

n_TOF Report

Frank Gusing
n_TOF Physics Coordinator

*CEA Saclay
On leave at CERN*

- Major upgrade DAQ system
- New digitizers (12 bit/100 ns in addition to 8 bit/16 ns)
- Data flow reshaped
- Neutron filter box installed in EAR2
- Upgrade ^6Li foil neutron monitors
- New set of C_6D_6 detectors (Legnaro-type)
- Set up of STEFF in test area
- $^{244}\text{Cm}/^{13}\text{C}$ 6 MeV γ -ray calibration source (on loan HZDR)
- Various technical improvements

From April 7 (start of beam) – now

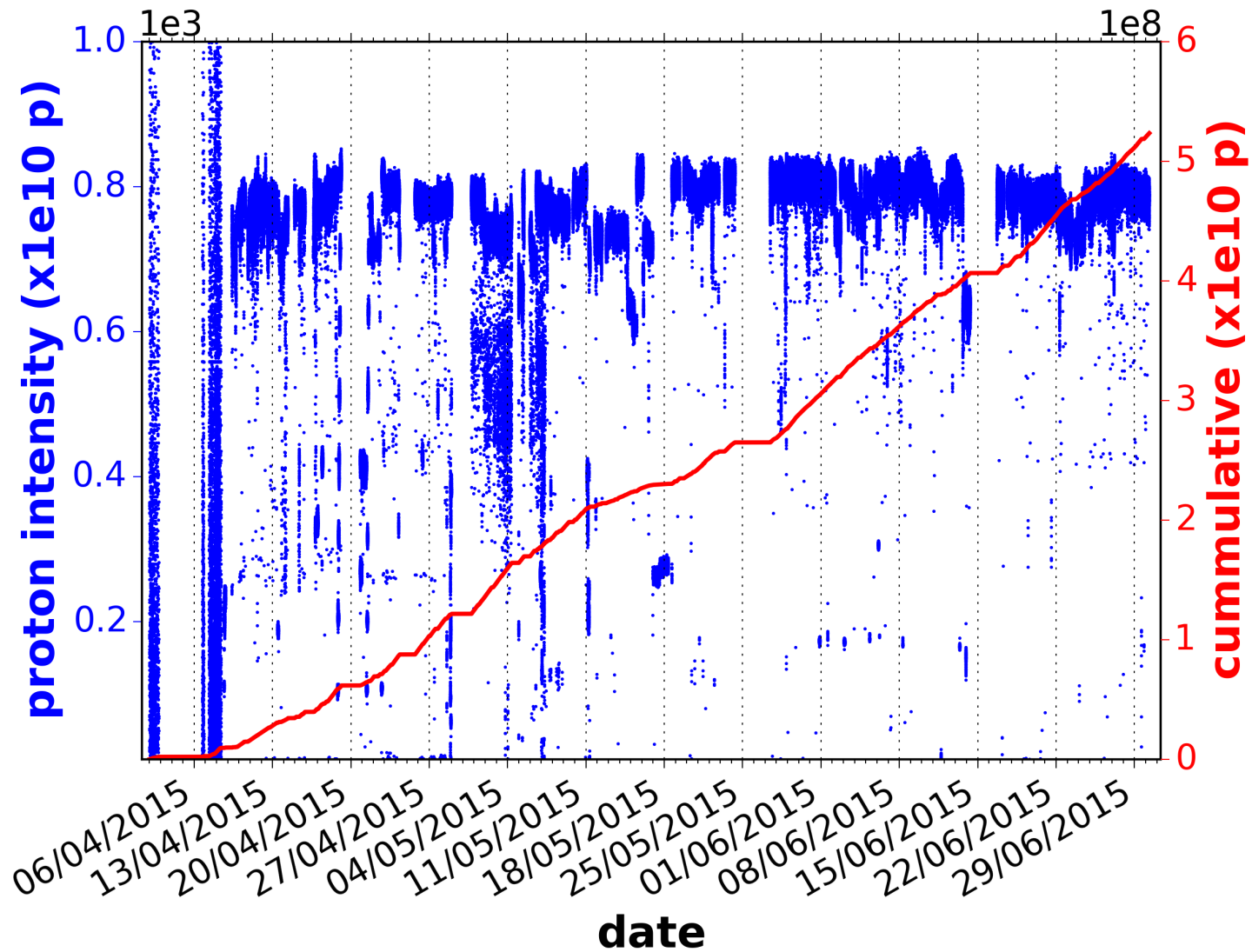
EAR1:

- $^{70}\text{Ge}(n,\gamma) - \text{C}_6\text{D}_6$
- $^{74}\text{Ge}(n,\gamma) - \text{C}_6\text{D}_6$
- $^{203,204}\text{Tl}(n,\gamma) - \text{C}_6\text{D}_6$ **(ongoing)**

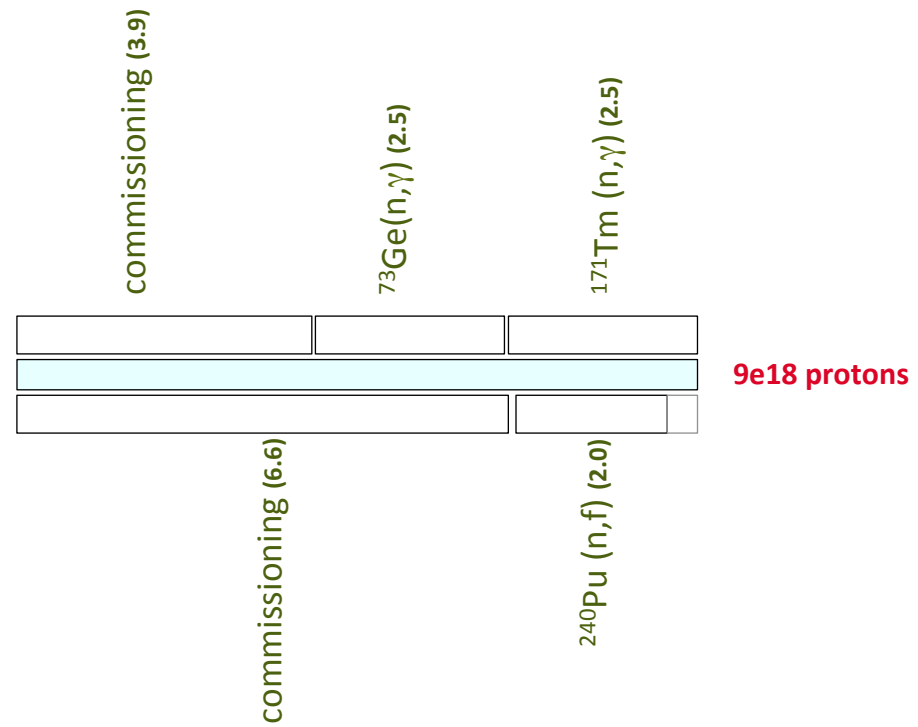
EAR2:

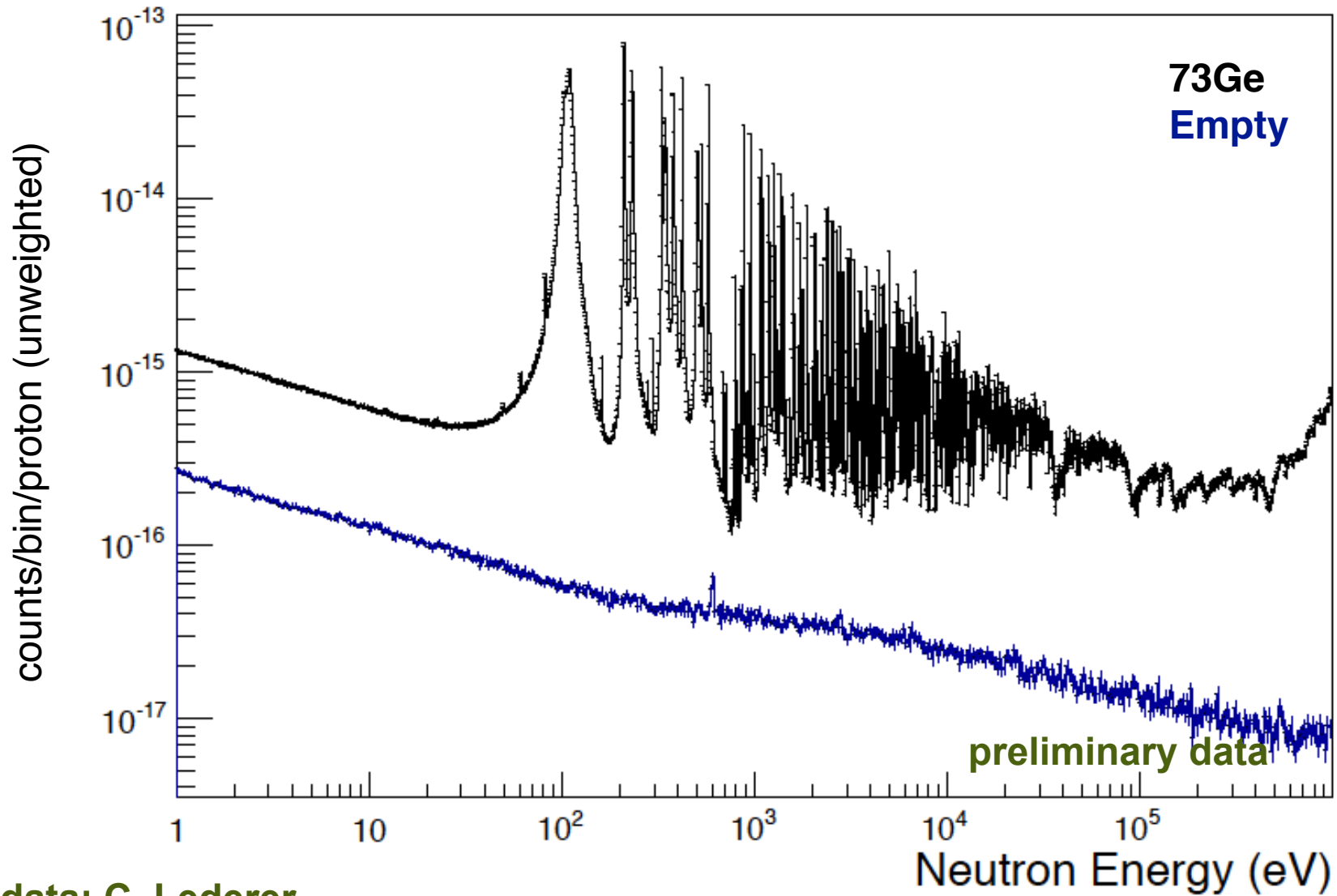
- commissioning, part 2 of 3
- $^{171}\text{Tm}(n,\gamma) - \text{C}_6\text{D}_6$
- $^{147}\text{Pm}(n,\gamma) - \text{C}_6\text{D}_6$

Protons on Target n_TOF (dedicated pulses only)

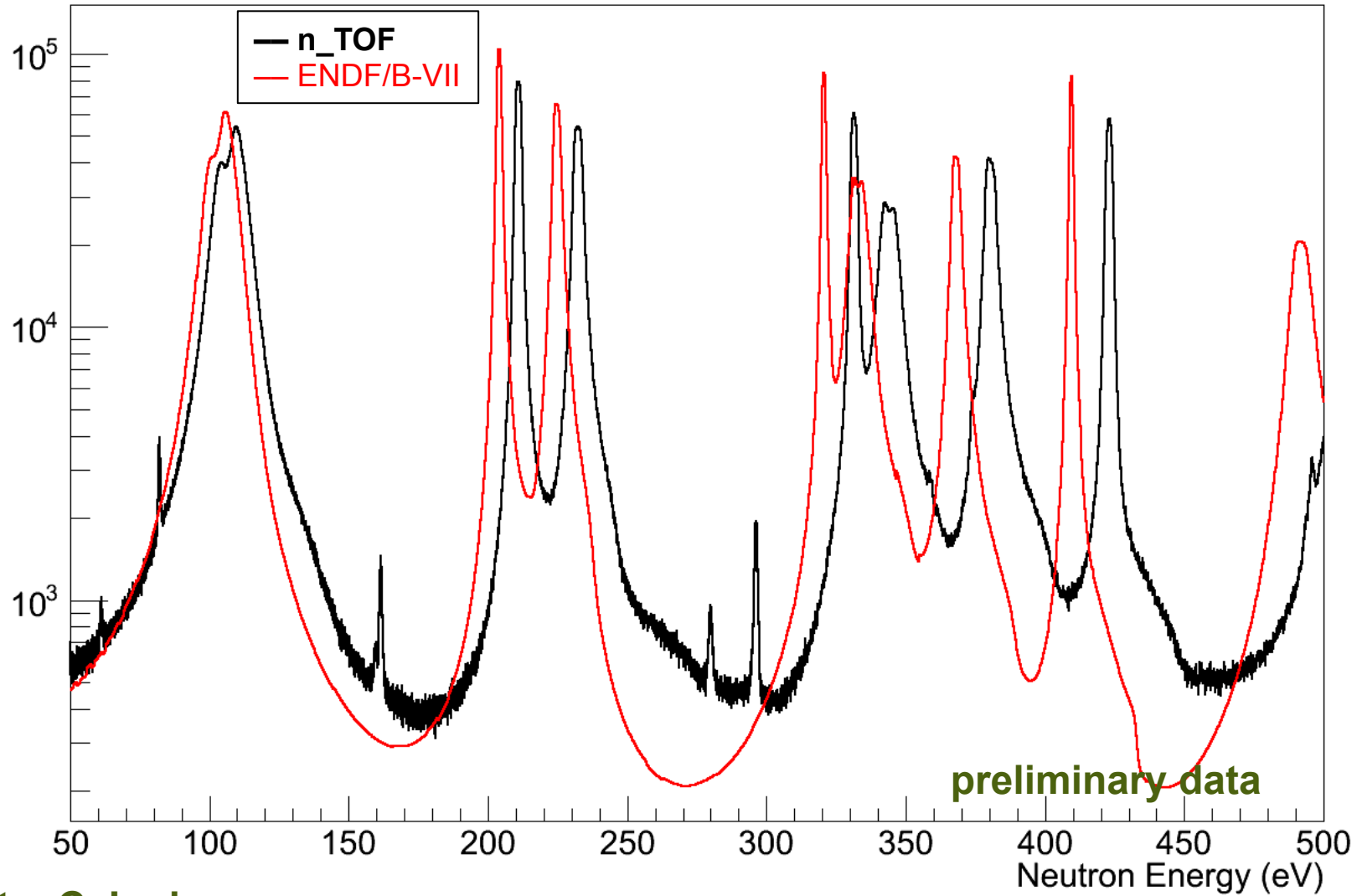


EAR1
2014
EAR2



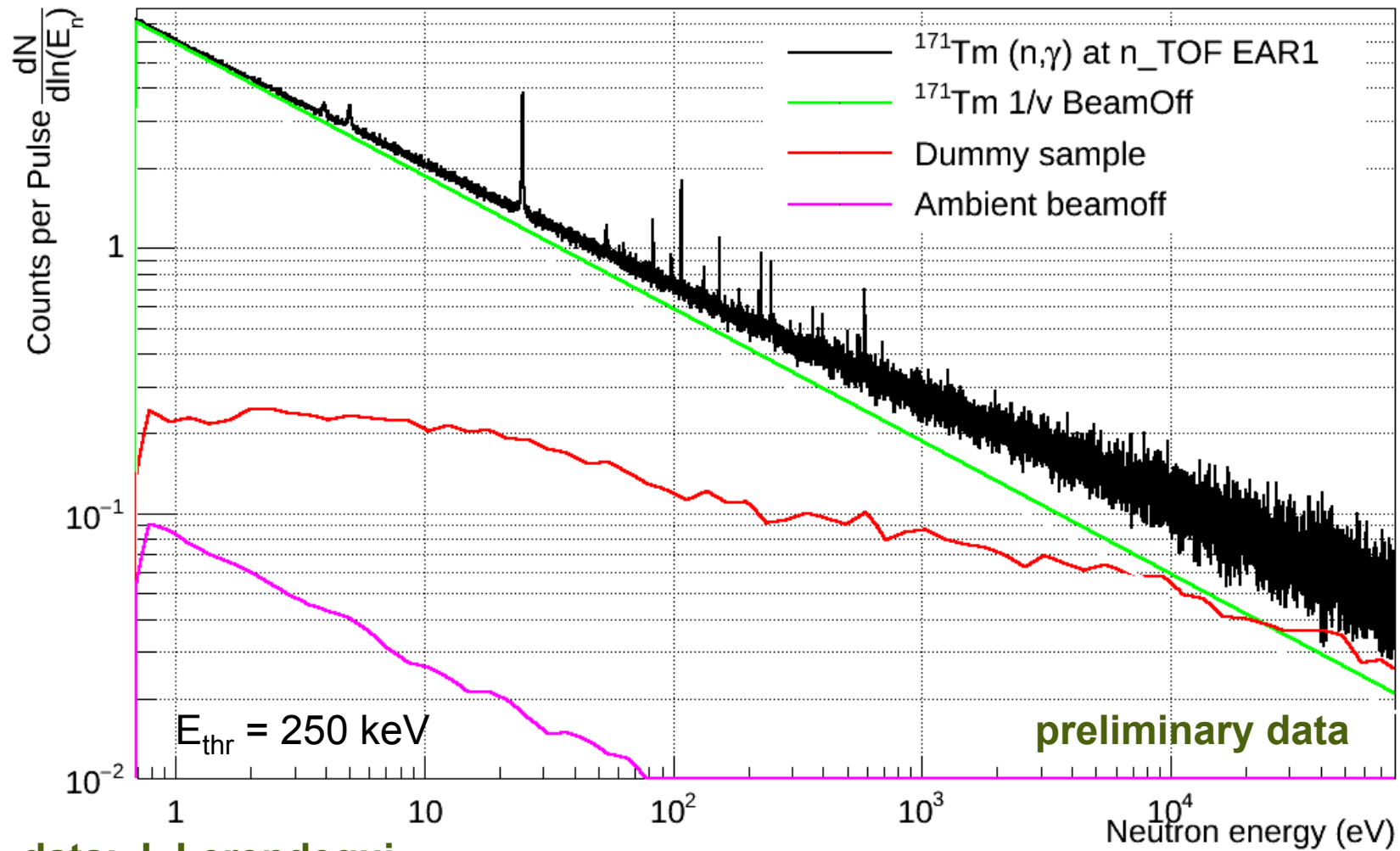


data: C. Lederer



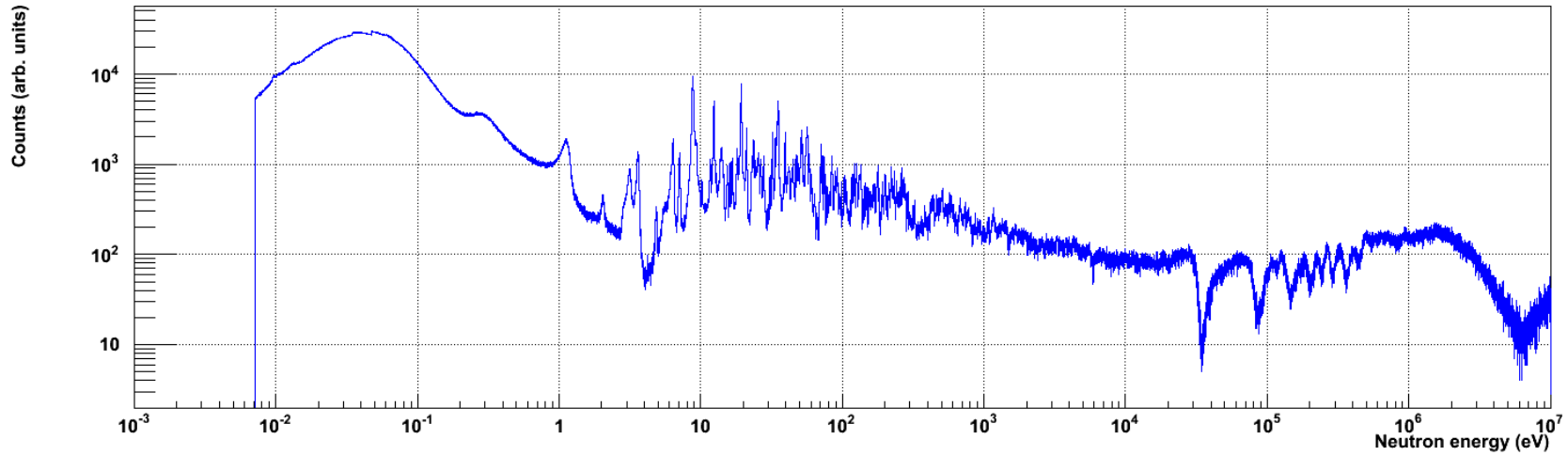
data: C. Lederer

$^{171}\text{Tm}(n,\gamma)$ at n_TOF EAR1

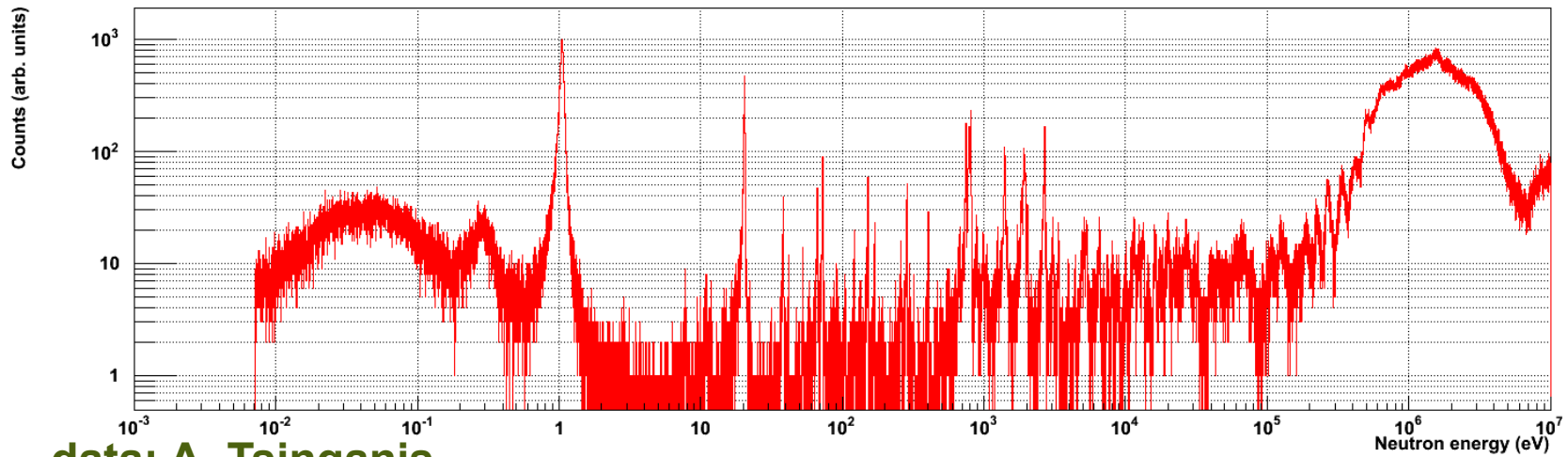


data: J. Lerendegui

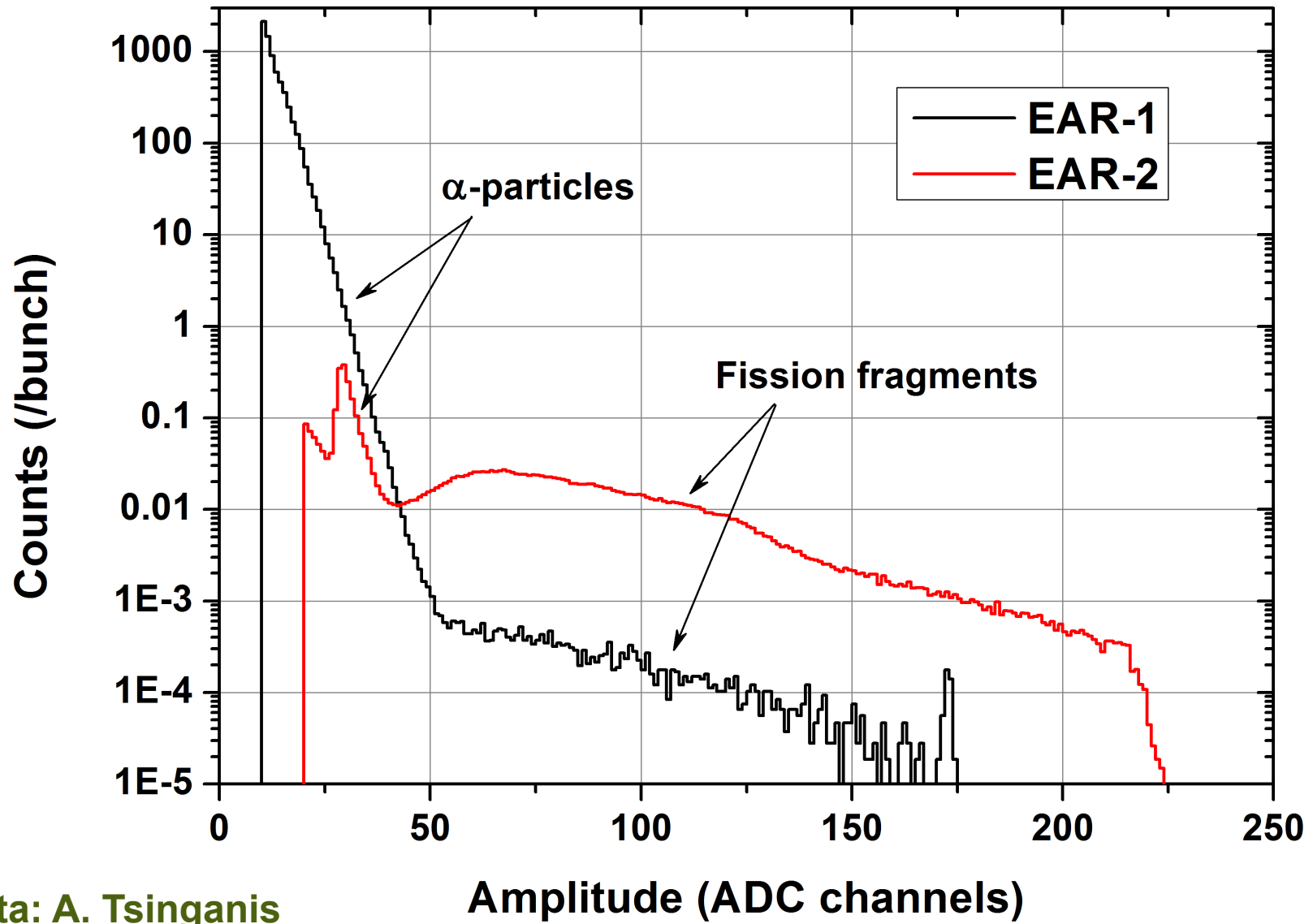
Counts vs. NeutEne - 235U #6



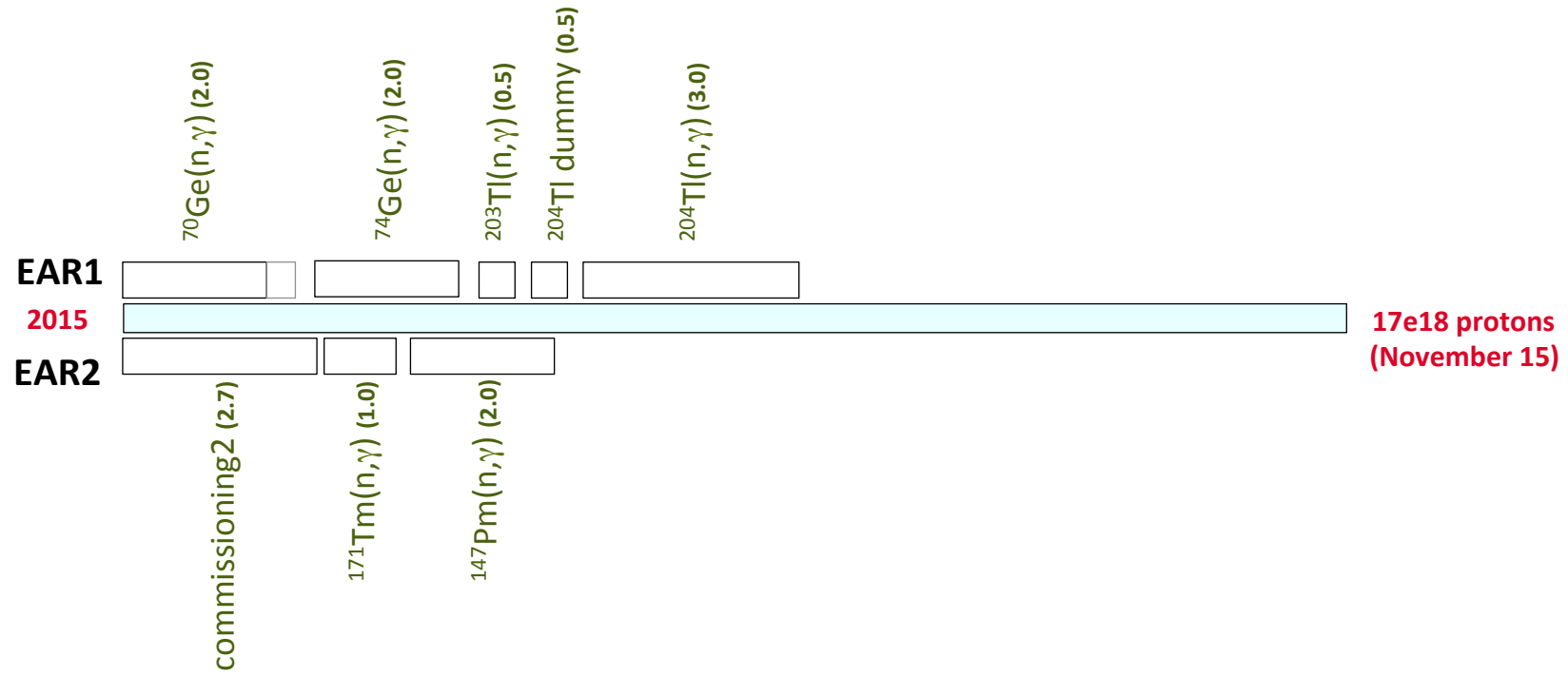
Counts vs. NeutEne - 240Pu #2-4

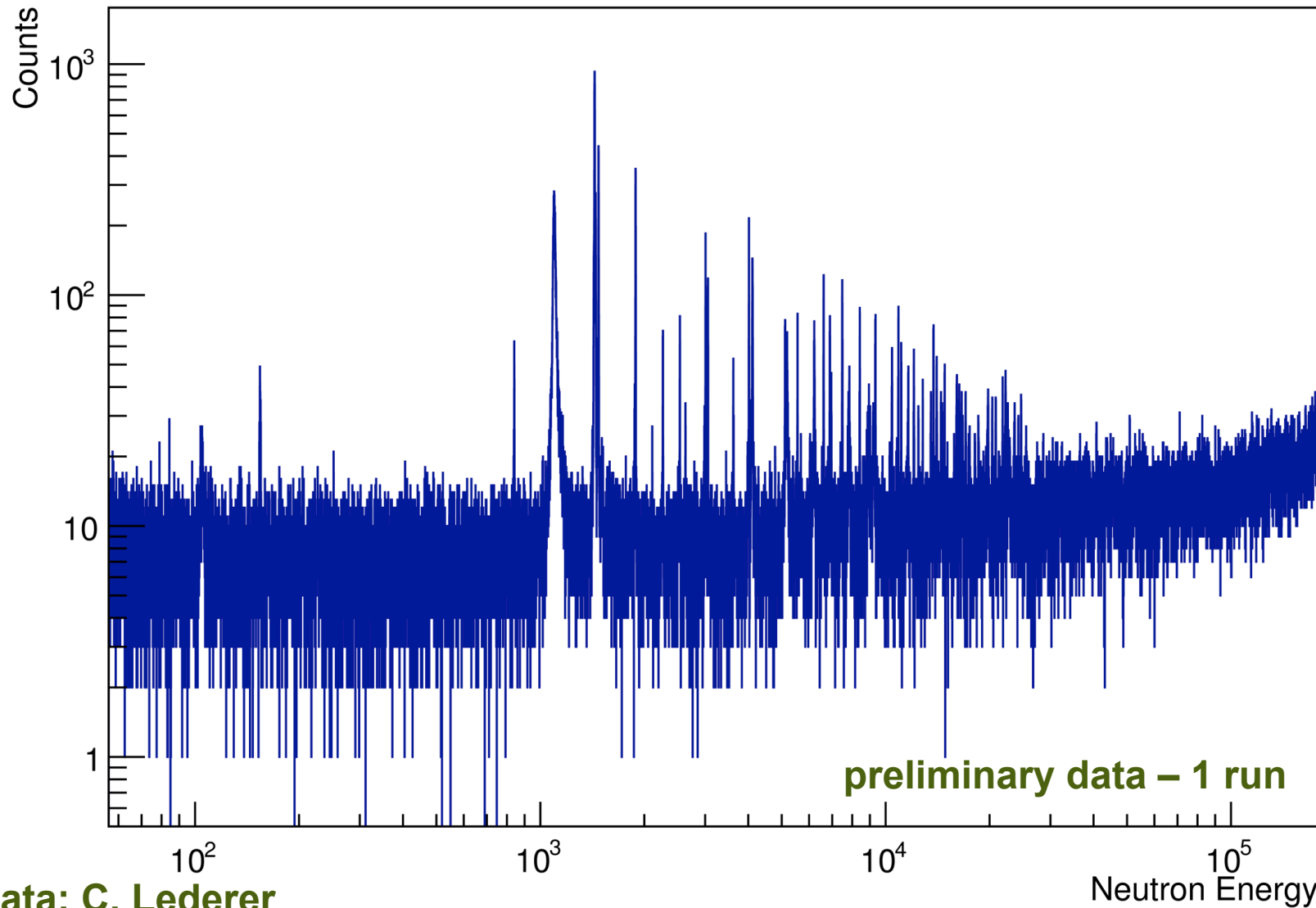


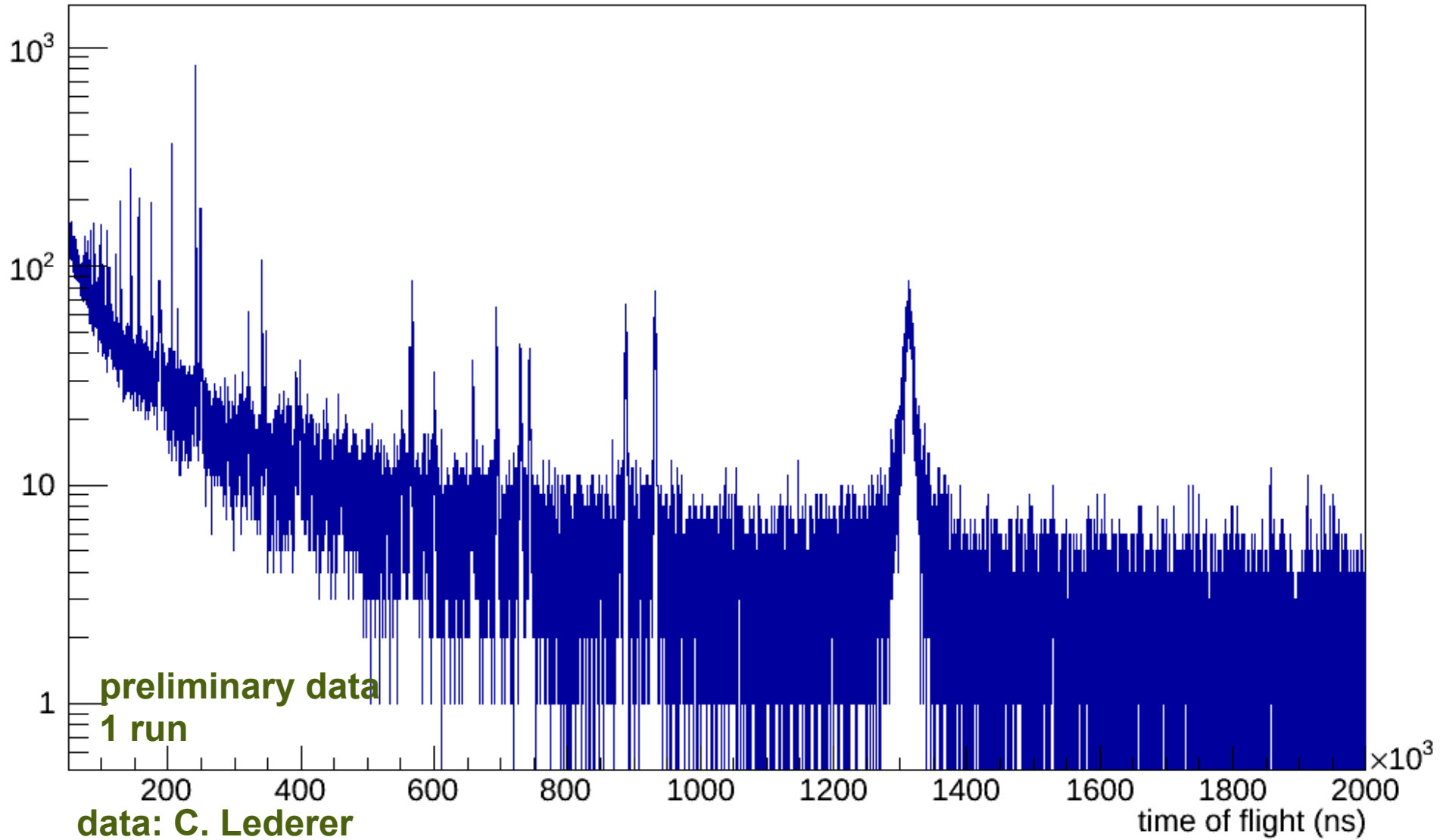
data: A. Tsinganis

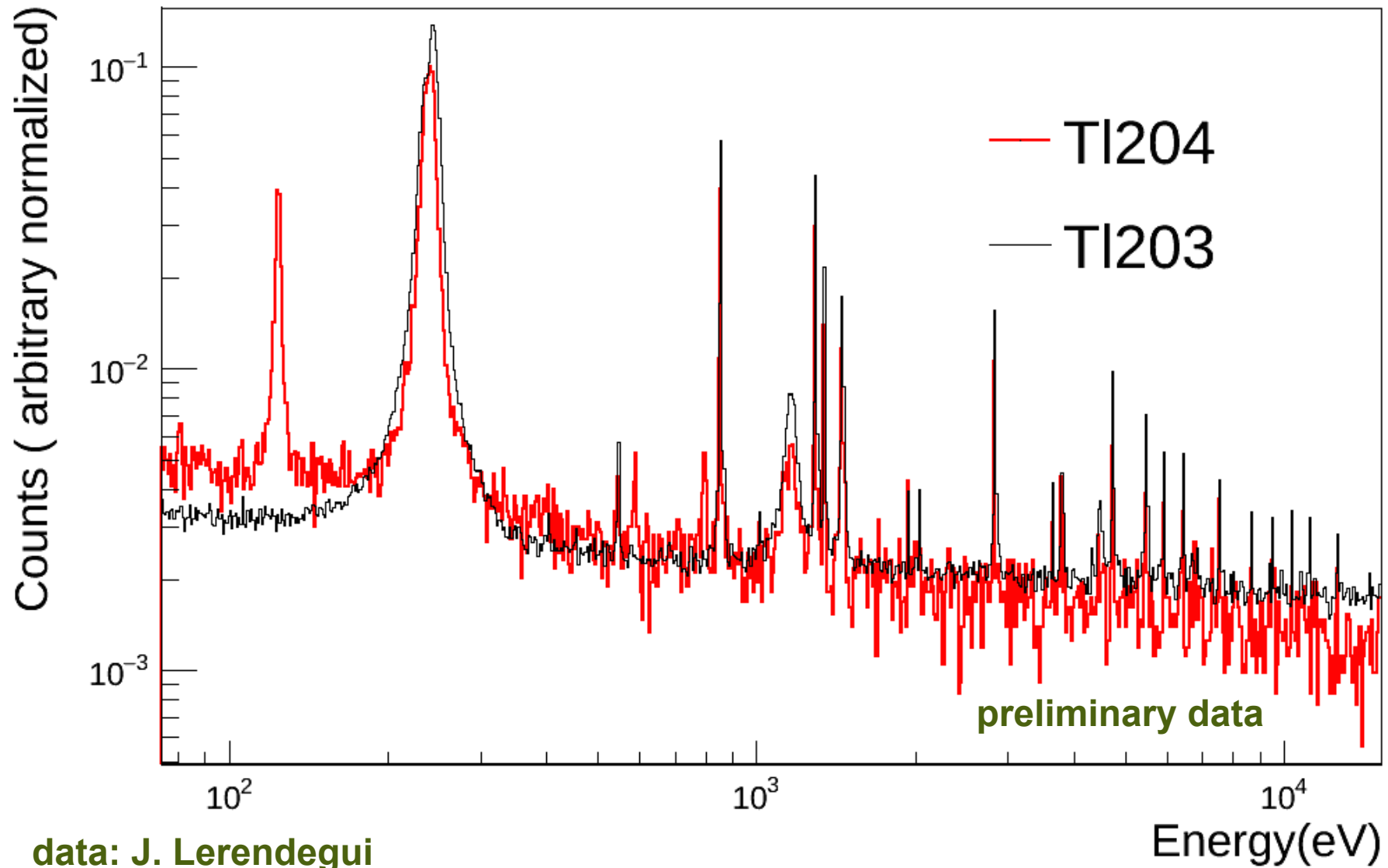


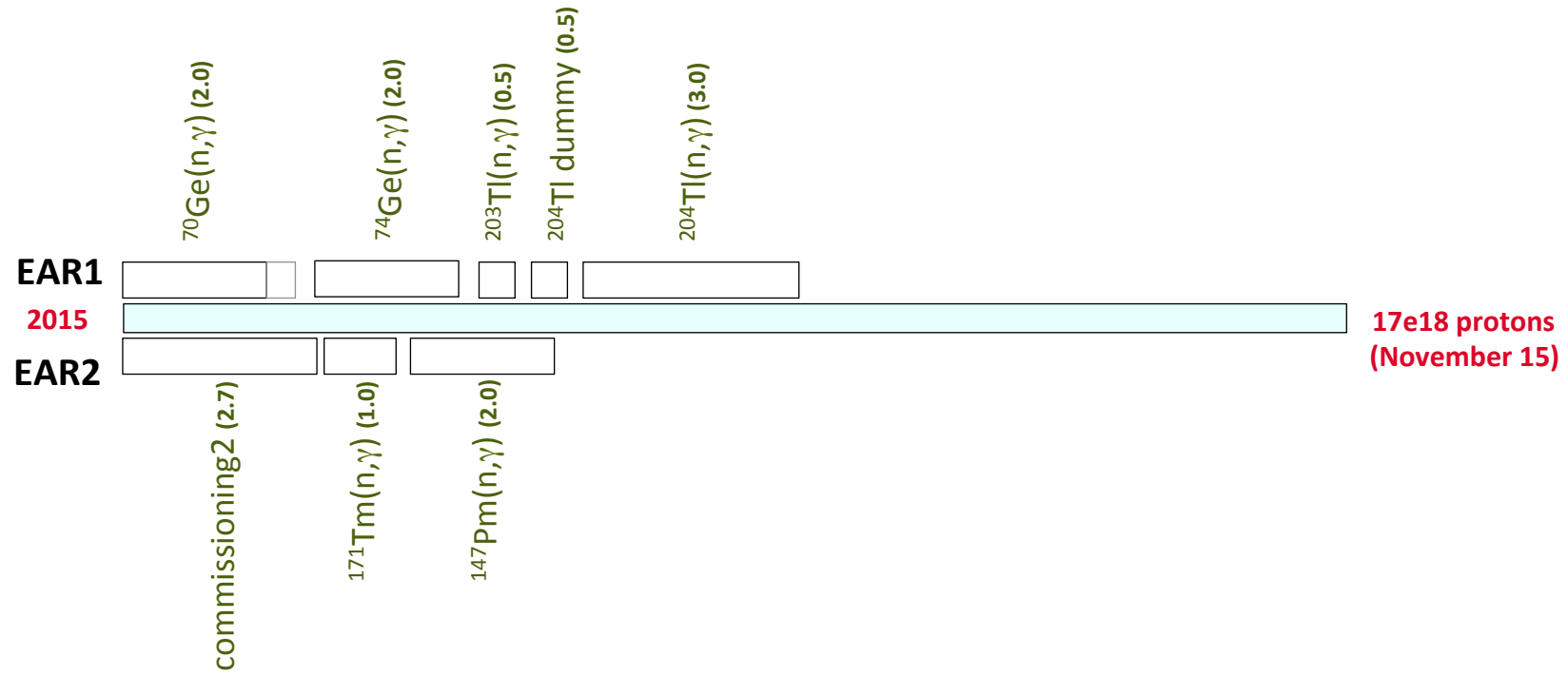
data: A. Tsinganis



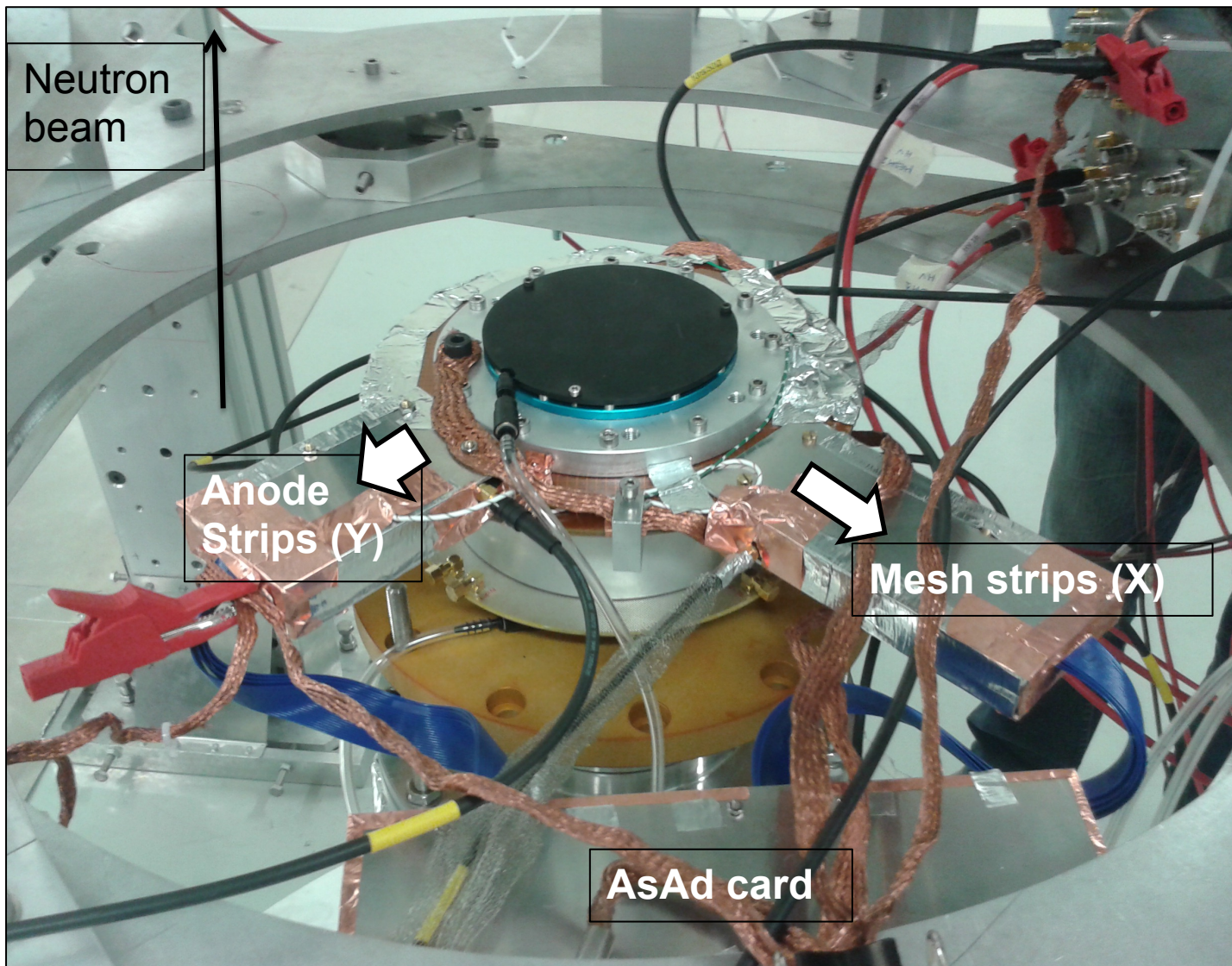




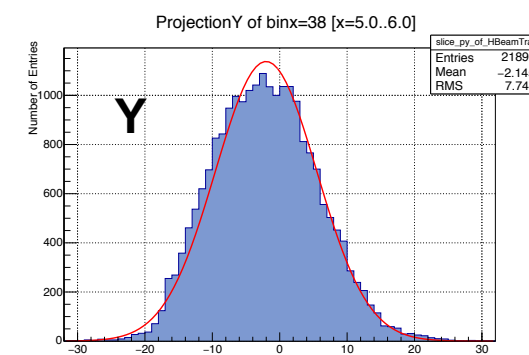
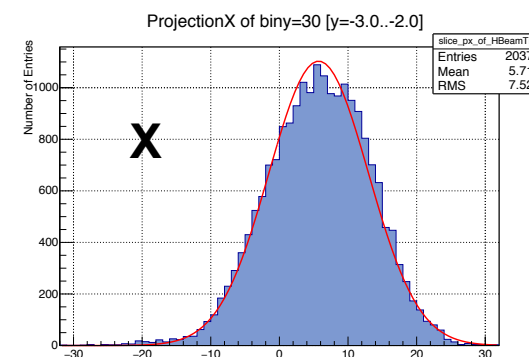
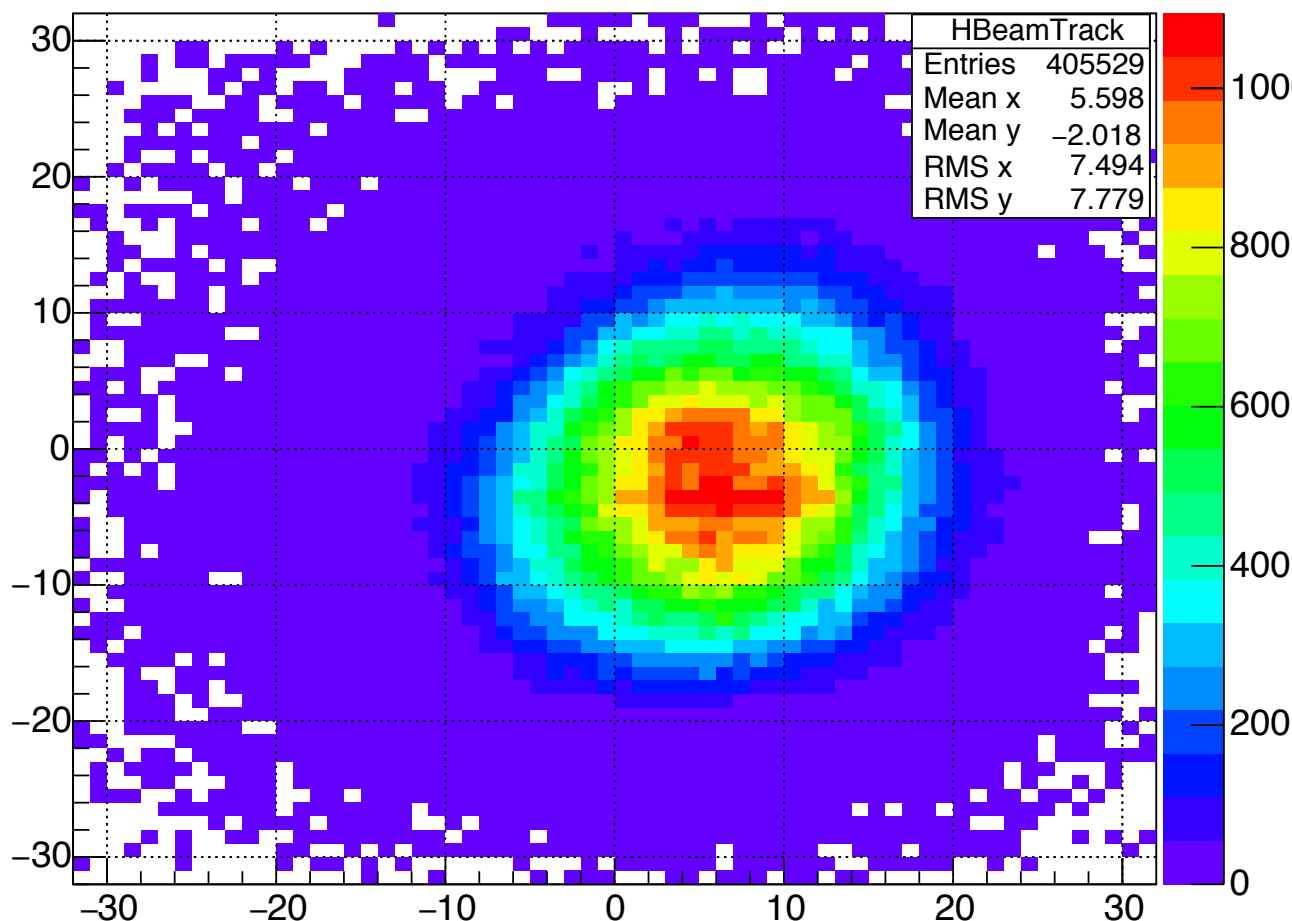




- **Commissioning 2014: focus on feasibility of fission (n,f)**
- **Commissioning 2015: focus on feasibility of capture (n, γ) and (n,cp)**
 - Gafchromic beam profile
 - XY MicroMegas beam profile
 - ^3He neutron detectors
 - diamond detectors test
 - LaBr_3 , CeBr_3 , LaCl_3 gamma-ray detector tests
 - MicroMegas flux measurements
 - Silicon telescope tests
 - radiation tests silicon detectors for ^7Be
 - MicroMegas (n,p) test measurements
 - C_6D_6 measurements (RF, backgrounds, tests)
 - PPACs flux measurements

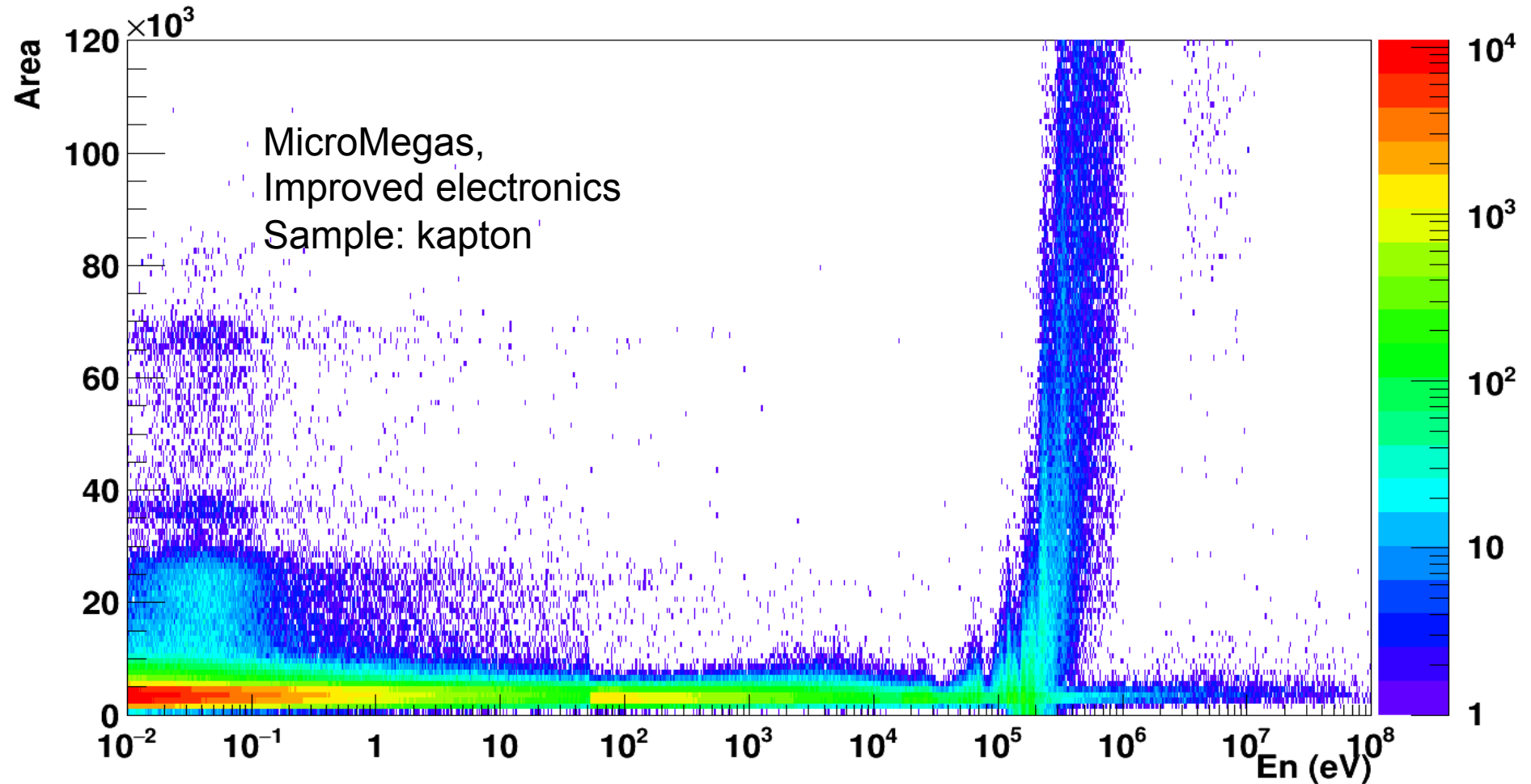


Beam image (track X, track Y)



data: M. Diakaki

without cuts



data: M. Sabaté-Gilarte

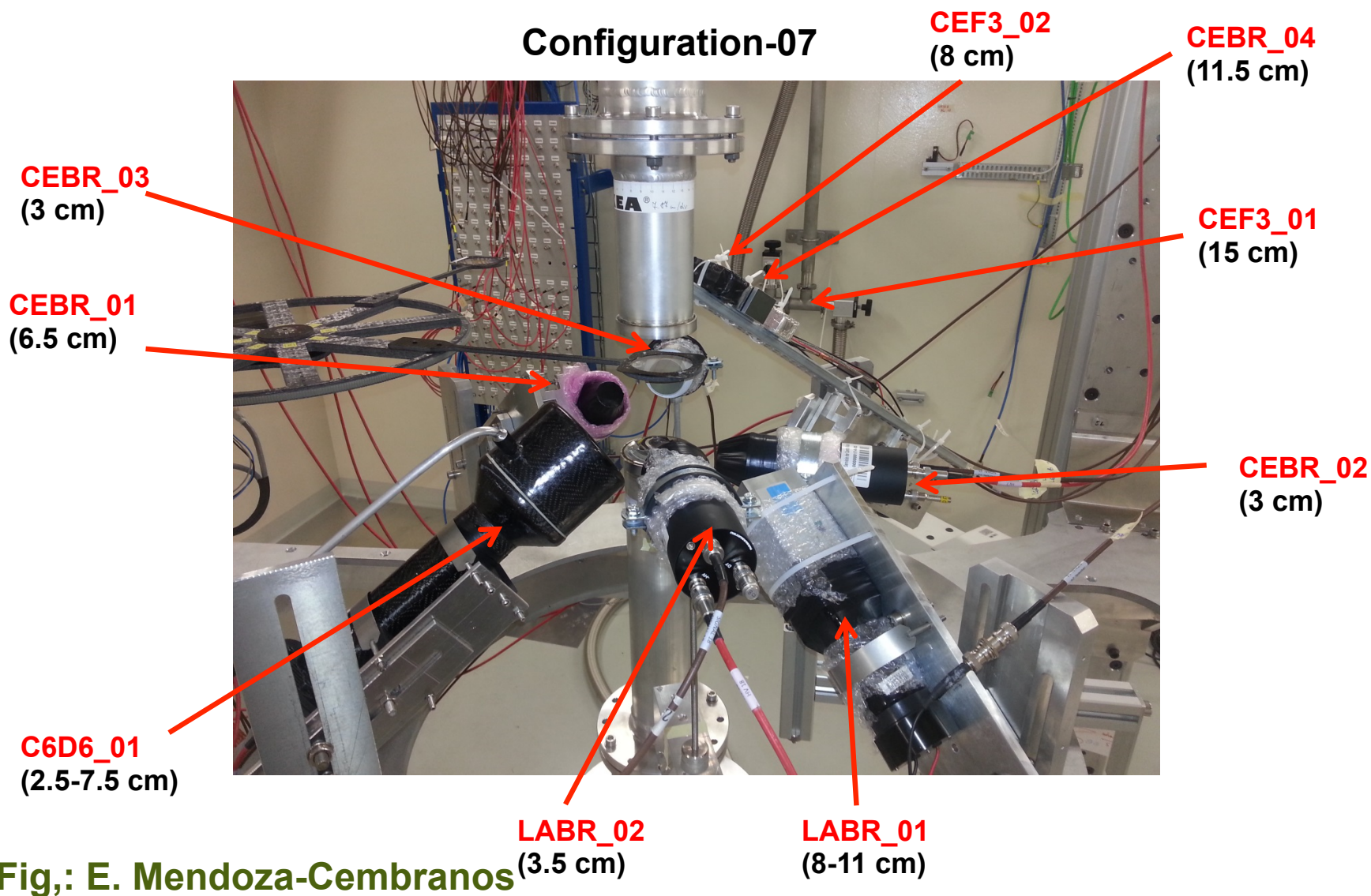
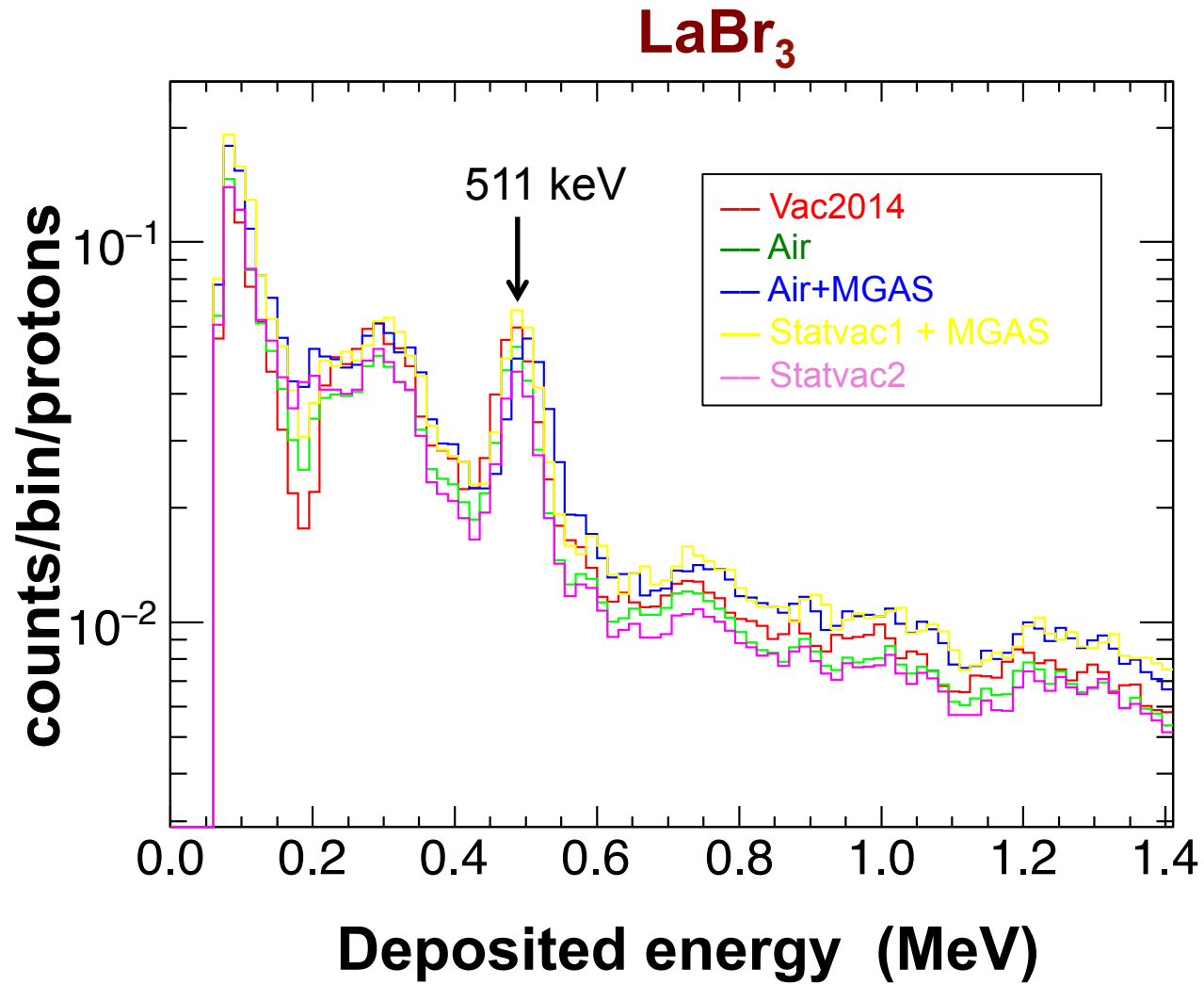
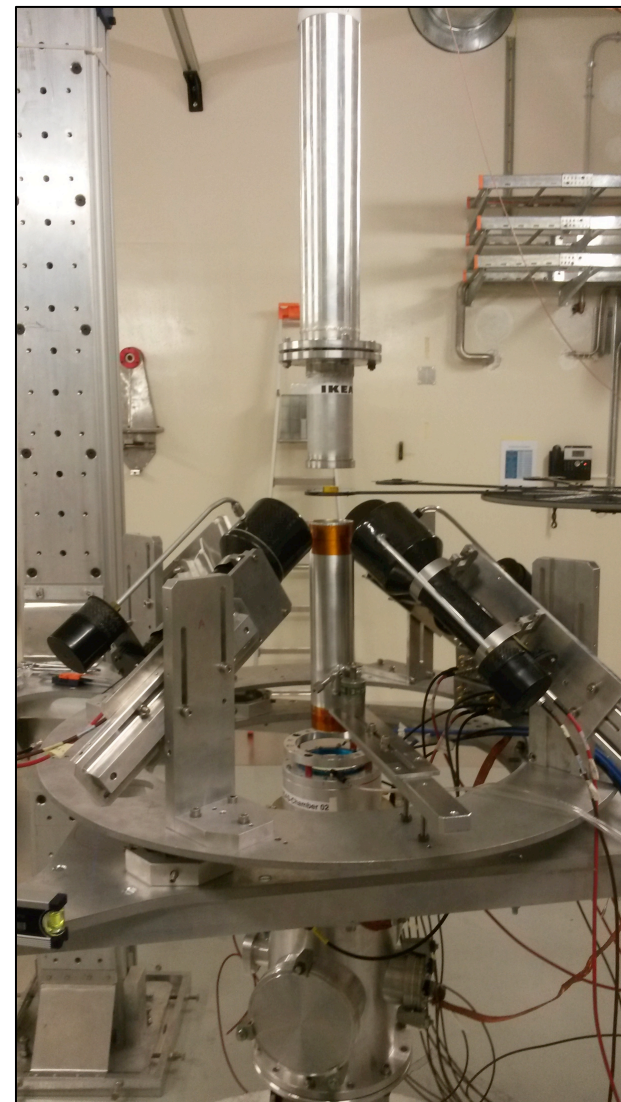
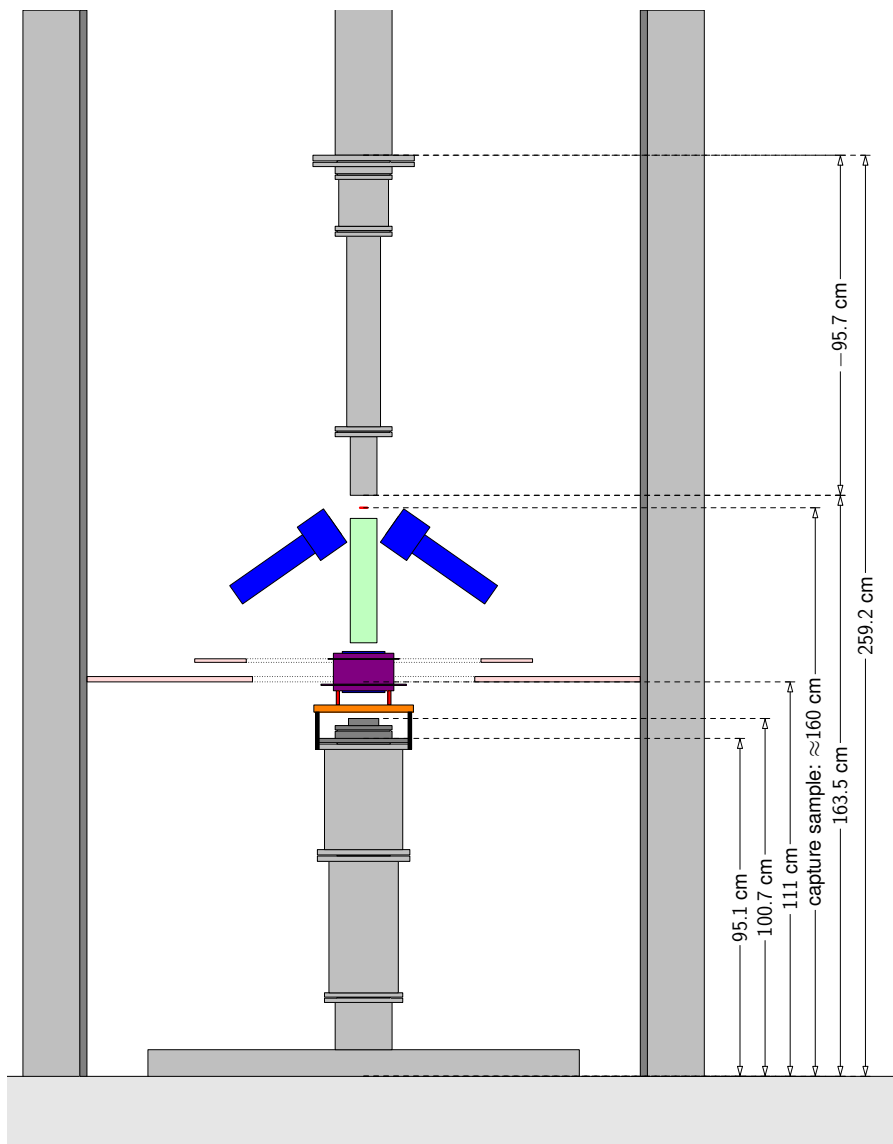
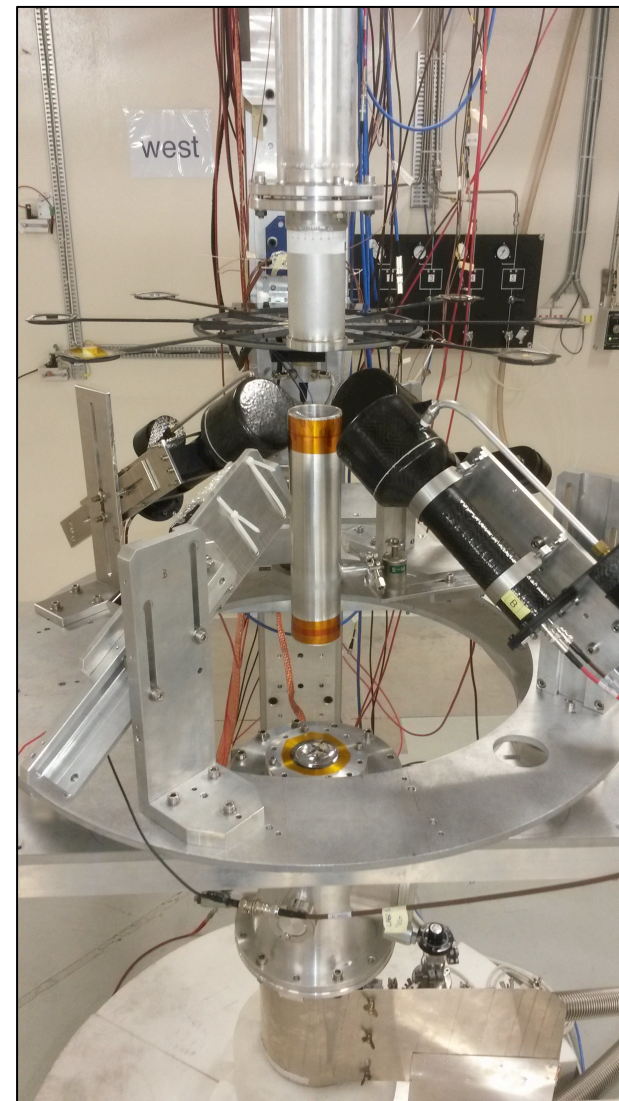
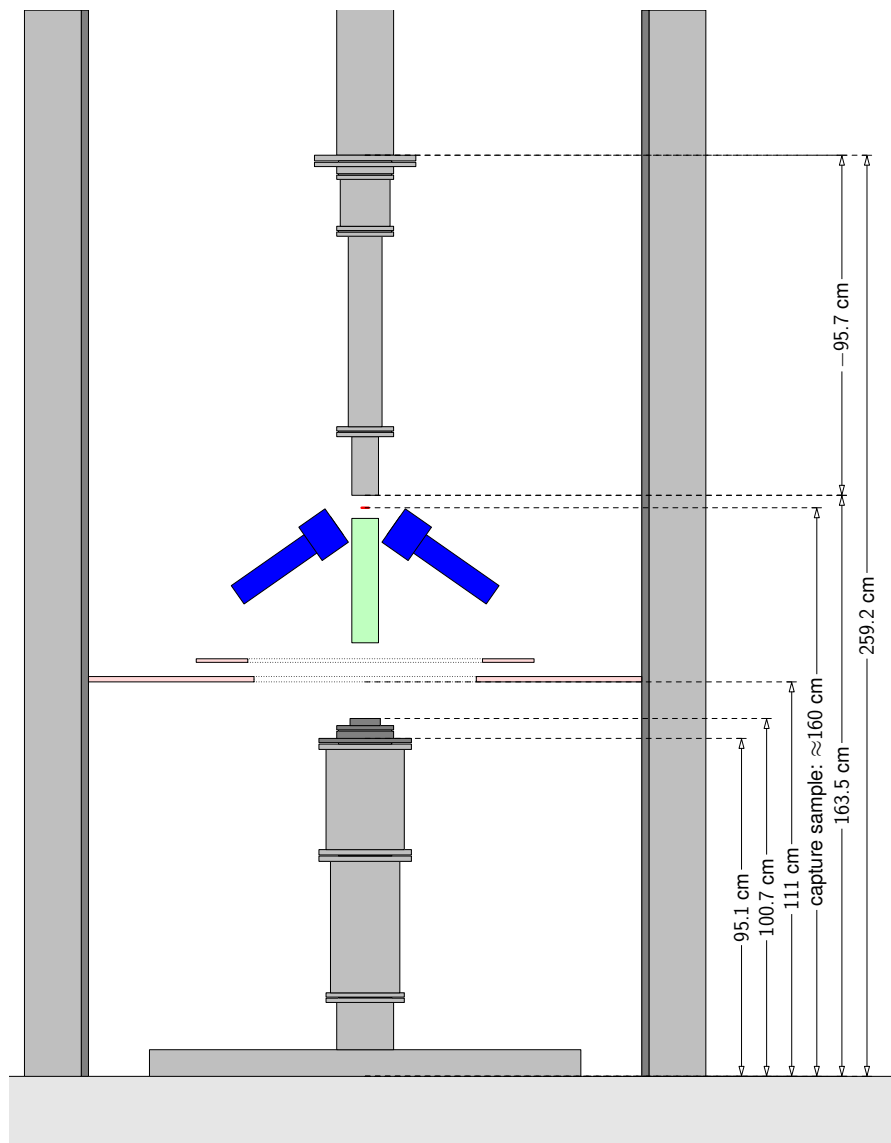


Fig.: E. Mendoza-Cembranos



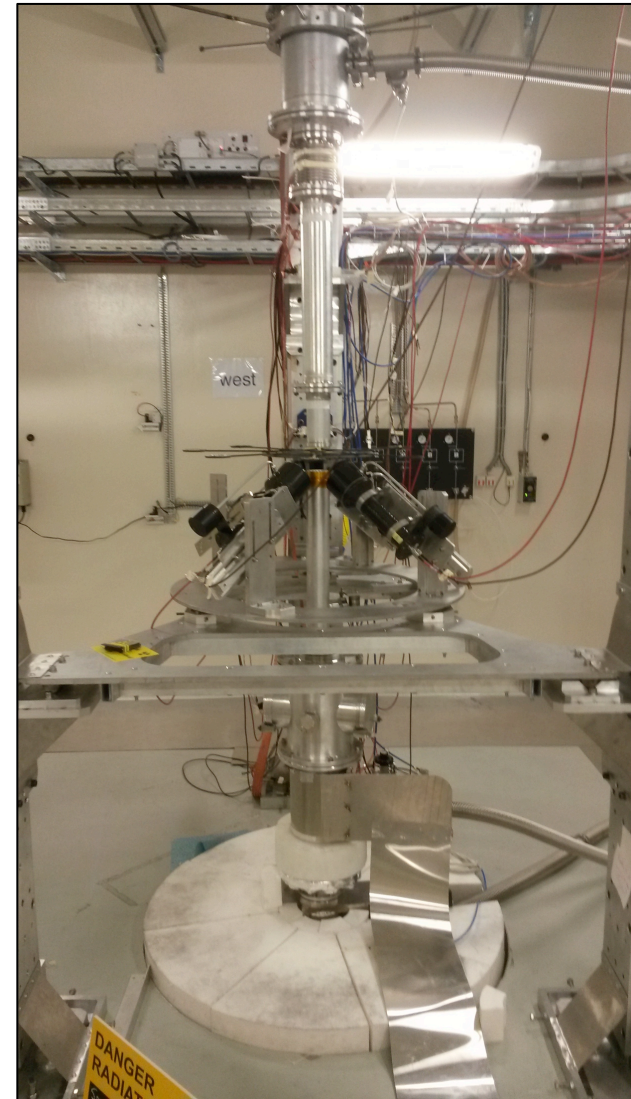
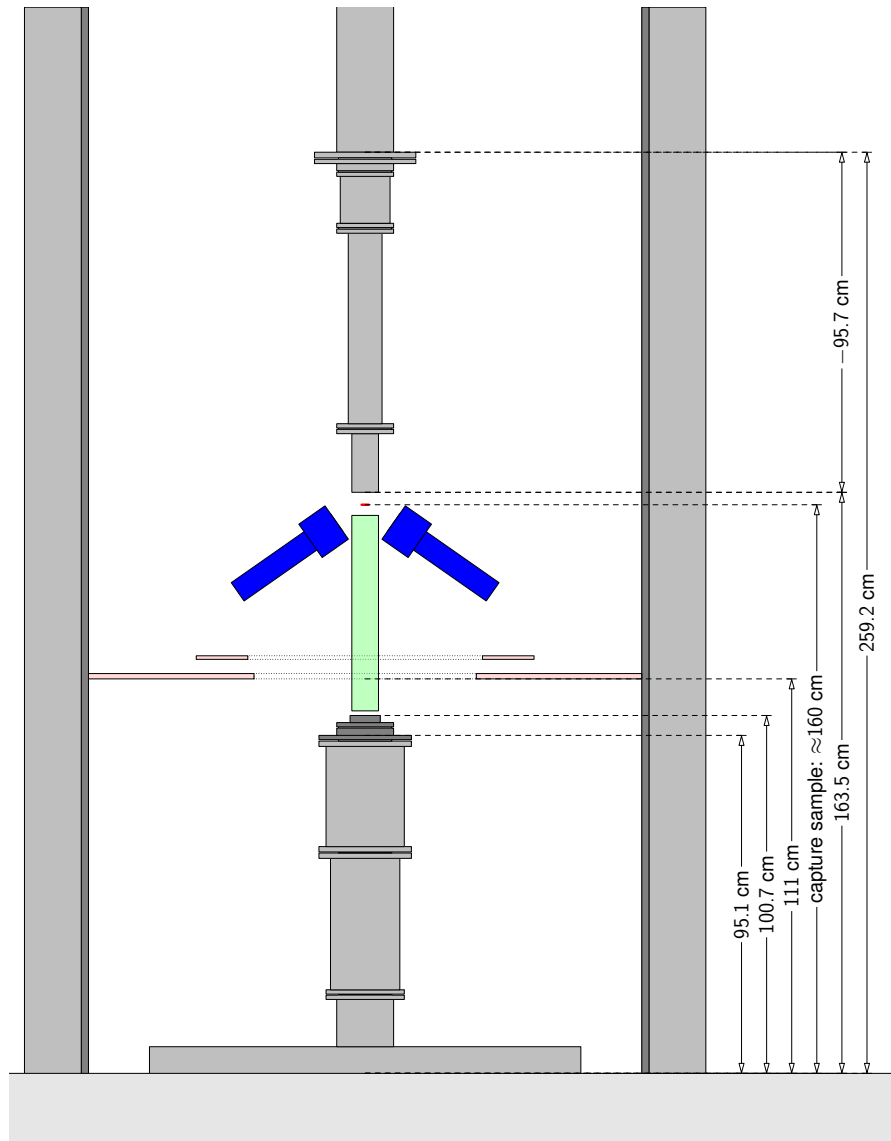


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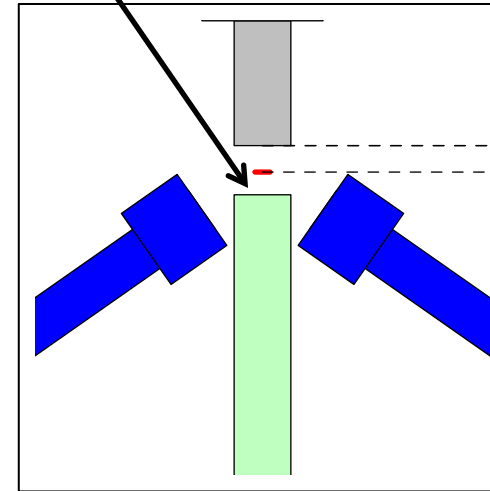
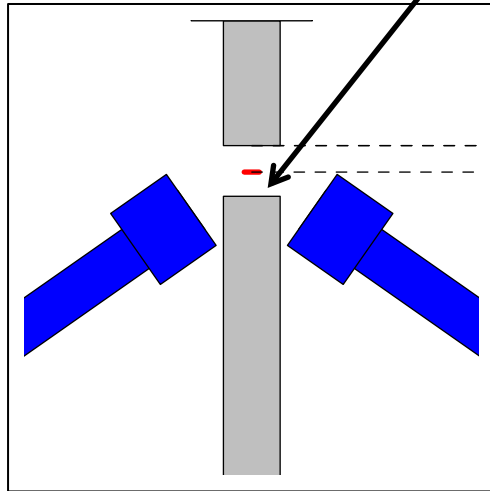
EAR2 vacuum pipes: config. Statvac2



20150526_105552

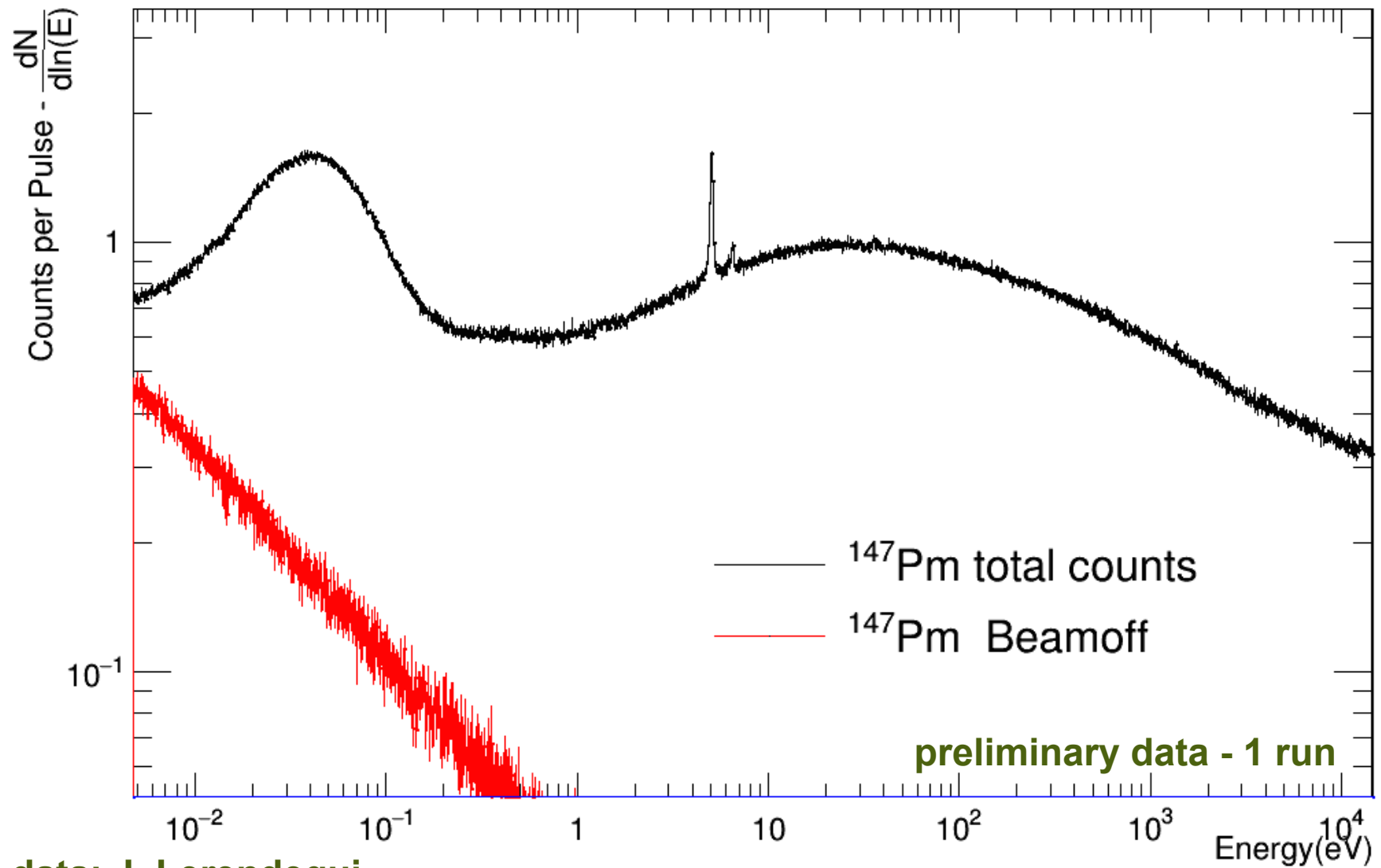
100 μm kapton

6 μm mylar

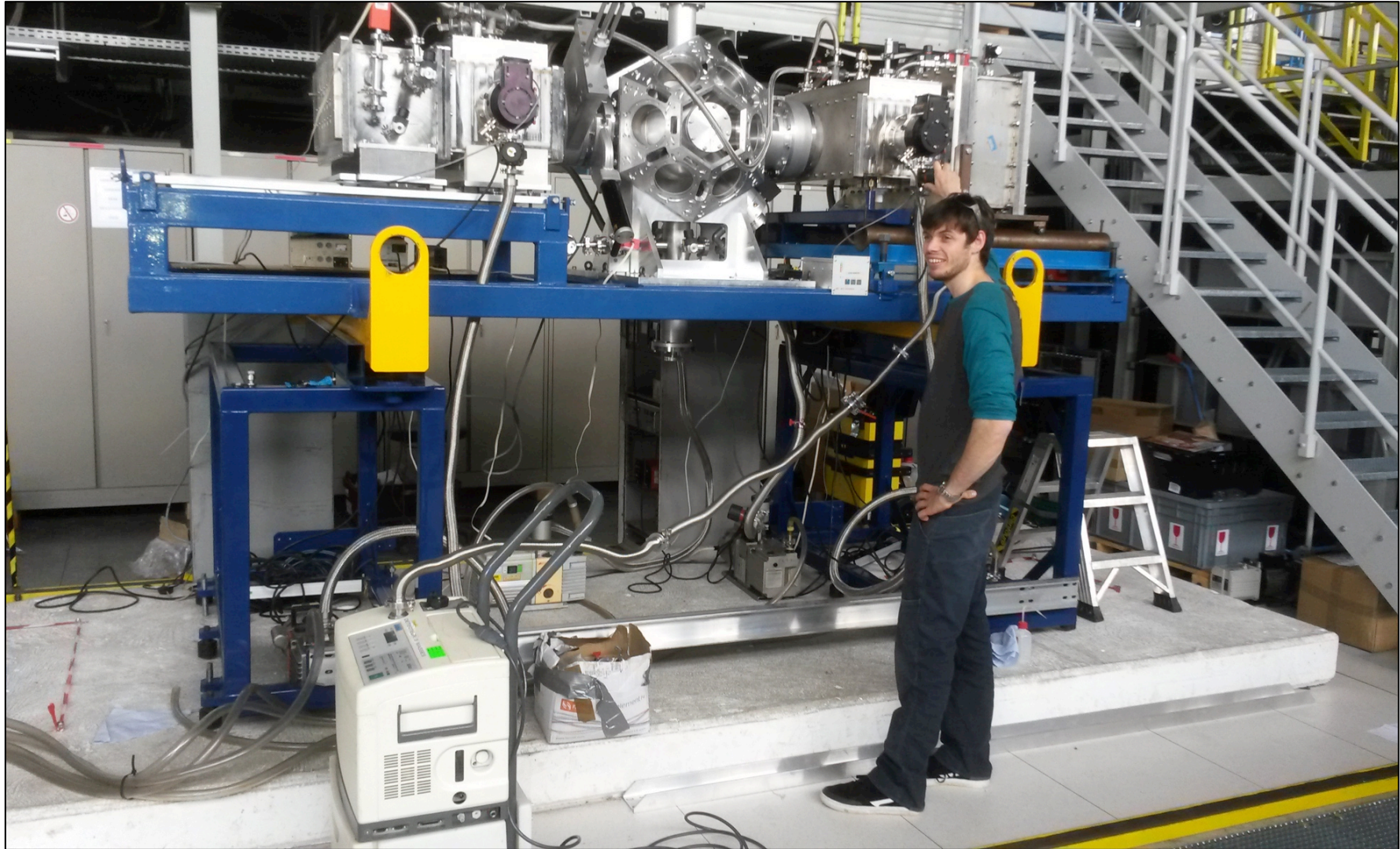


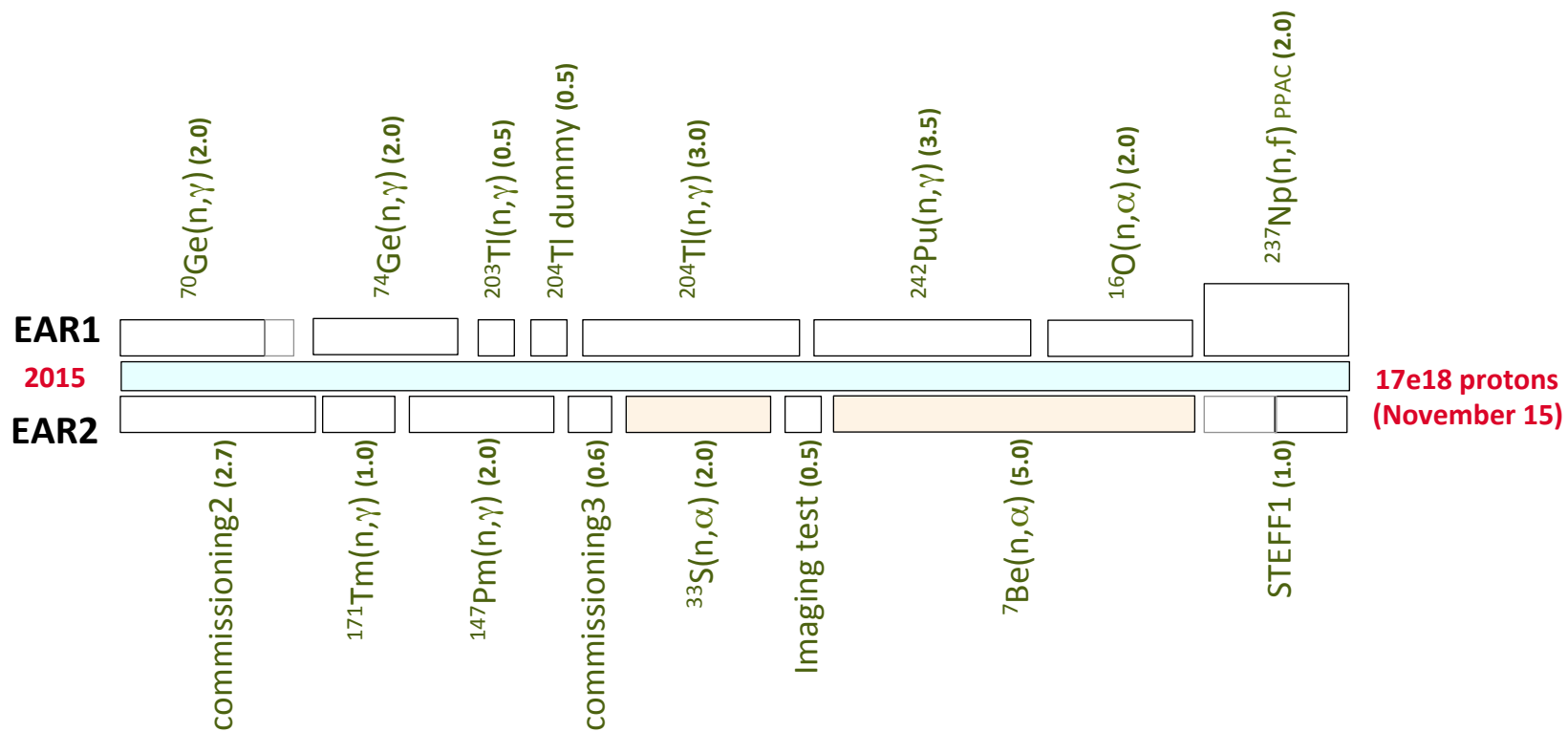
full beam line vacuum

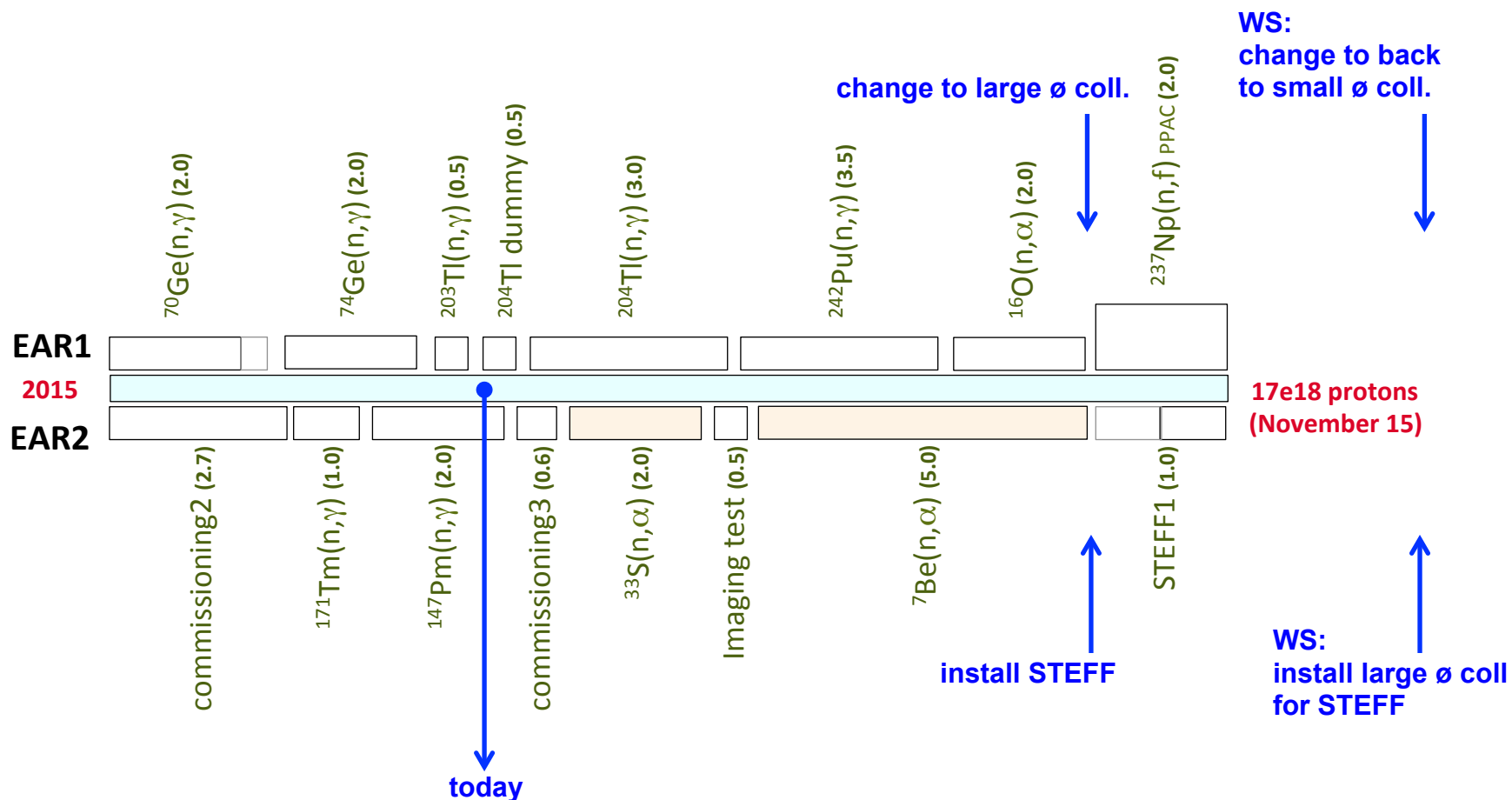
static vacuum tube



data: J. Lerendegui







EAR1

- INTC-P-438 $^{155,157}\text{Gd}(n,\gamma)$ – N. Colonna
- INTC-P-437 $^{\text{even}}\text{Gd}(n,\gamma)$ – C. Massimi

EAR2

- INTC-P-442 $^{33}\text{S}(n,\alpha)$ – J. Praena
- INTC-P-417-ADD-1 $^7\text{Be}(n,\alpha)$, $^7\text{Be}(n,p)$ – M. Barbagallo

Thank you for your attention

