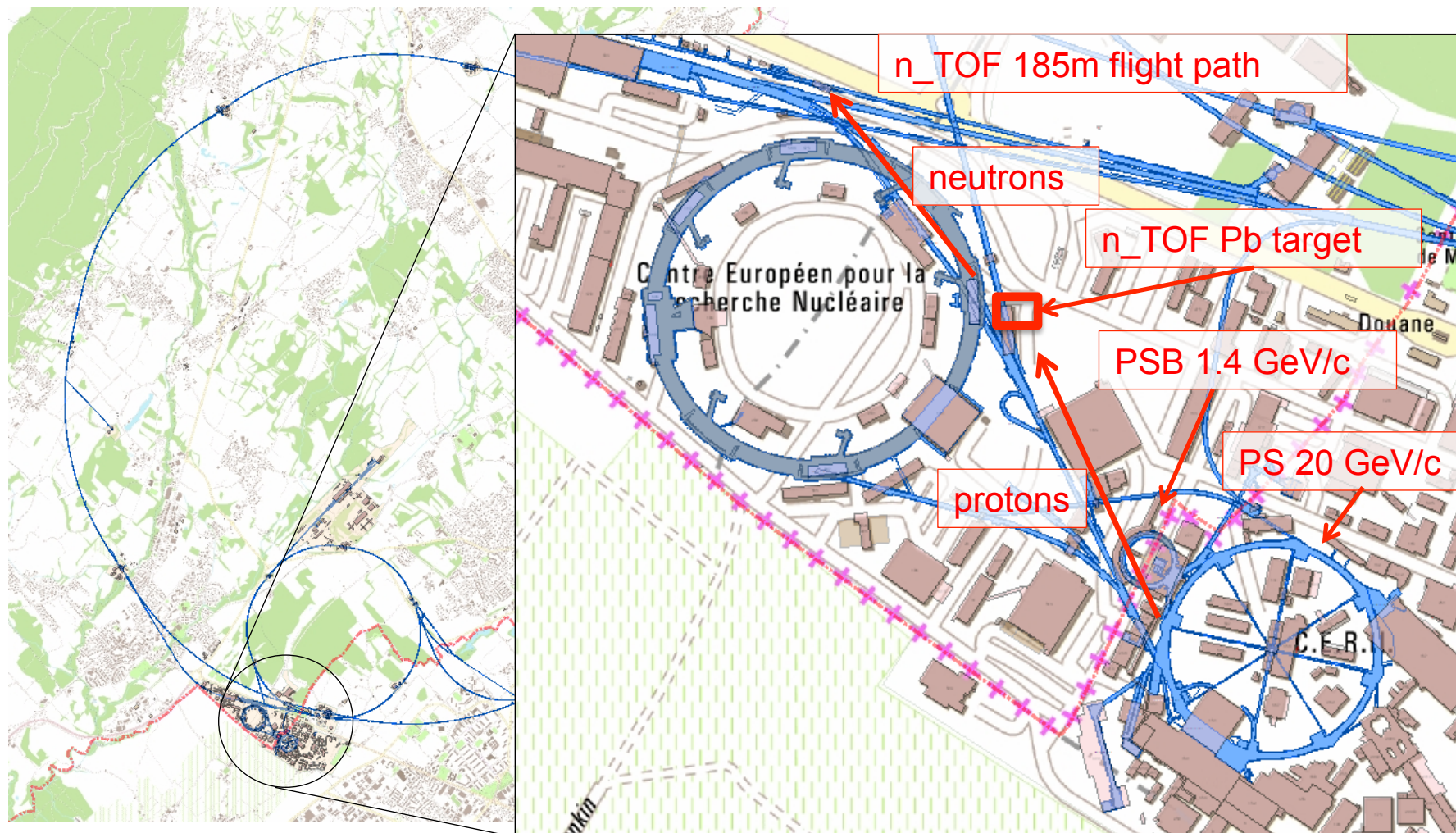


Neutron fluxes and cross sections



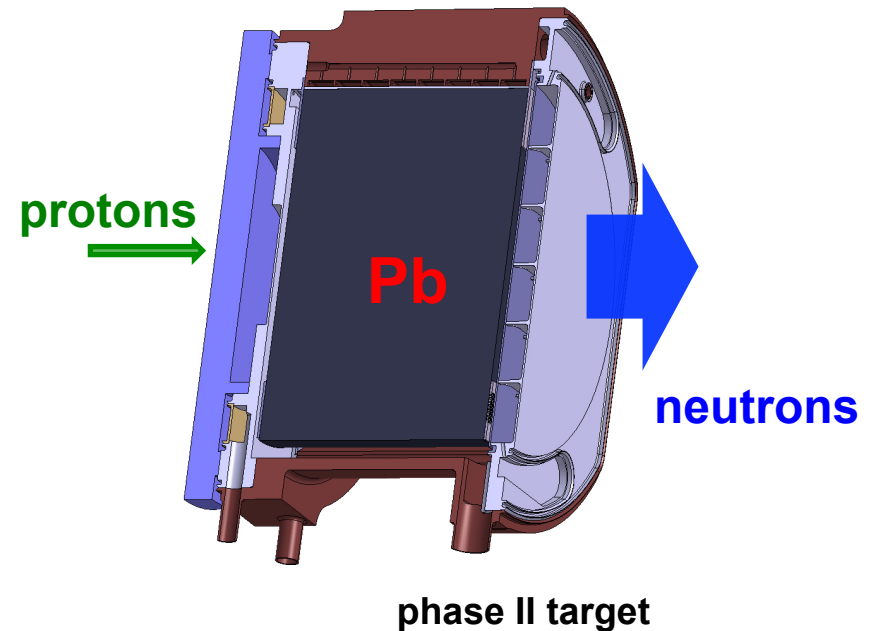
The n_TOF facility at CERN





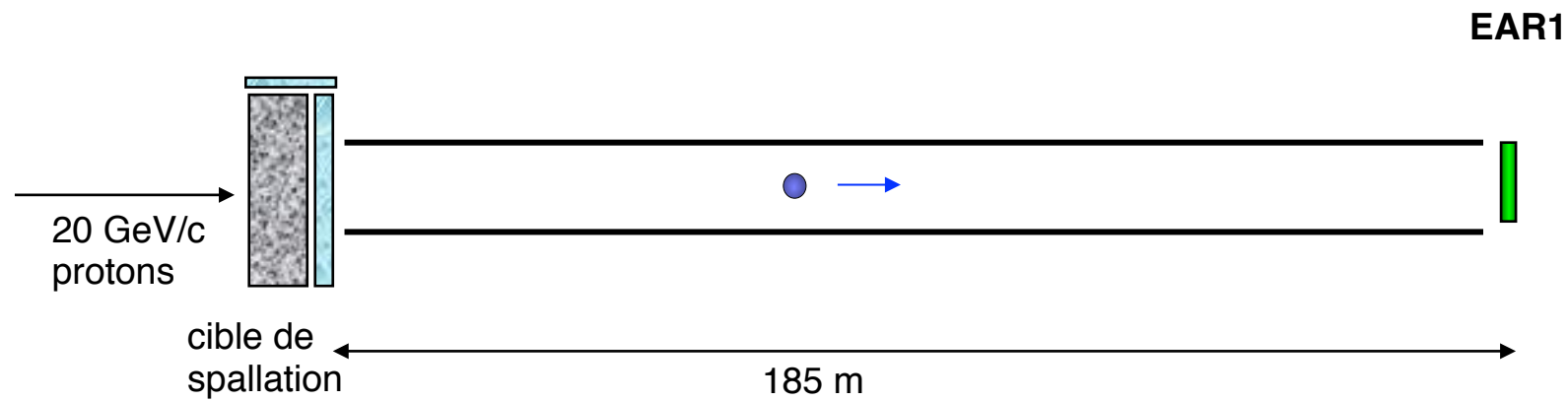
Pulsed white neutron source:

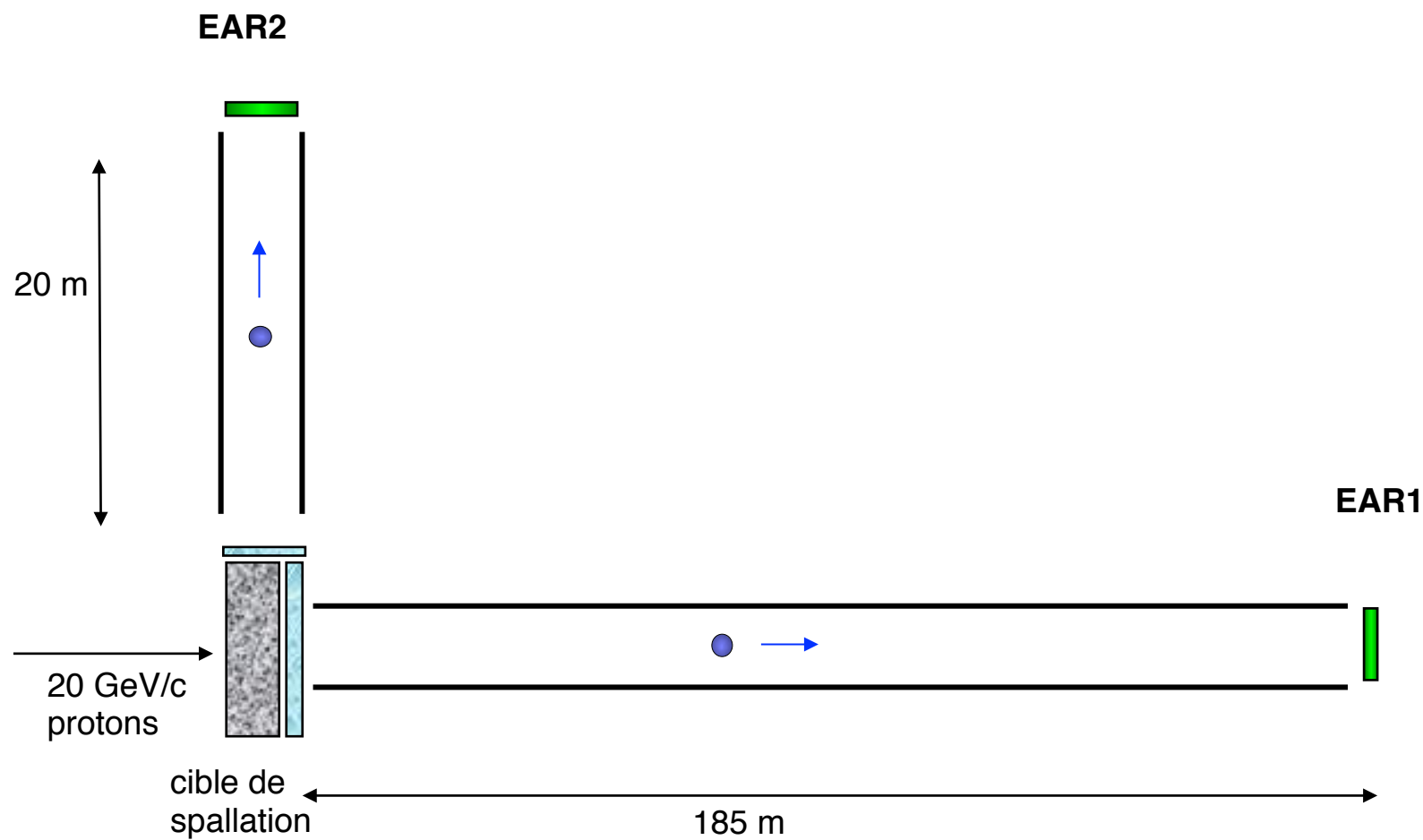
- 20 GeV/c protons
- neutrons from spallation
- 6 ns rms pulse width
- frequency 1 pulse/2.4 seconds
- separate cooling and moderation
- flight path length EAR1: 185 m
- flight path length EAR2: 20 m
- @source: 7×10^{12} protons/pulse
- @source: 2×10^{15} neutrons/pulse
- @EAR1: $5 \cdot 10^5$ (capture) – $5 \cdot 10^7$ (fission) neutrons/pulse

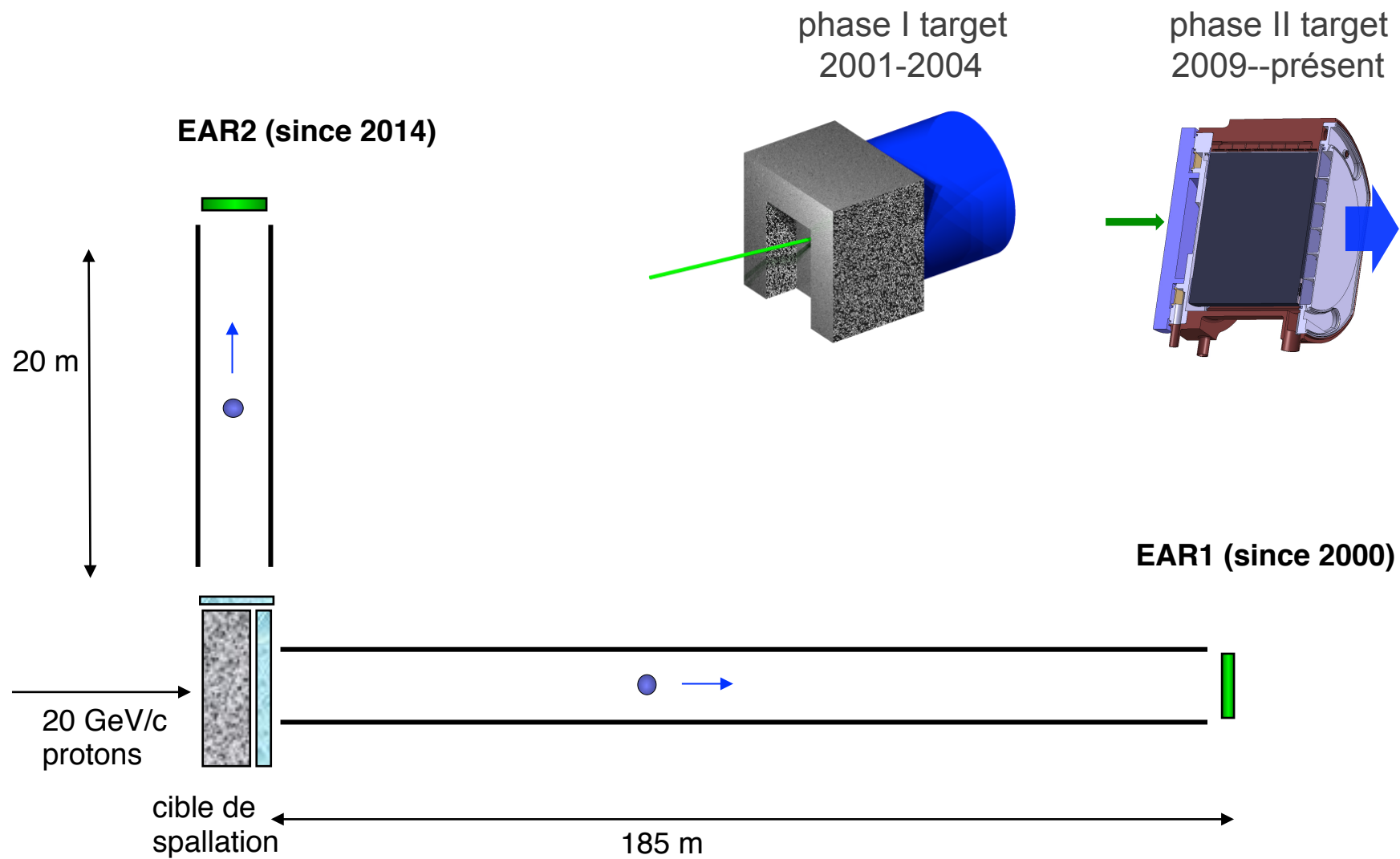


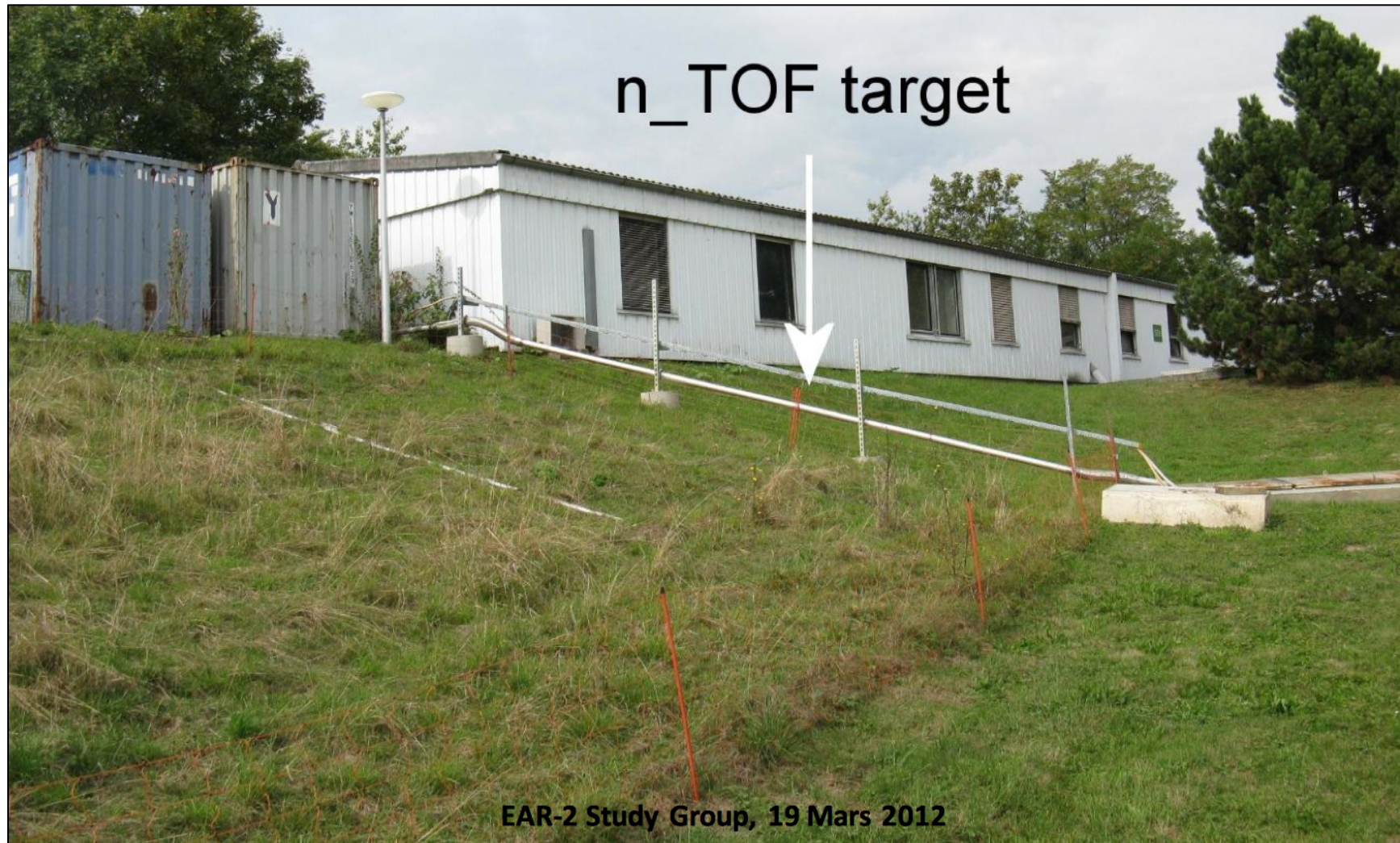
Main features:

- Large energy range in one experiment (0.1 eV - 250 MeV)
- Favorable signal to noise ratio for capture on radioactive isotopes (actinides, fission products)





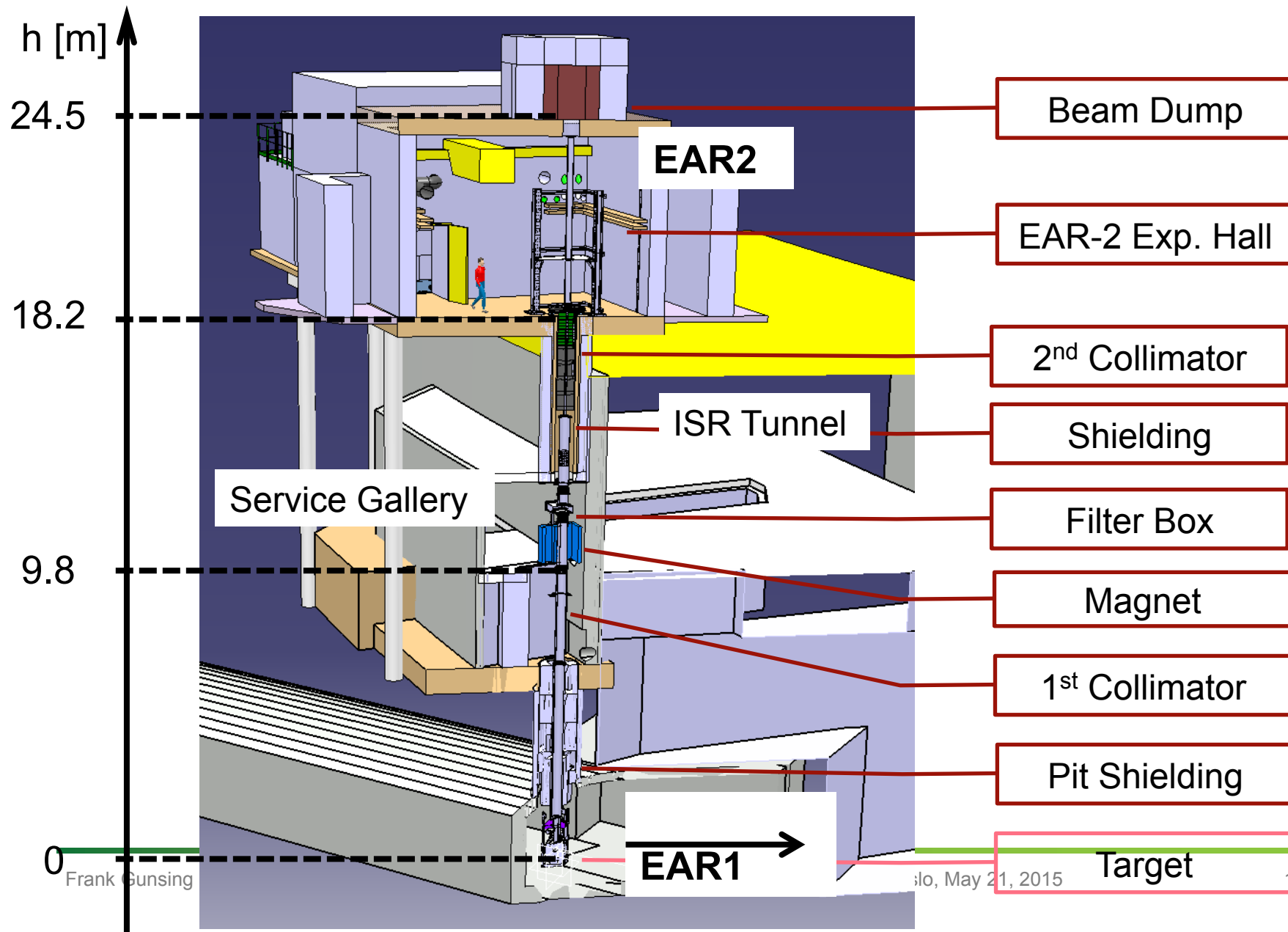


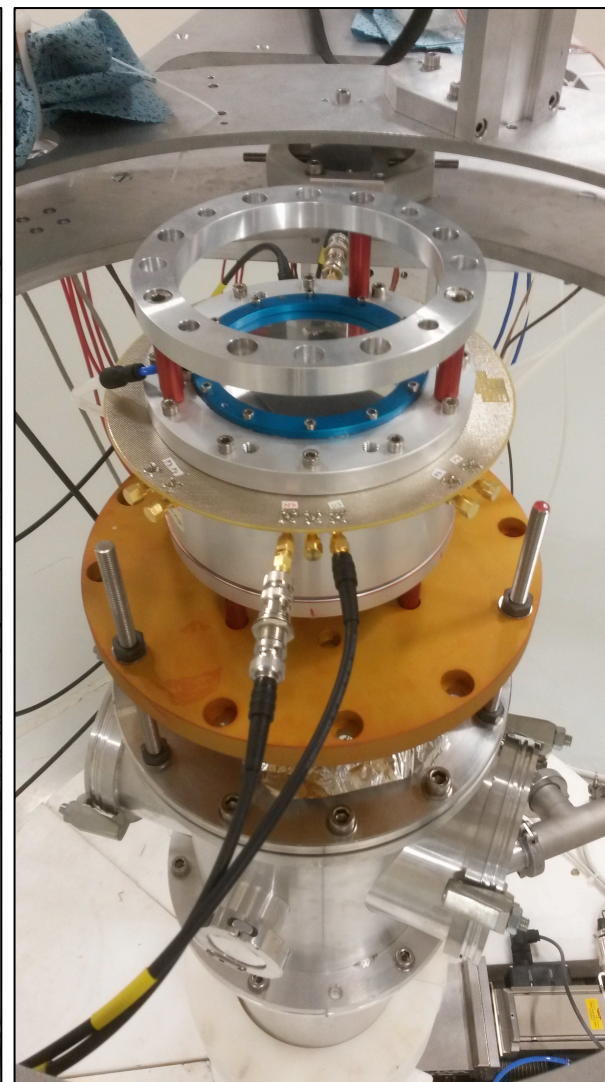
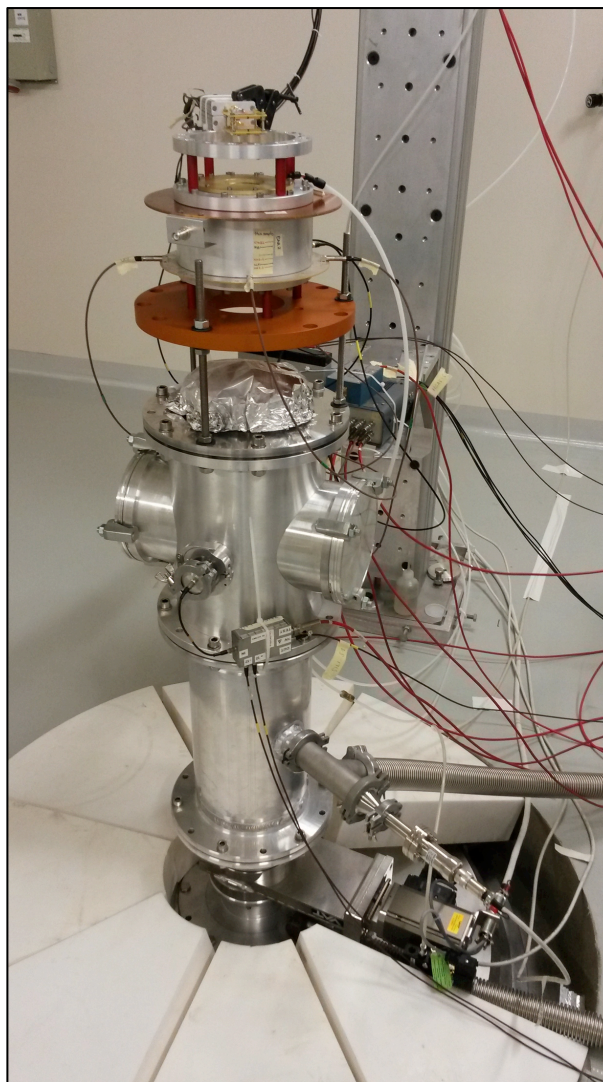
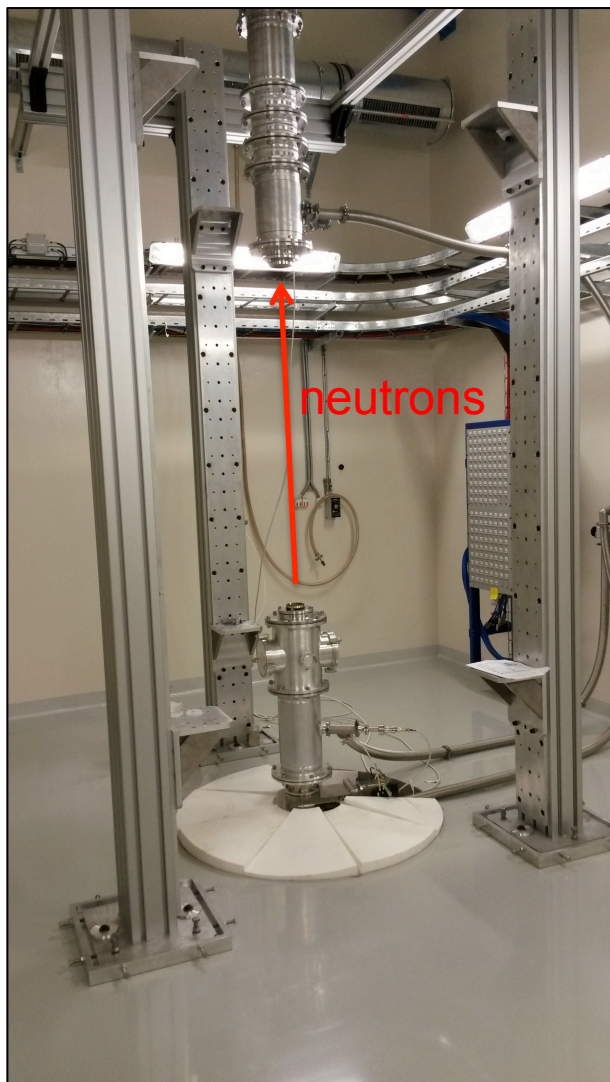


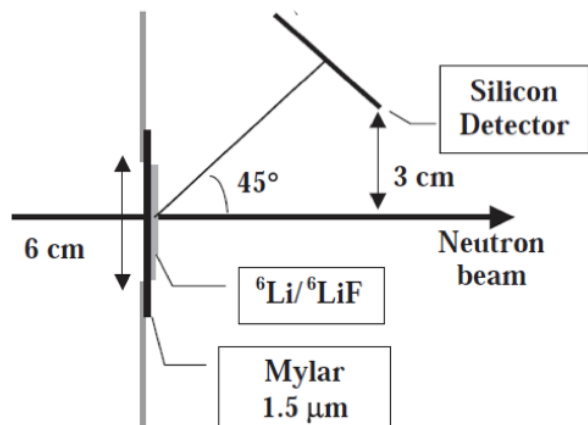




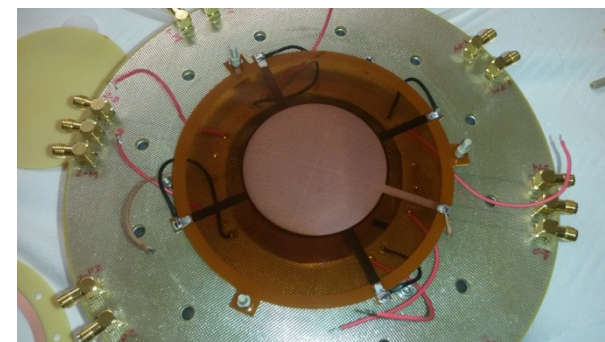
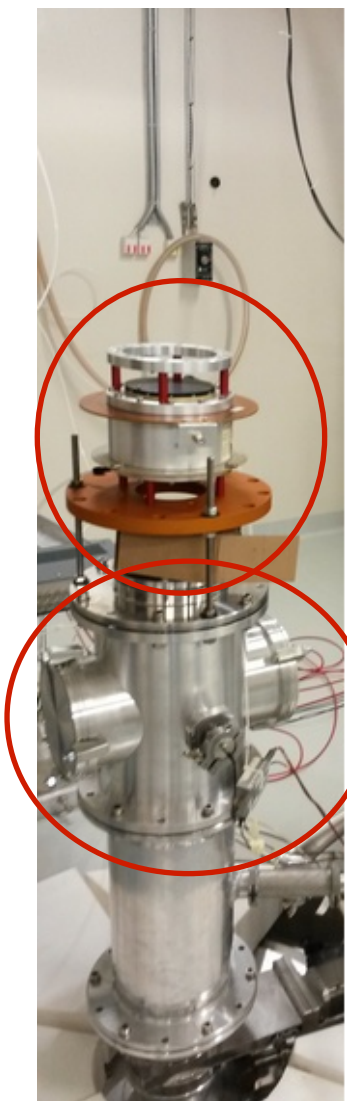
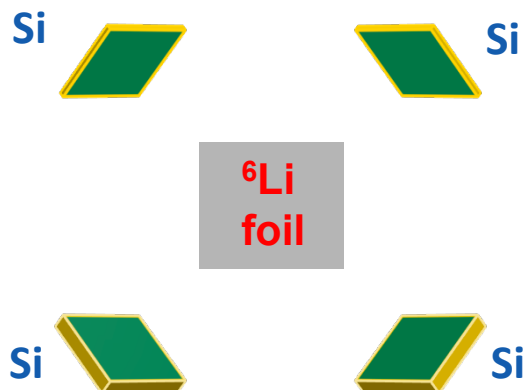
Overview of the n_TOF EAR2



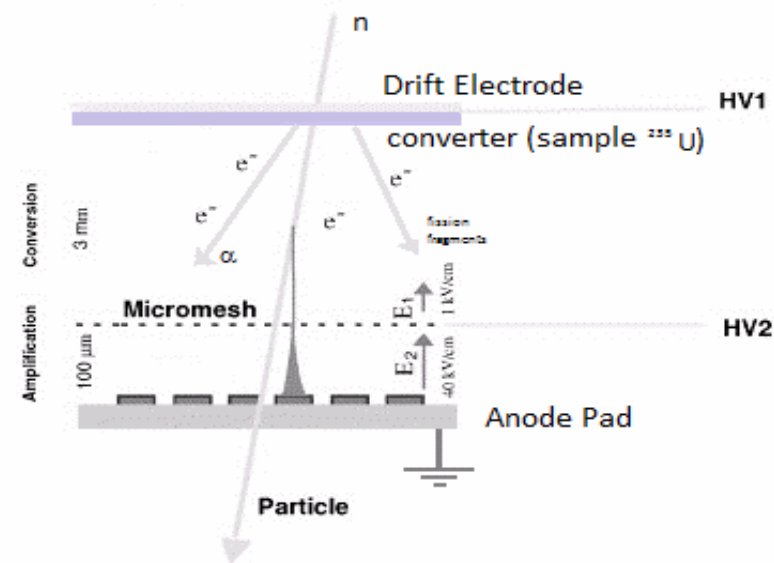


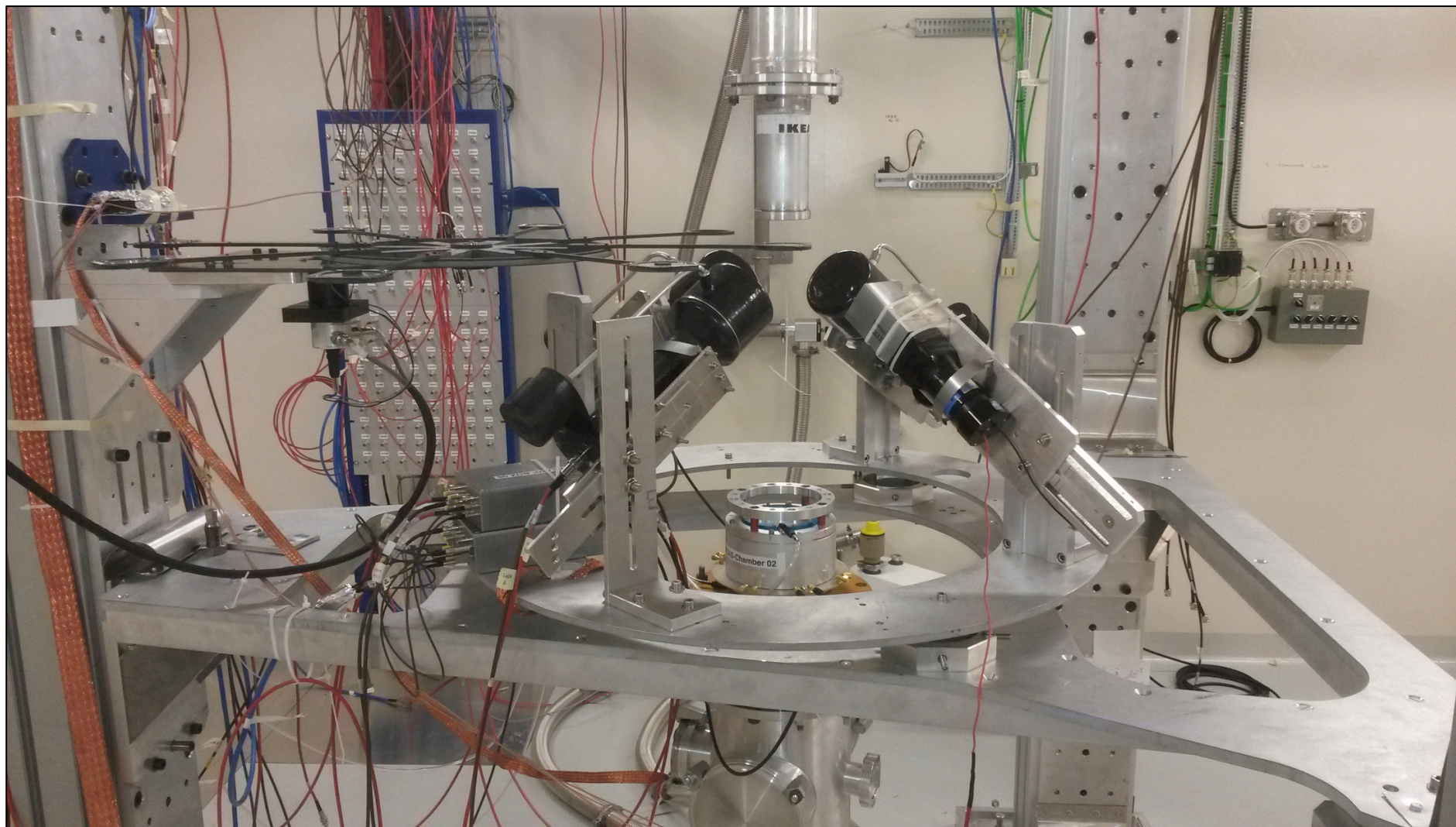


SIMON2

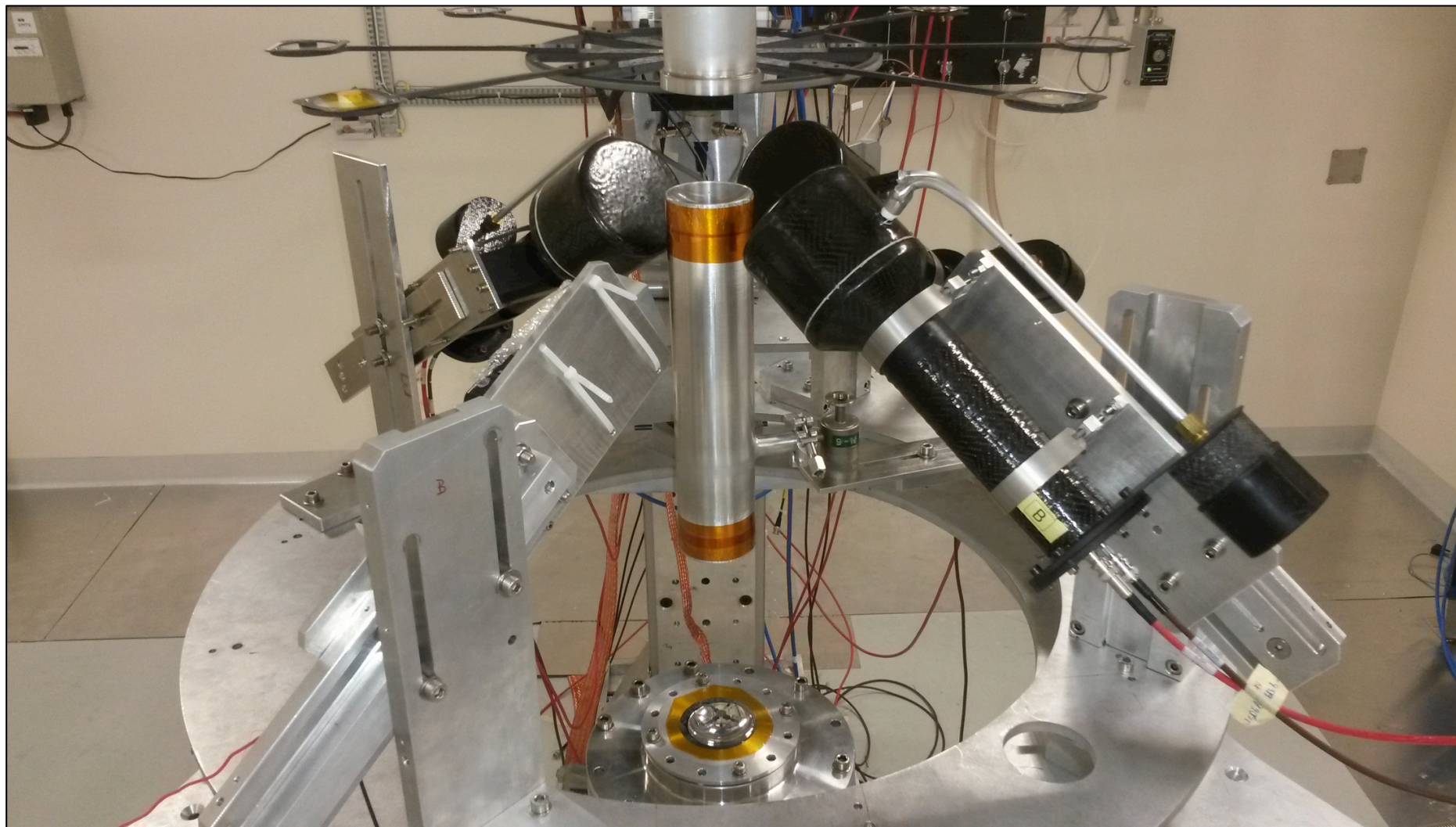


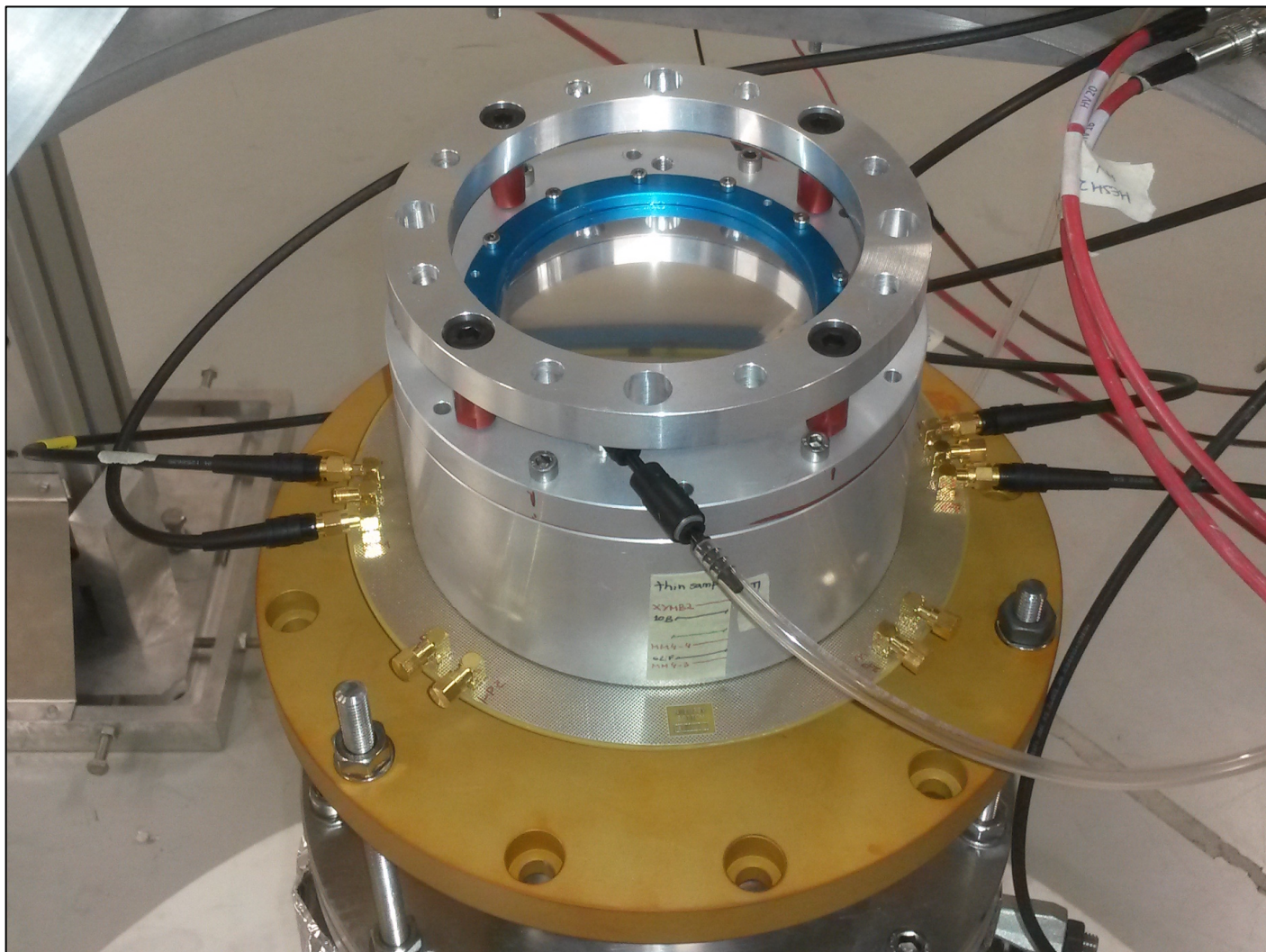
MICROMEAS

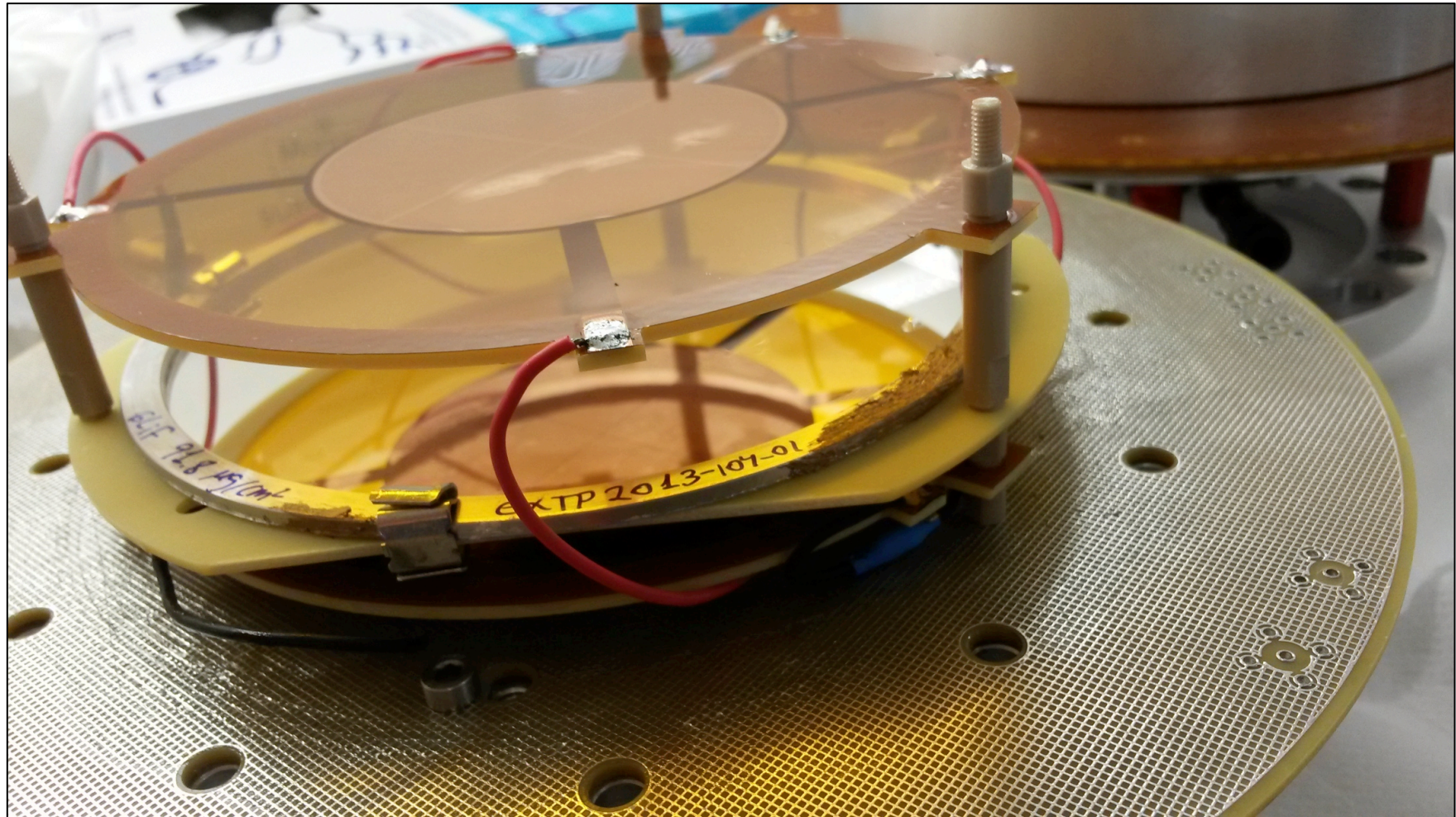




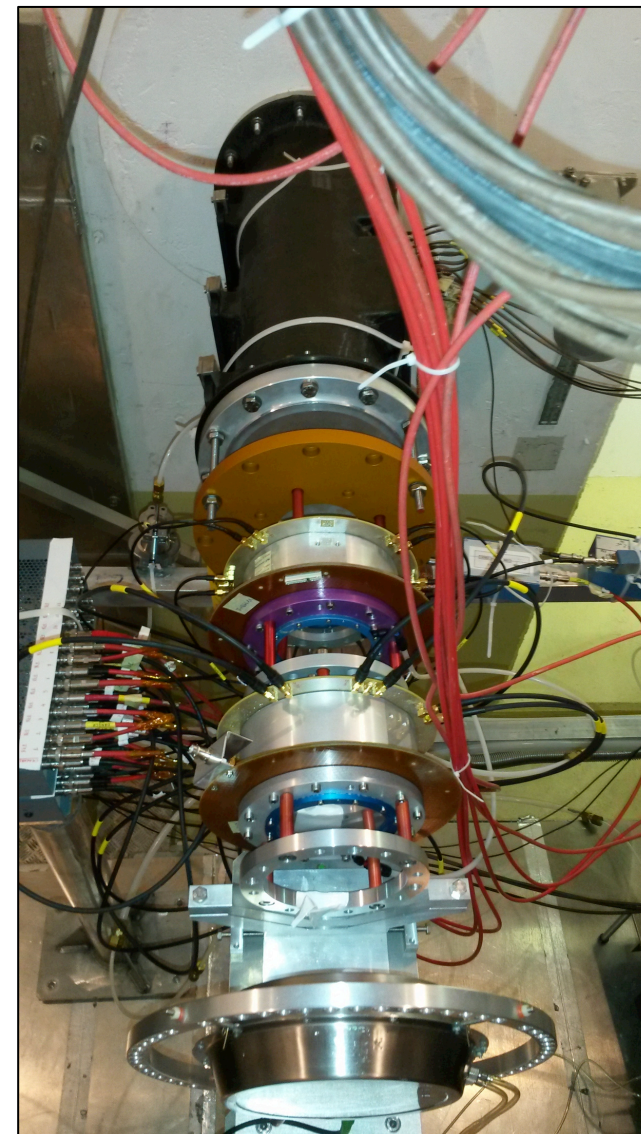
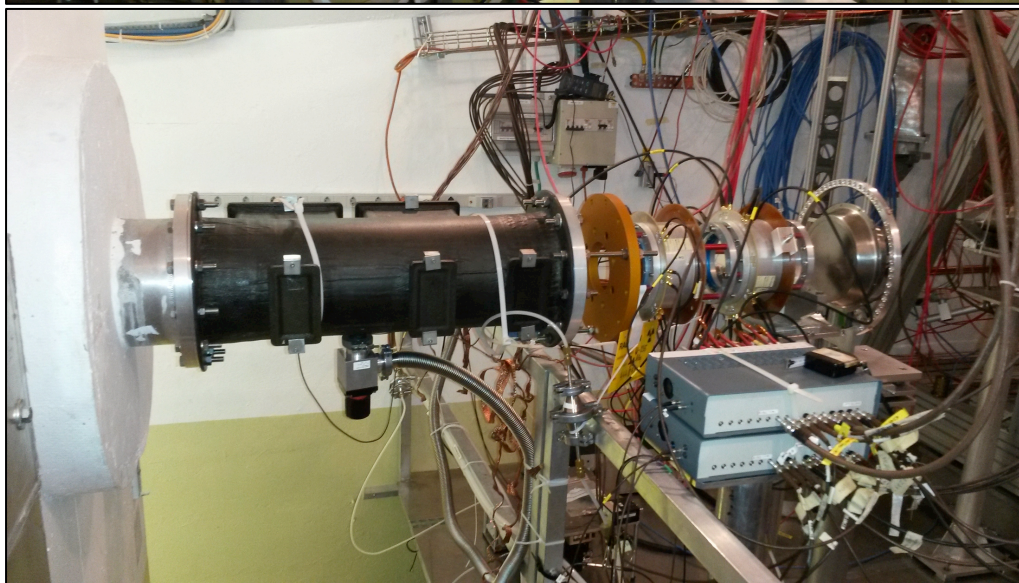
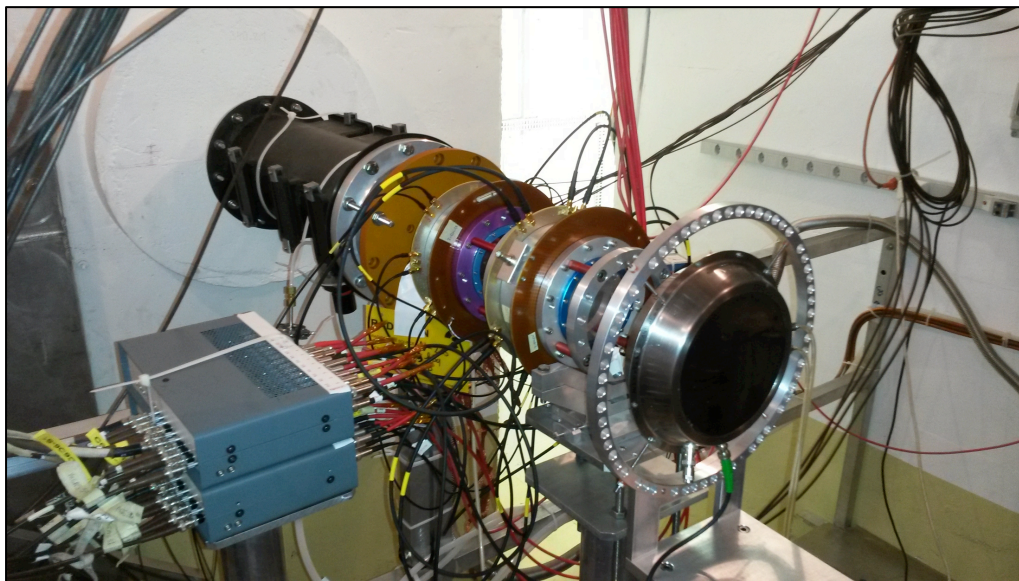
EAR2 capture detectors

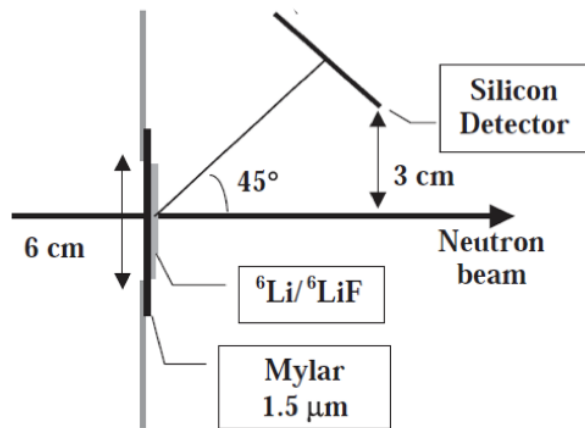




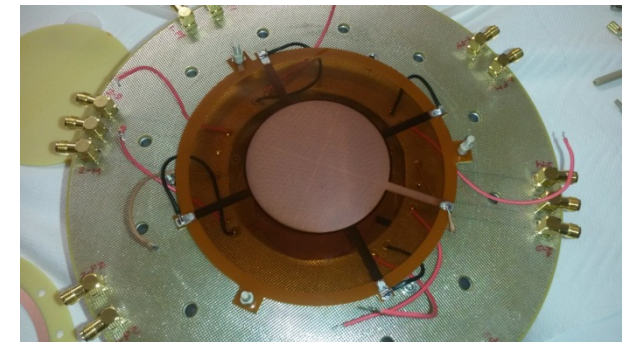
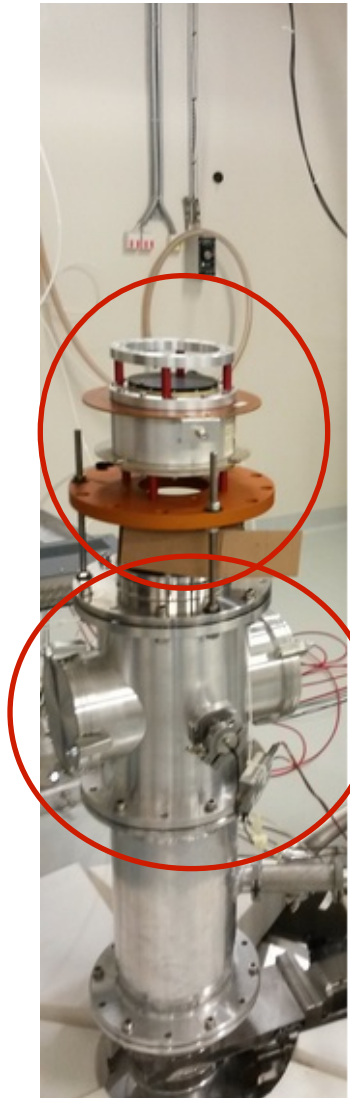
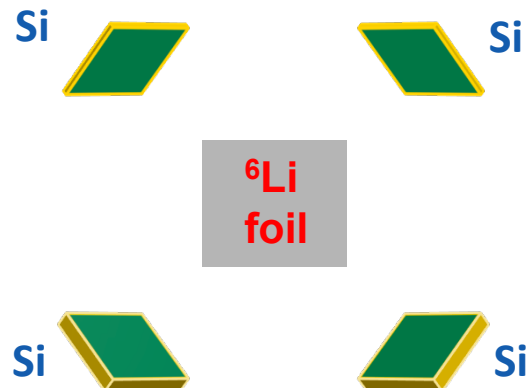


Flux calibration with PTB detector at n_TOF

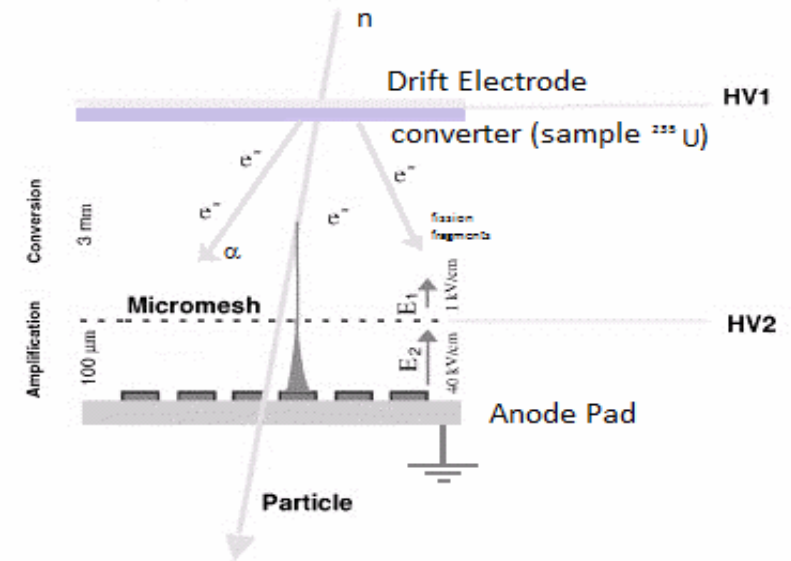




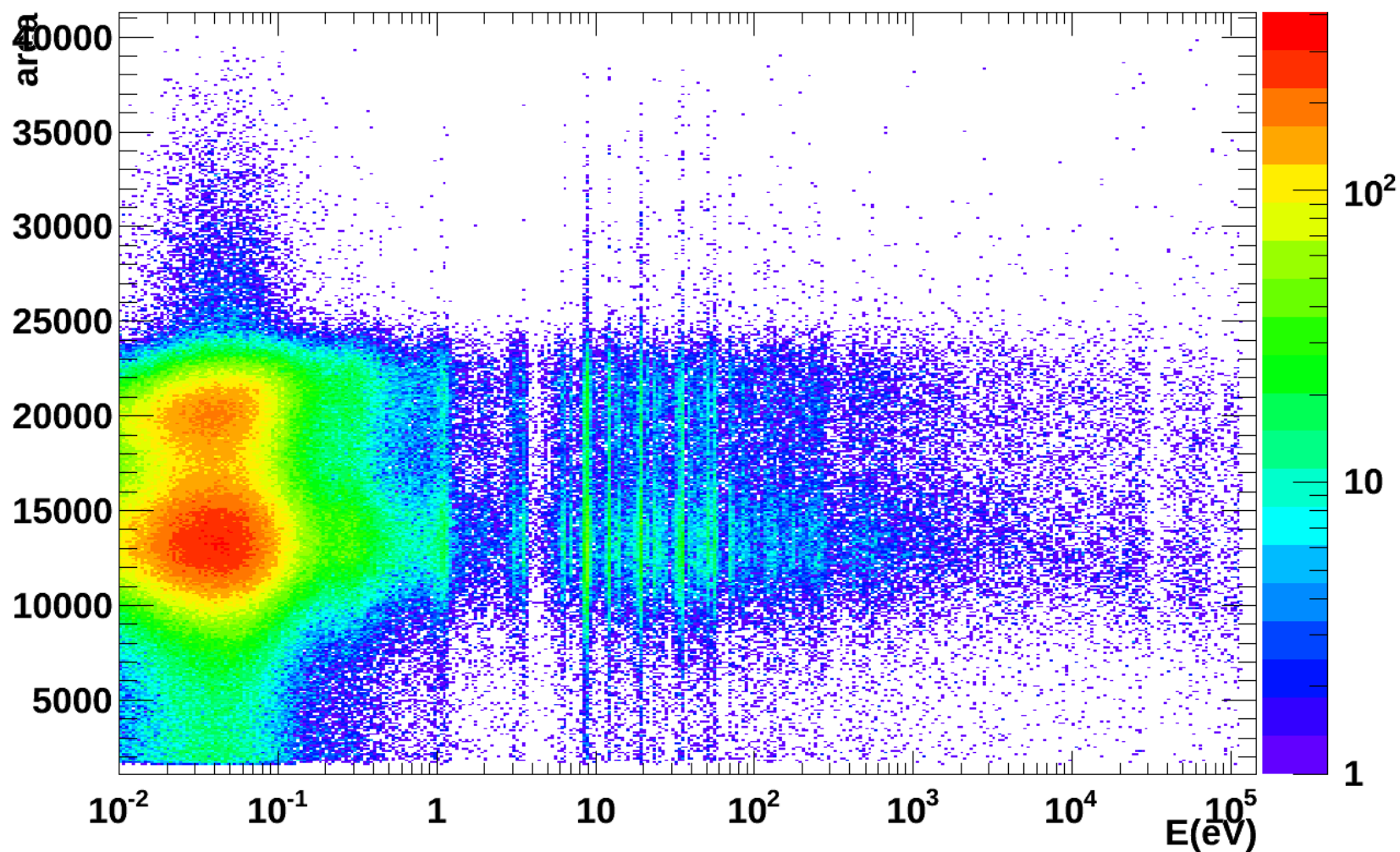
SIMON2

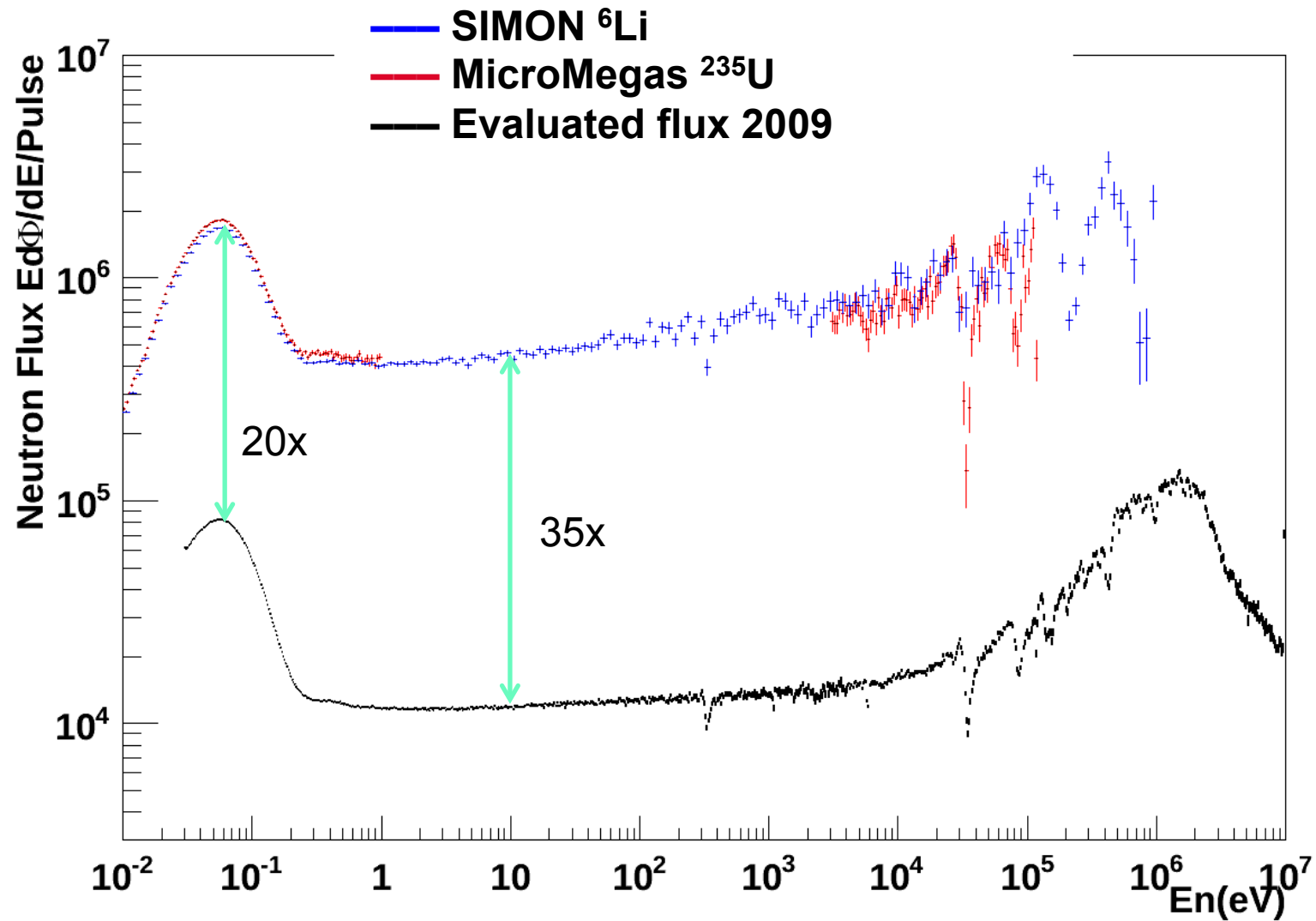


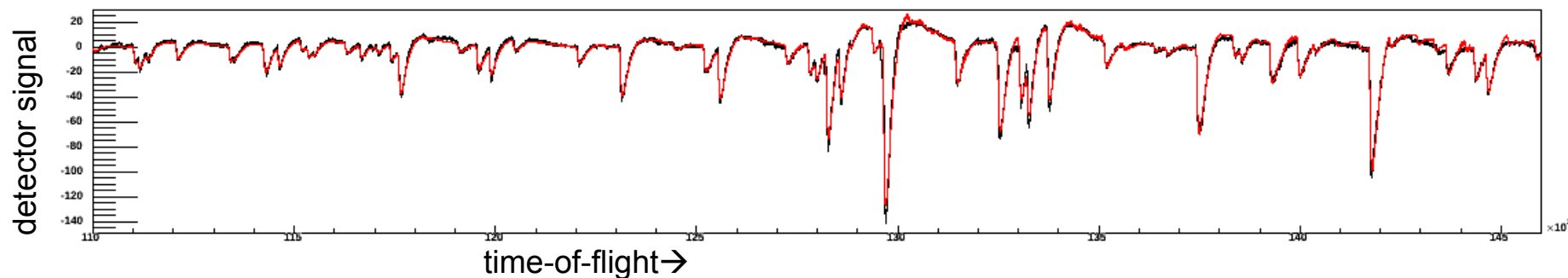
MICROMEAS



MESH-235U : area vs E

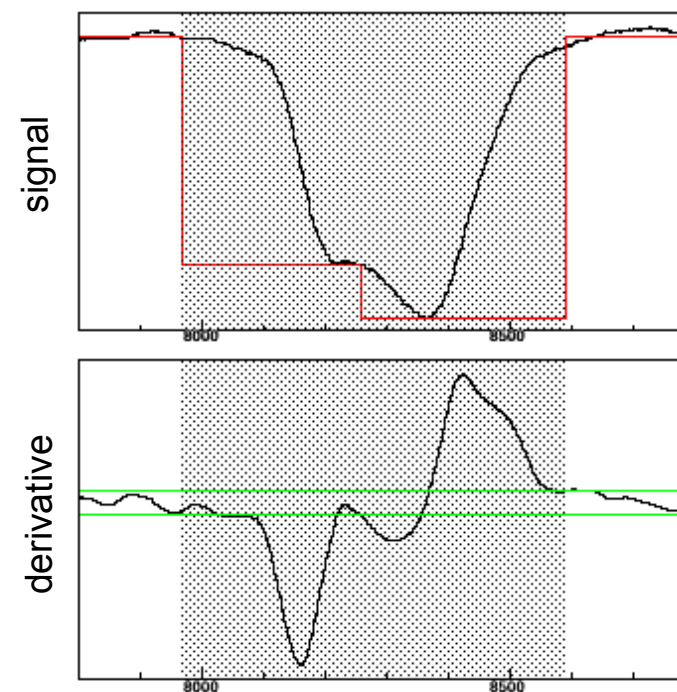






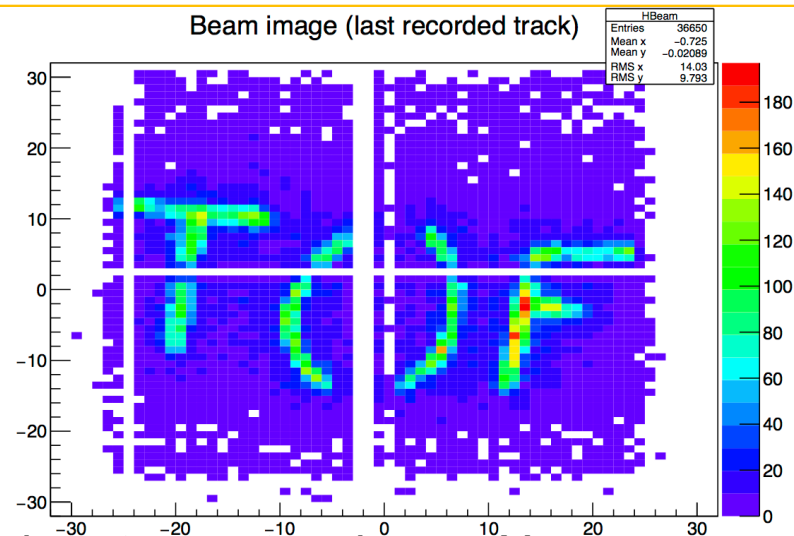
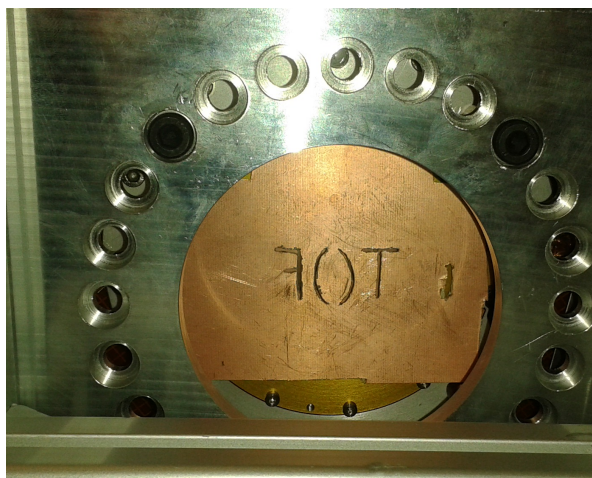
Analyze waveforms:

- peak recognition
- different detector types
- gamma-flash detection
- noise rejection
- pile-up rejection
- **pulse height analysis**
- **time extraction**



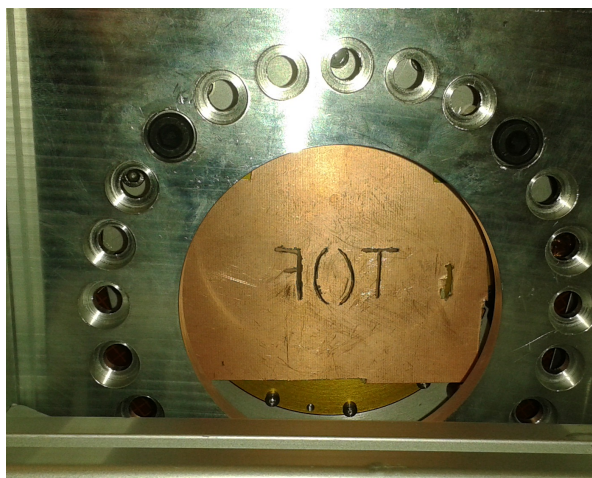
figs. P. Zugec

MicroMegas neutron beam profiler

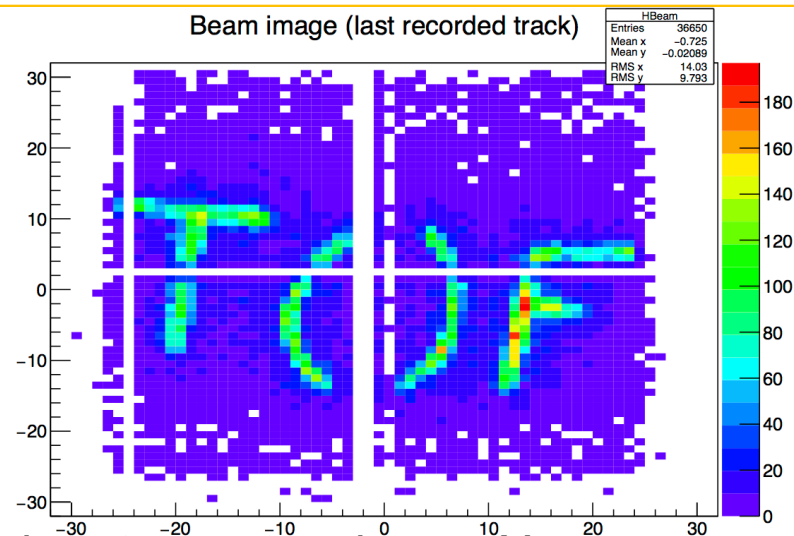


MicroBulk + GET electronics, laboratory setup: image X-rays

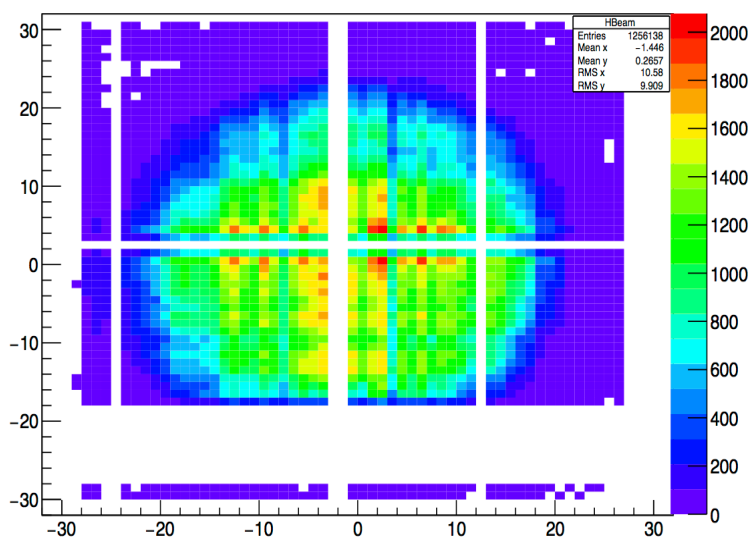
MicroMegas neutron beam profiler



Beam image (last recorded track)



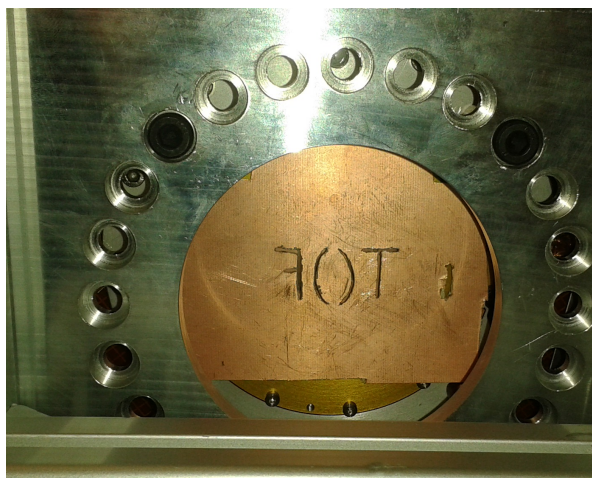
MicroBulk + GET electronics, laboratory setup: image X-rays



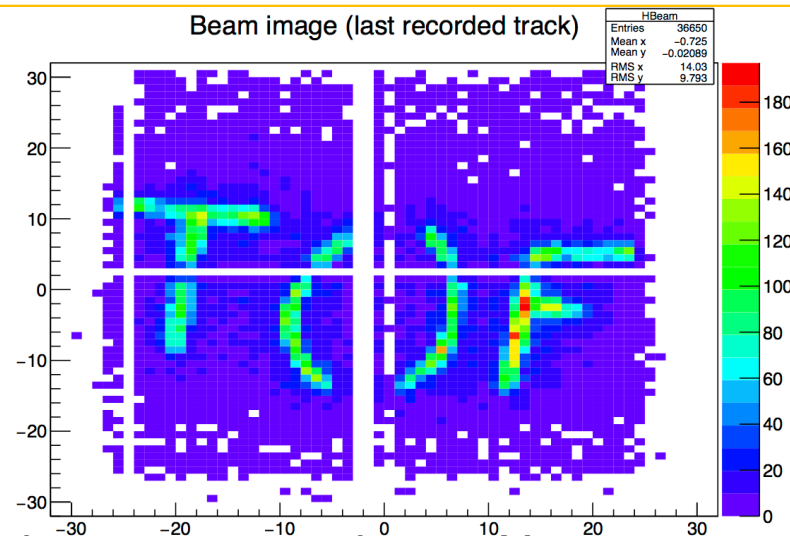
test GELINA



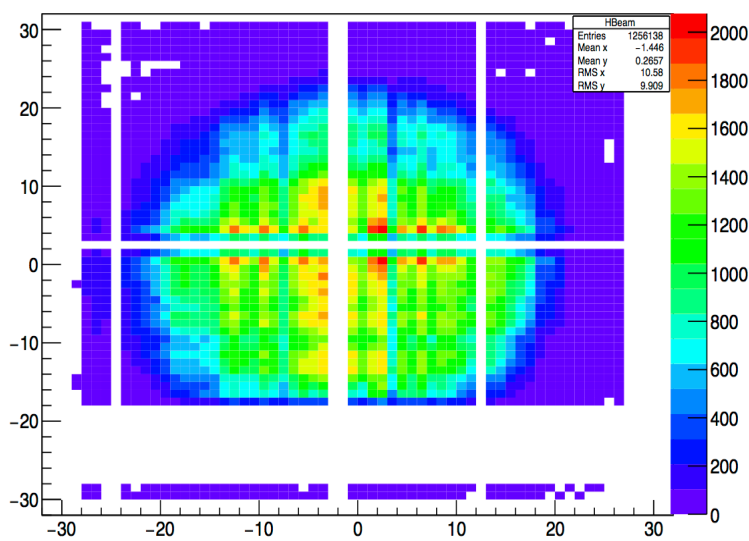
MicroMegas neutron beam profiler



Beam image (last recorded track)



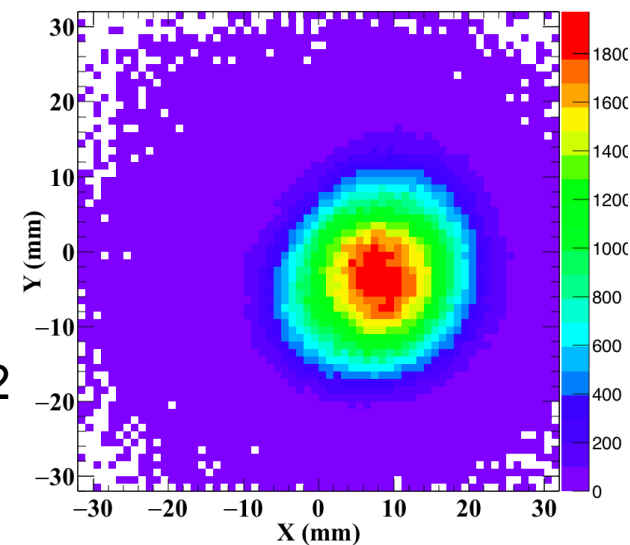
MicroBulk + GET electronics, laboratory setup: image X-rays

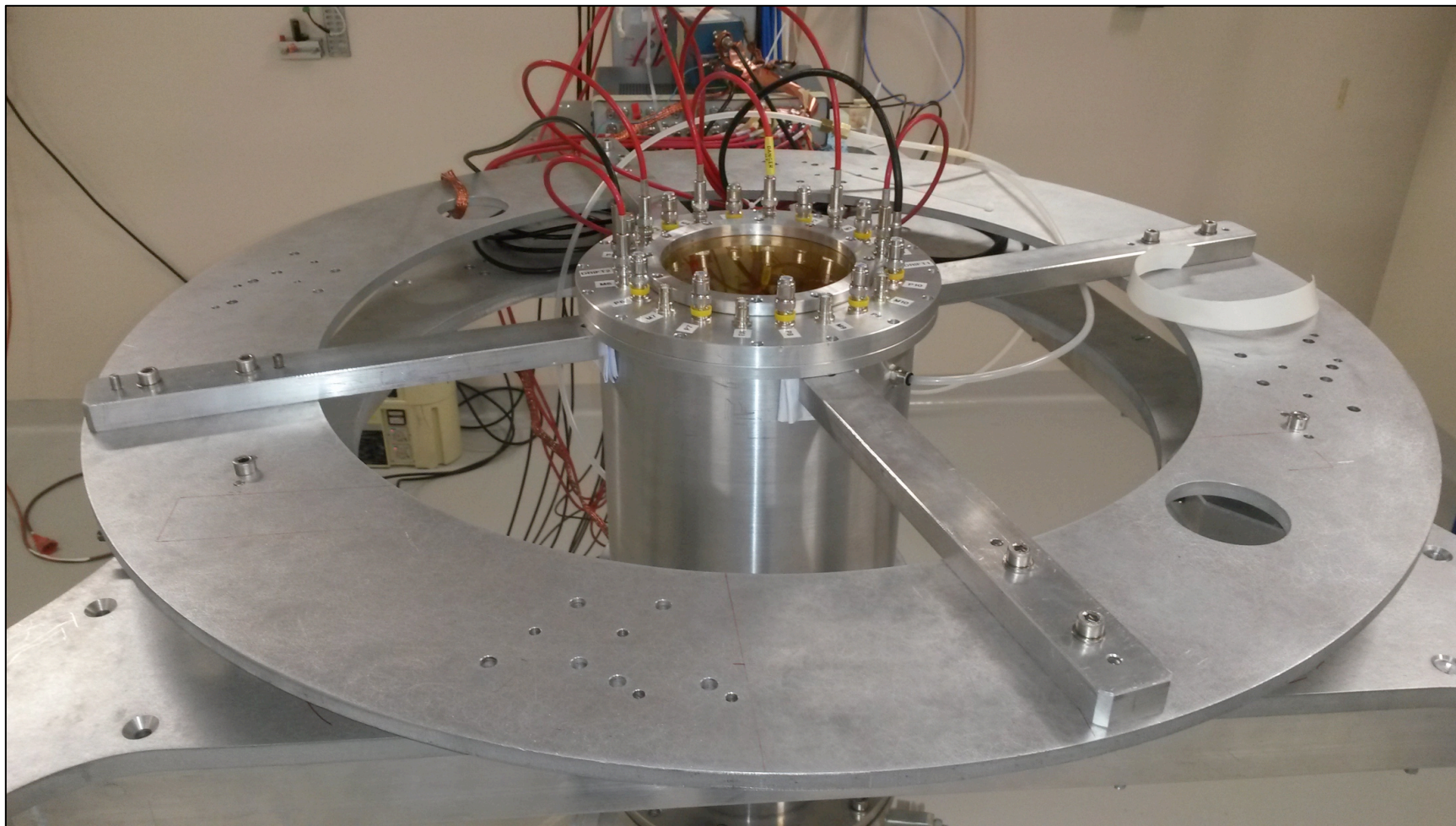


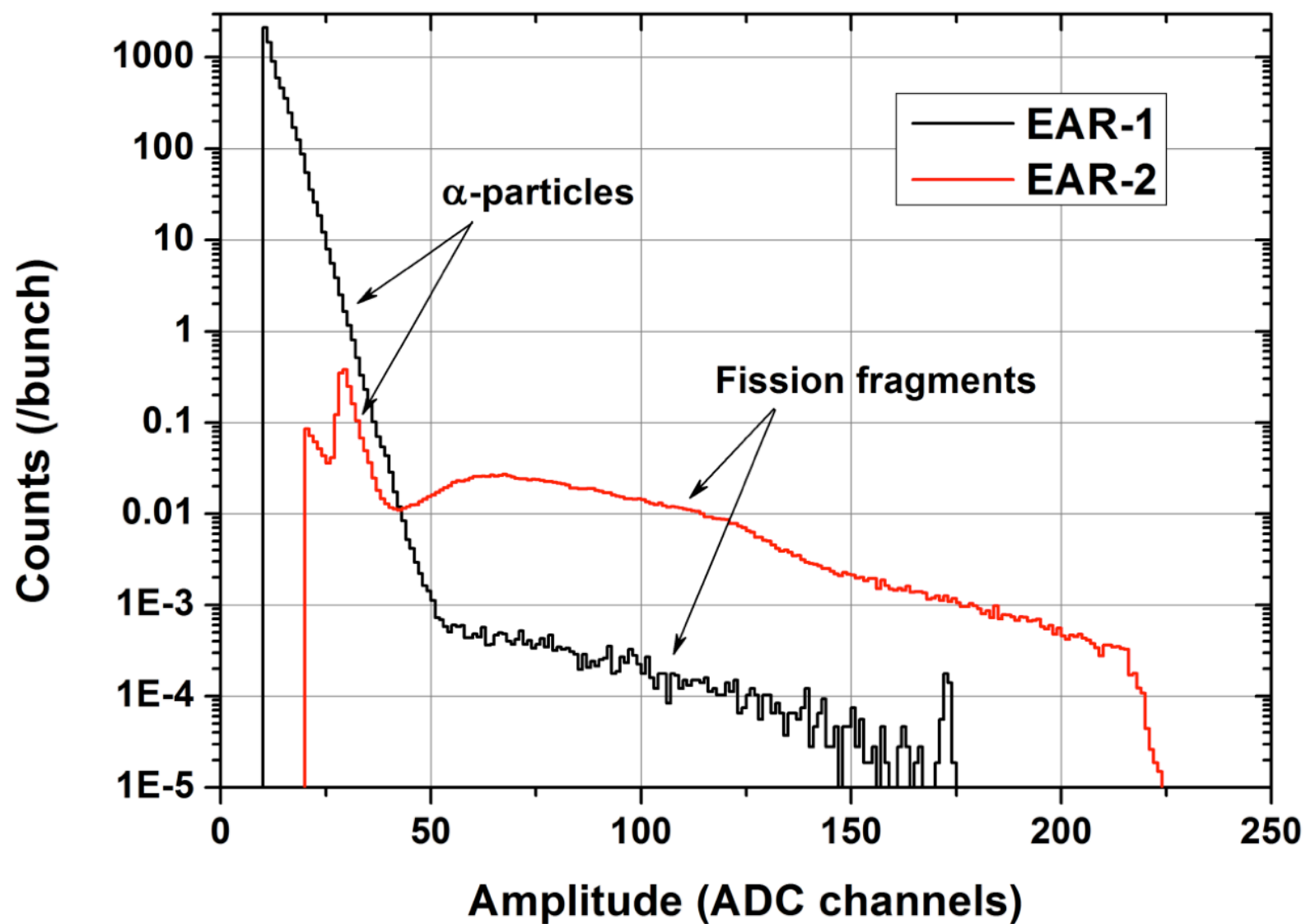
test GELINA

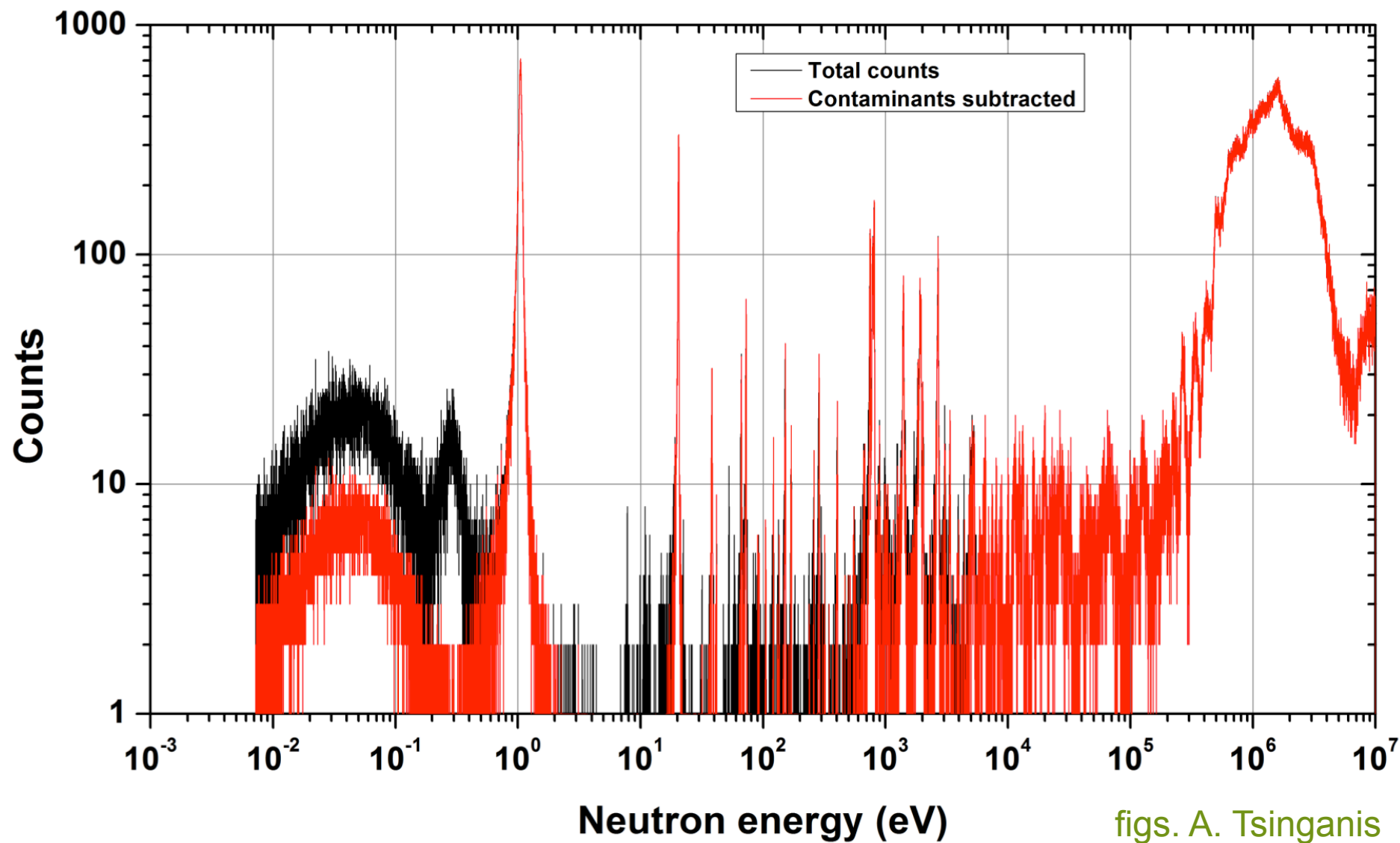


n_TOF EAR2



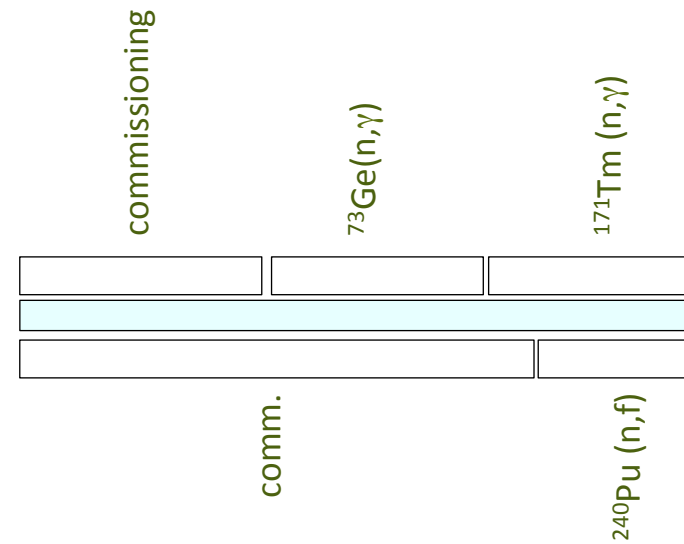




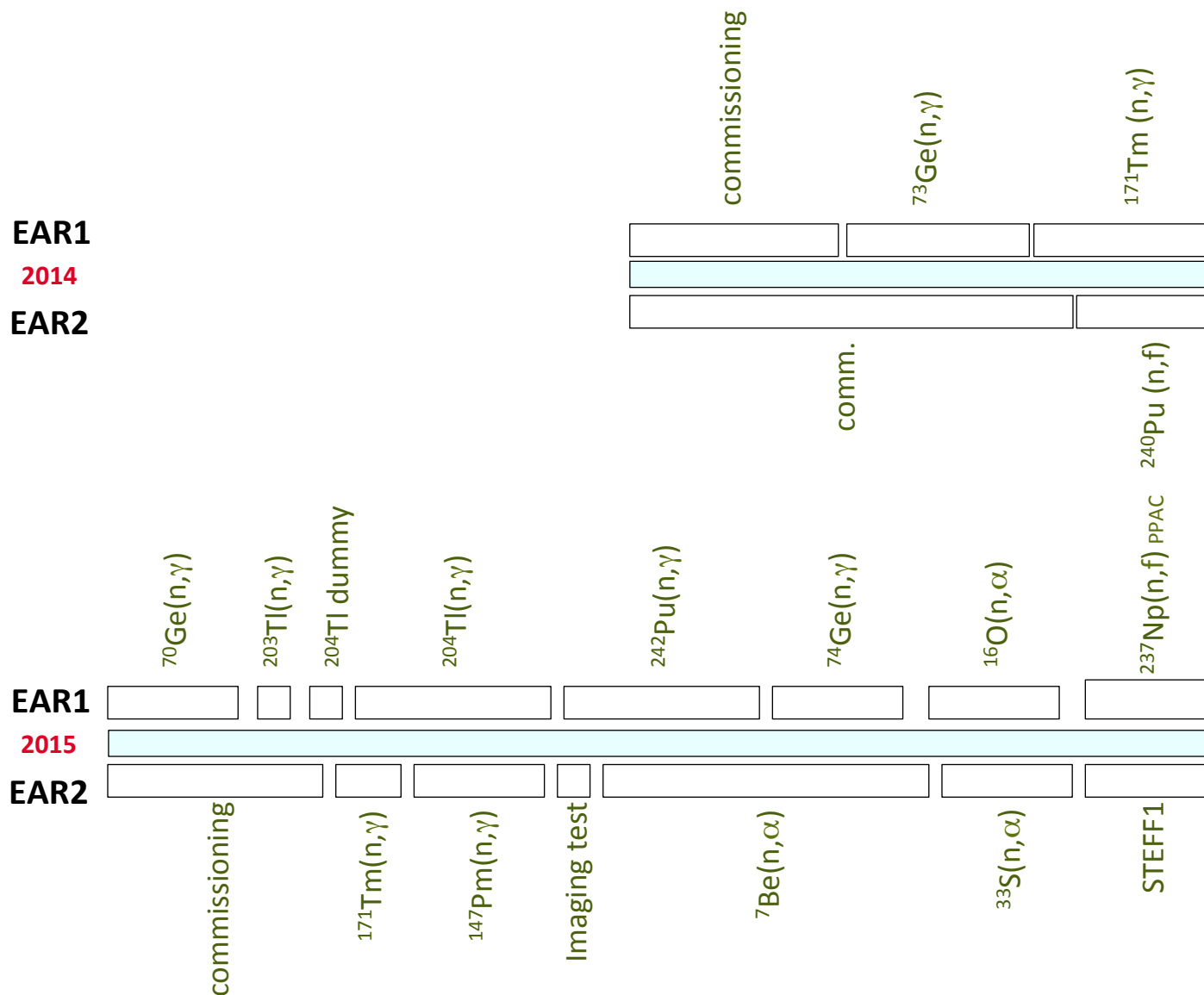


Measurements since restart 2014

EAR1
2014
EAR2



Measurements since restart 2014



Thank you for your attention.

