

# n\_TOF Report

Frank Günsing  
n\_TOF Physics Coordinator

*CEA Saclay  
On leave at CERN*

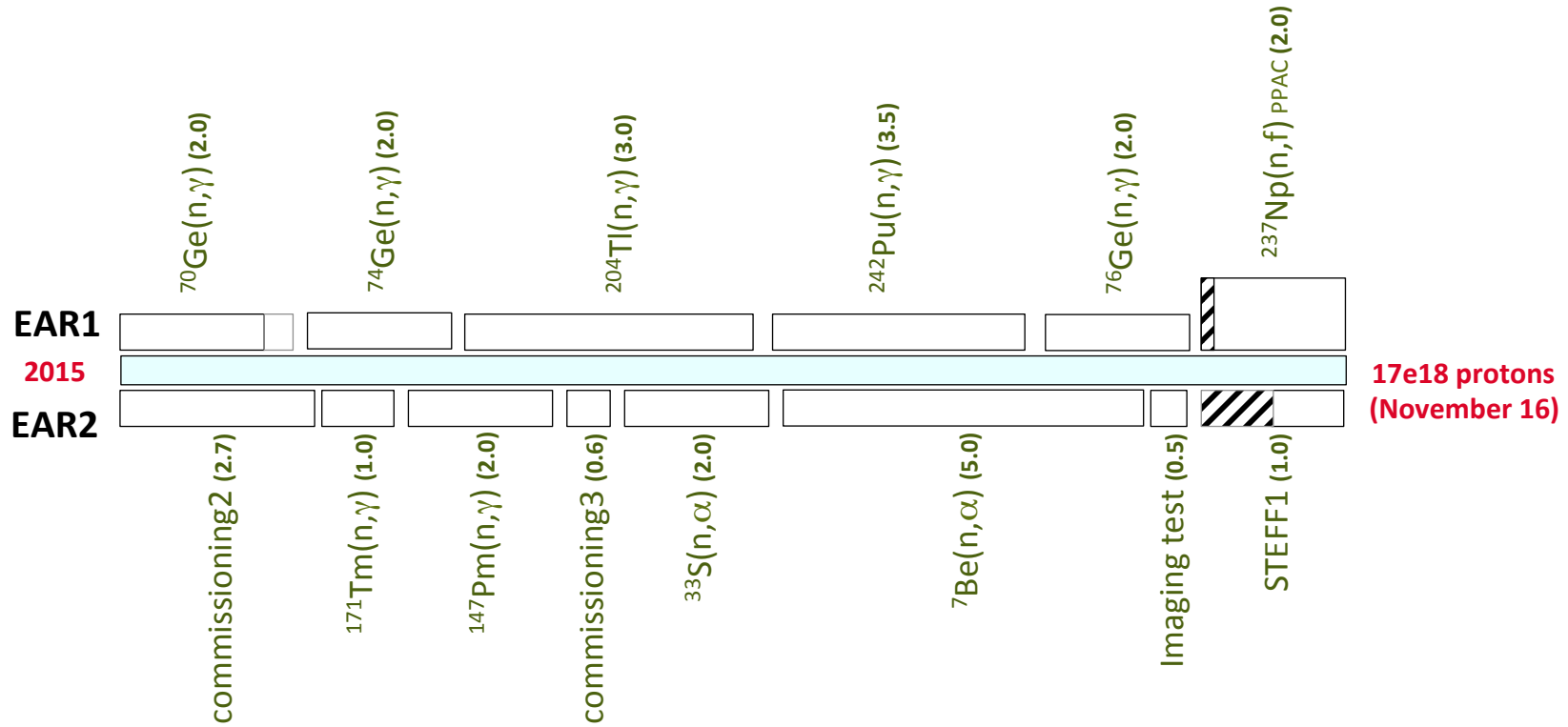
## EAR1

- $^{70}\text{Ge}(n,\gamma)$
- $^{74}\text{Ge}(n,\gamma)$
- $^{204}\text{Tl}(n,\gamma)$
- $^{242}\text{Pu}(n,\gamma)$
- $^{76}\text{Ge}(n,\gamma)$
- $^{237}\text{Np}(n,f)$

## EAR2

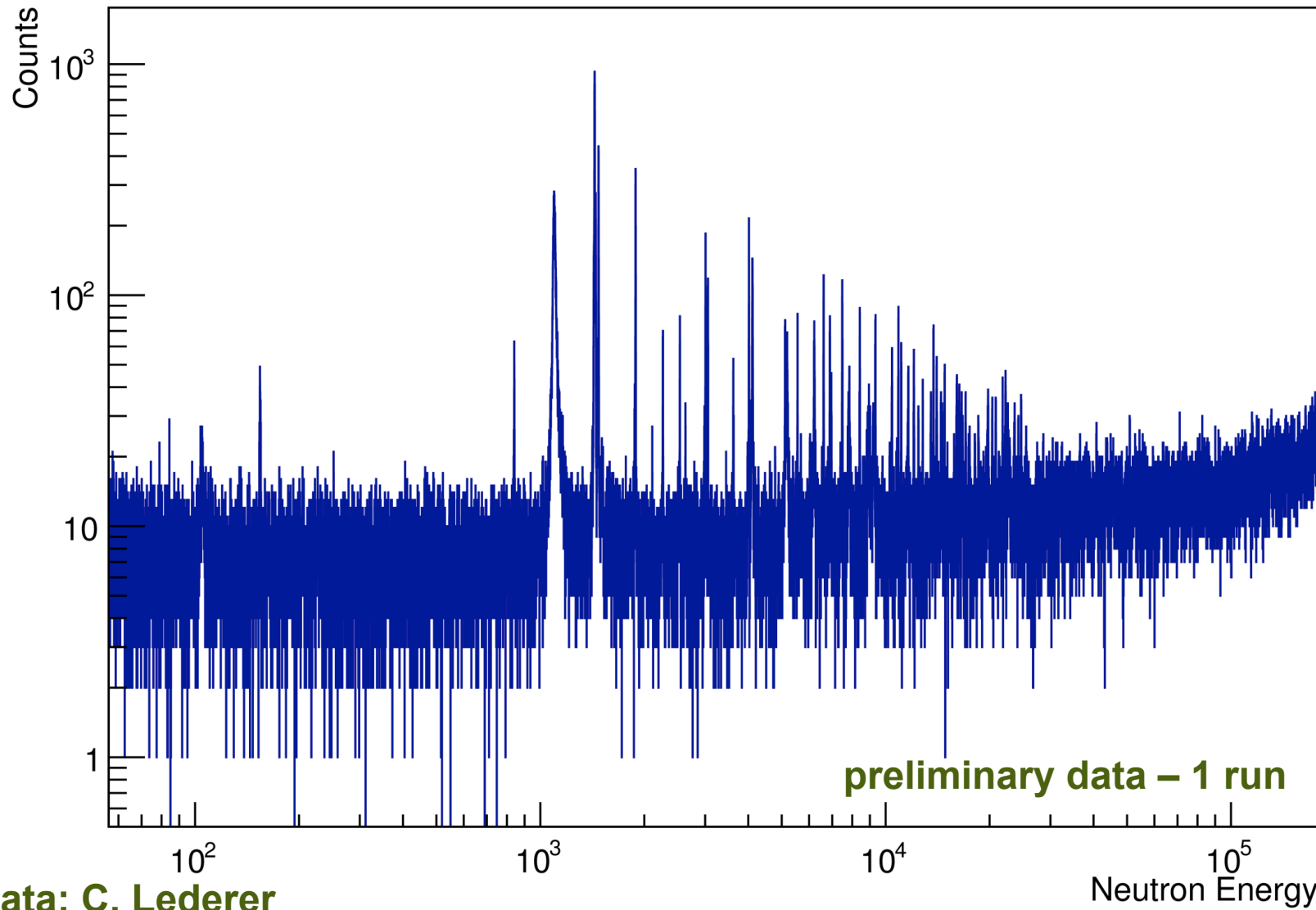
- commissioning
- $^{171}\text{Tm}(n,\gamma)$
- $^{147}\text{Pm}(n,\gamma)$
- $^{33}\text{S}(n,\alpha)$
- $^7\text{Be}(n,\alpha)$
- imaging
- $^{235}\text{U}(n,f)$  FF STEFF

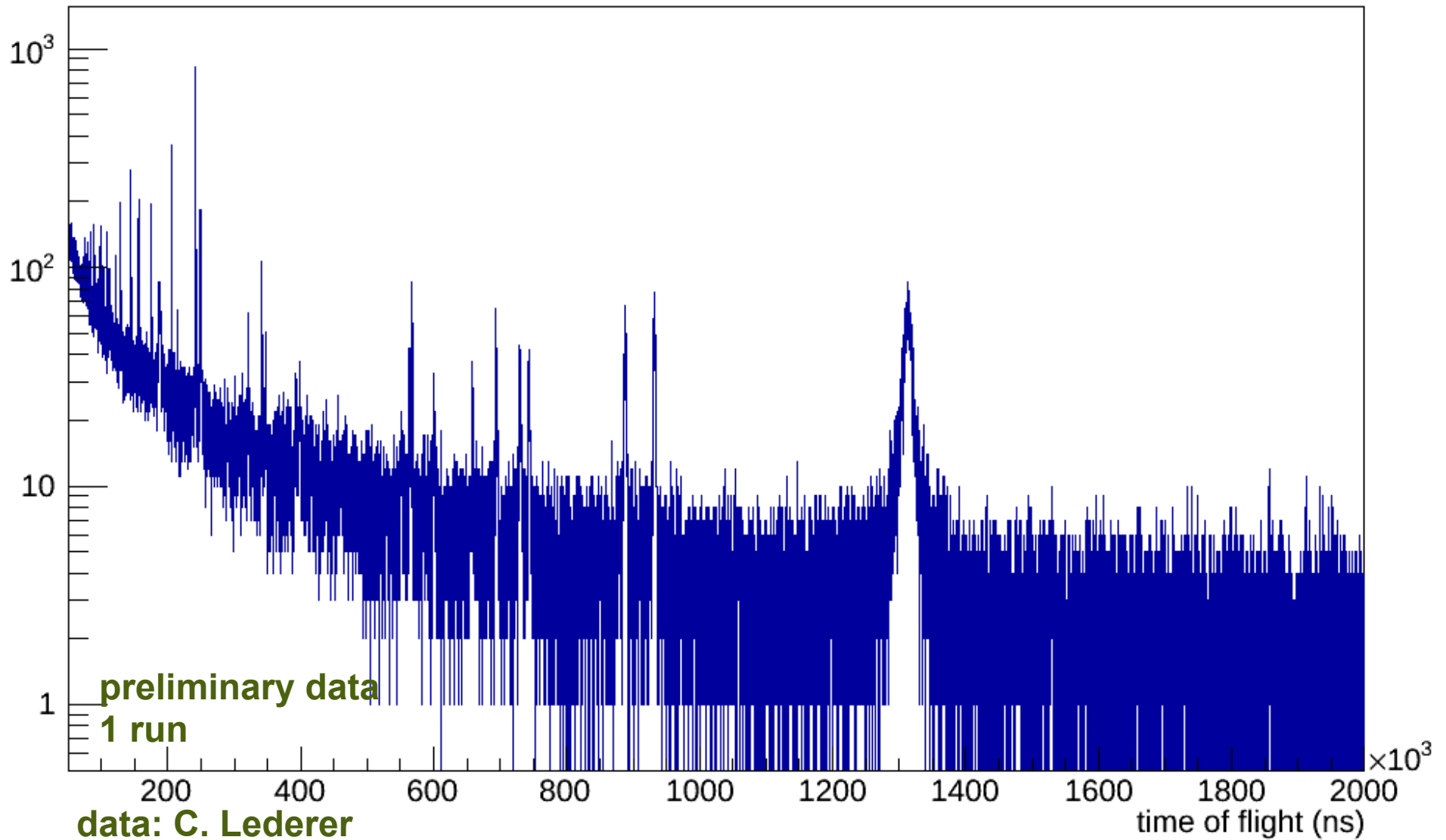
- EAR2 commissioning 2014: focus on feasibility of fission (n,f)  $\rightarrow$   $^{240}\text{Pu}(n,f)$
- EAR2 commissioning 2015: focus on feasibility of capture (n, $\gamma$ ) and (n,cp)

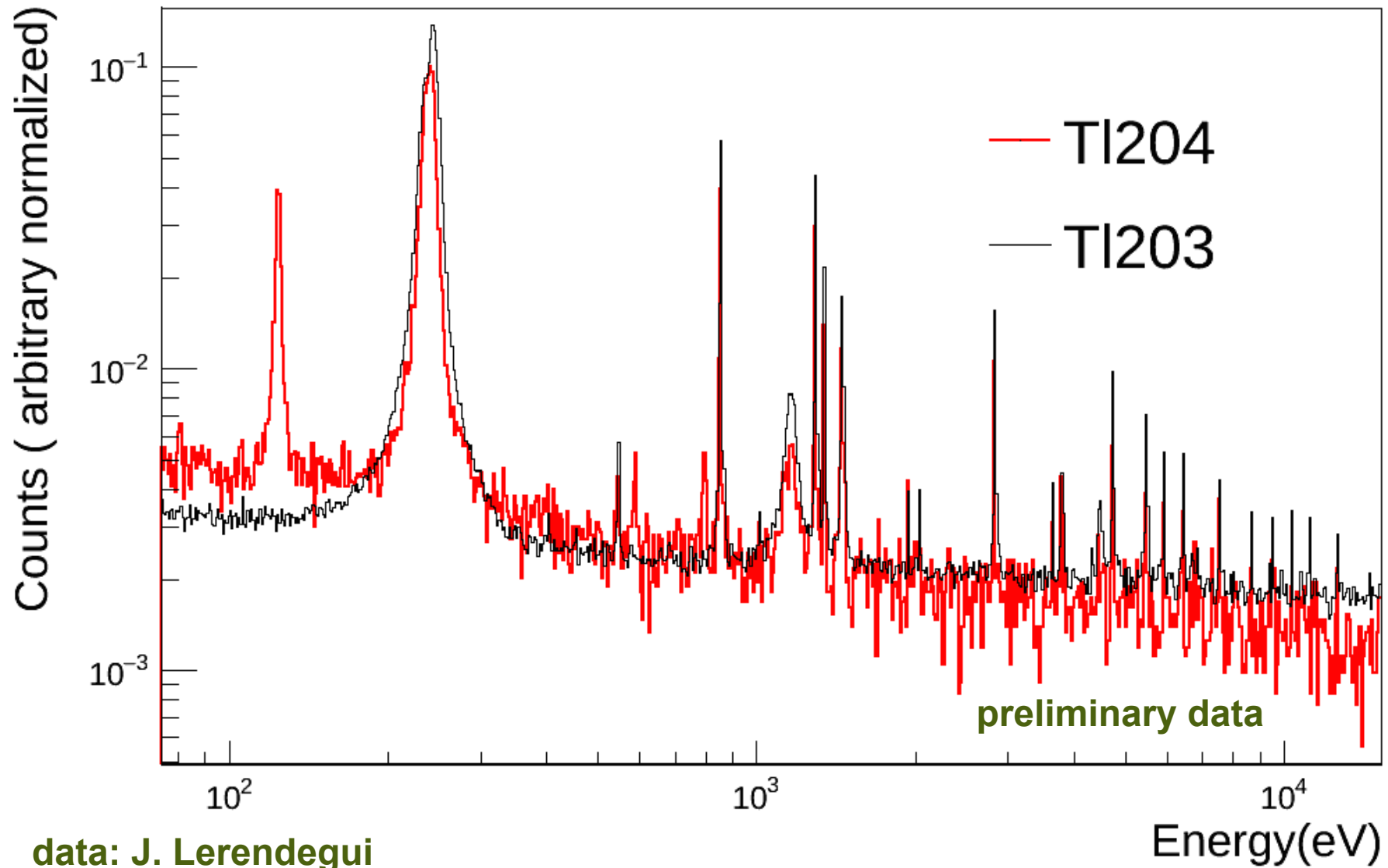


- Gafchromic beam profile
- XY MicroMegas beam profile
- PPACs flux + beam profile
- MicroMegas flux measurements
- MicroMegas (n,p) test measurements
- $^3\text{He}$  detectors neutron background
- diamond detectors test
- $\text{LaBr}_3$ ,  $\text{CeBr}_3$ ,  $\text{LaCl}_3$  gamma-ray detector tests
- Silicon telescope detector tests
- radiation tests silicon detectors
- $\text{C}_6\text{D}_6$  measurements (RF, backgrounds, tests)
- gamma-ray imaging test iTED (EAR1)
- fast scintillator tests (EAR1)
- HPGe tests (EAR1)
- TAC Voltage Divider development (EAR1)
- detector/electronic tests (beam dump)

# EAR1

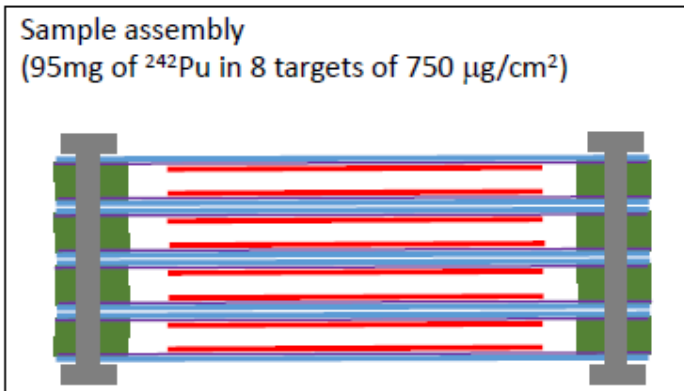




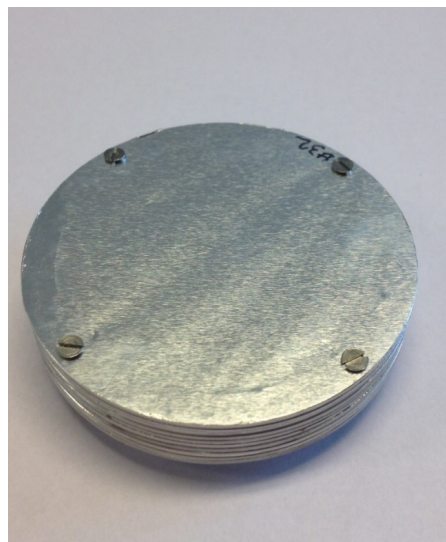


data: J. Lerendegui

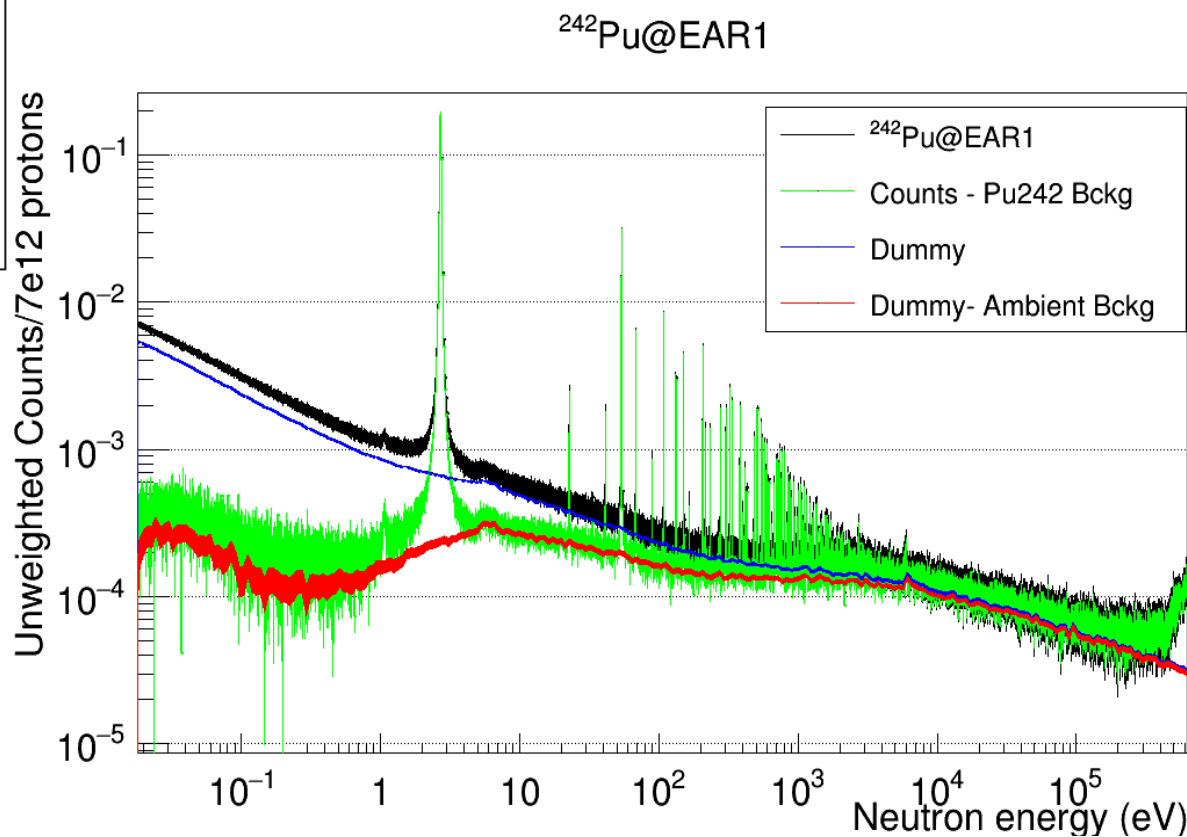




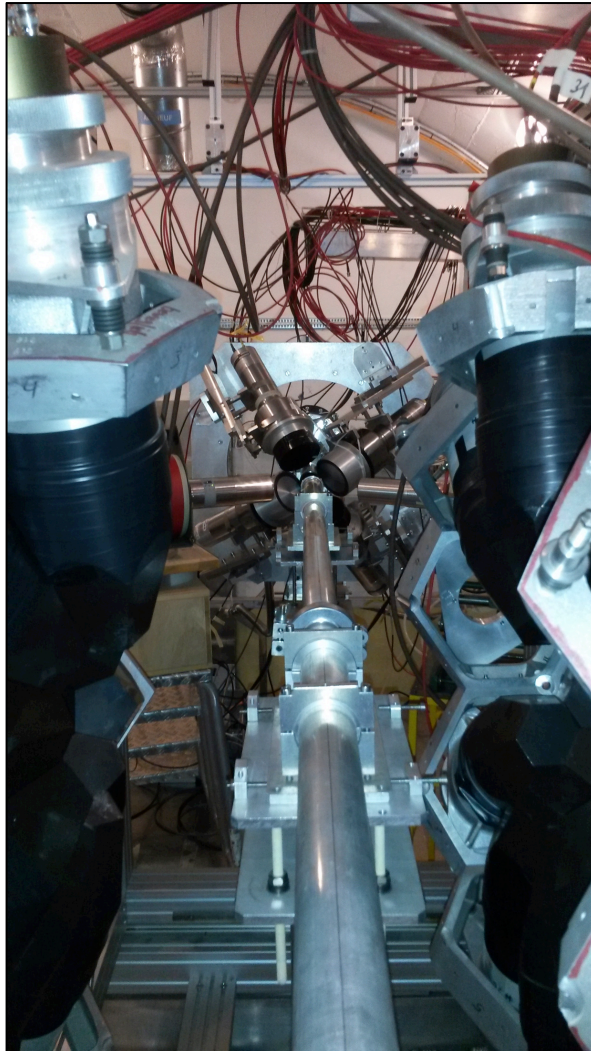
Sample: JGU Mainz / HZ Dresden



dummy

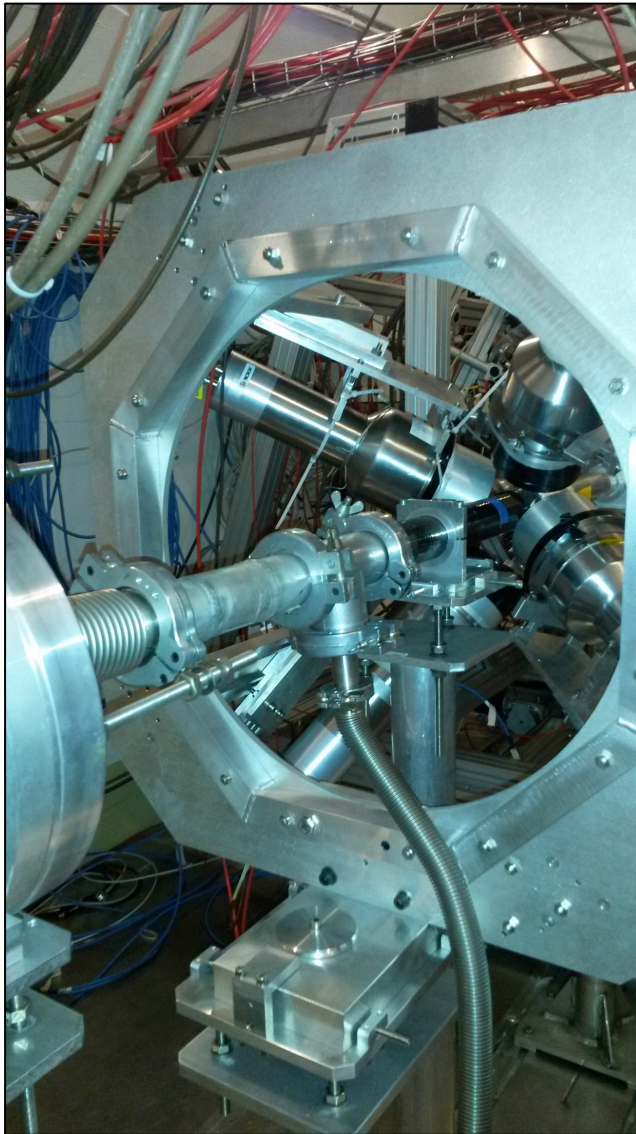


data: J. Lerendegui



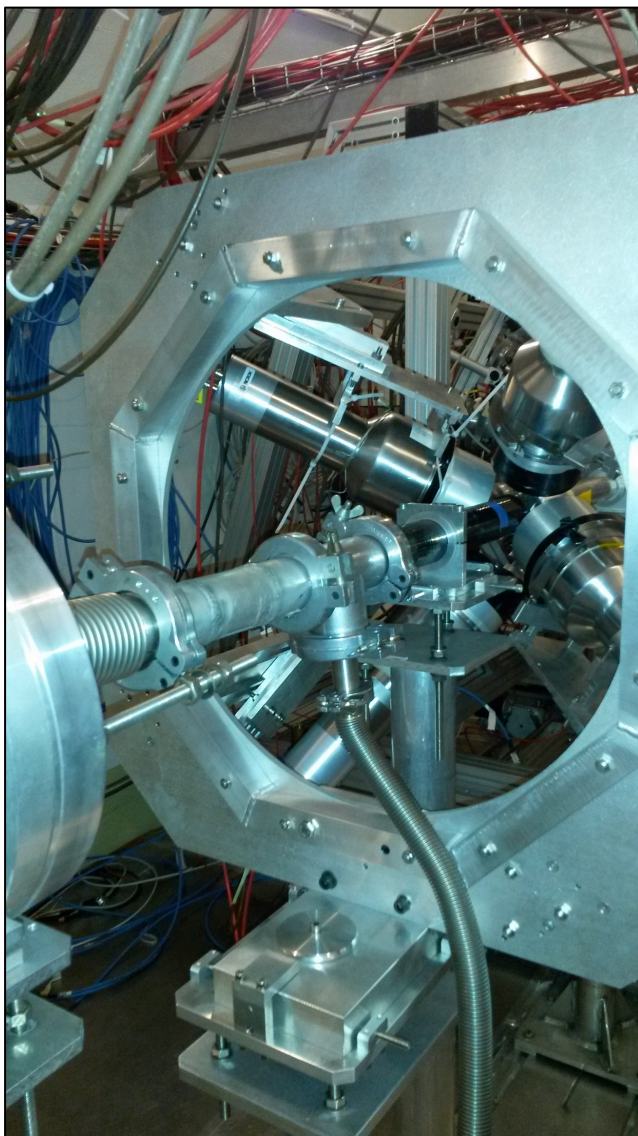
**data: C. Lederer**

# EAR1: common capture setup for 2015

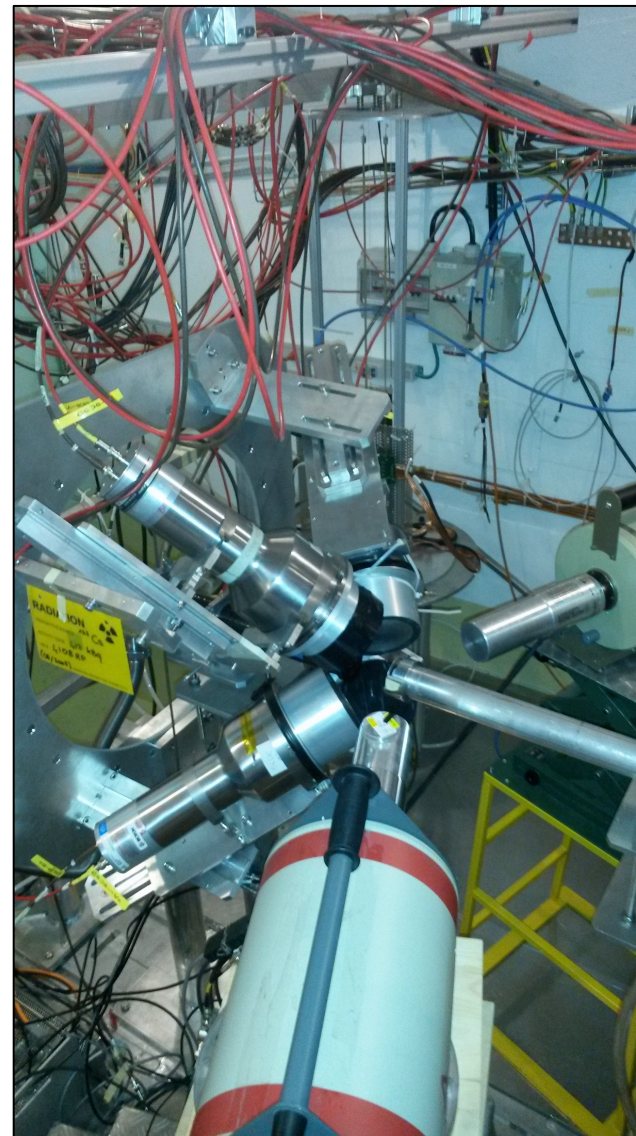


common  
setup

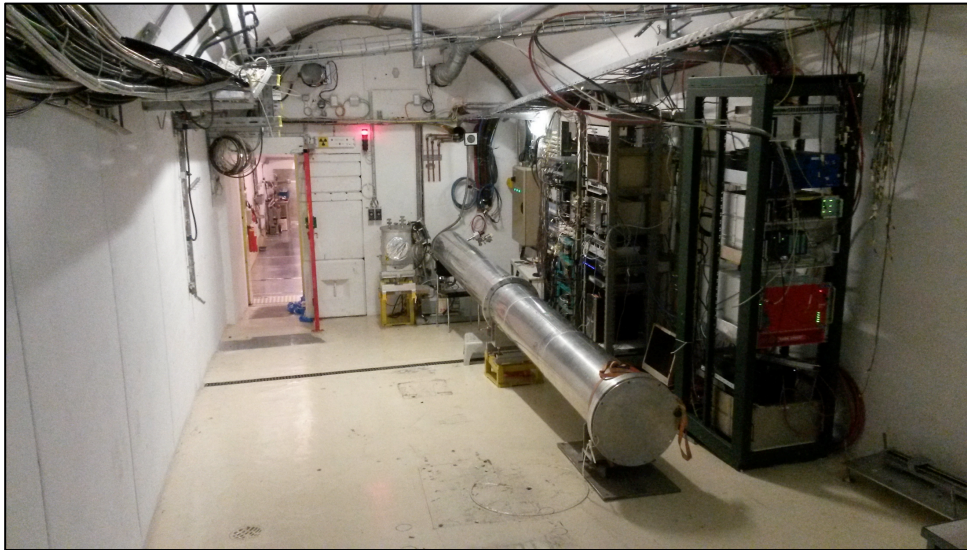
# EAR1: common capture setup for 2015

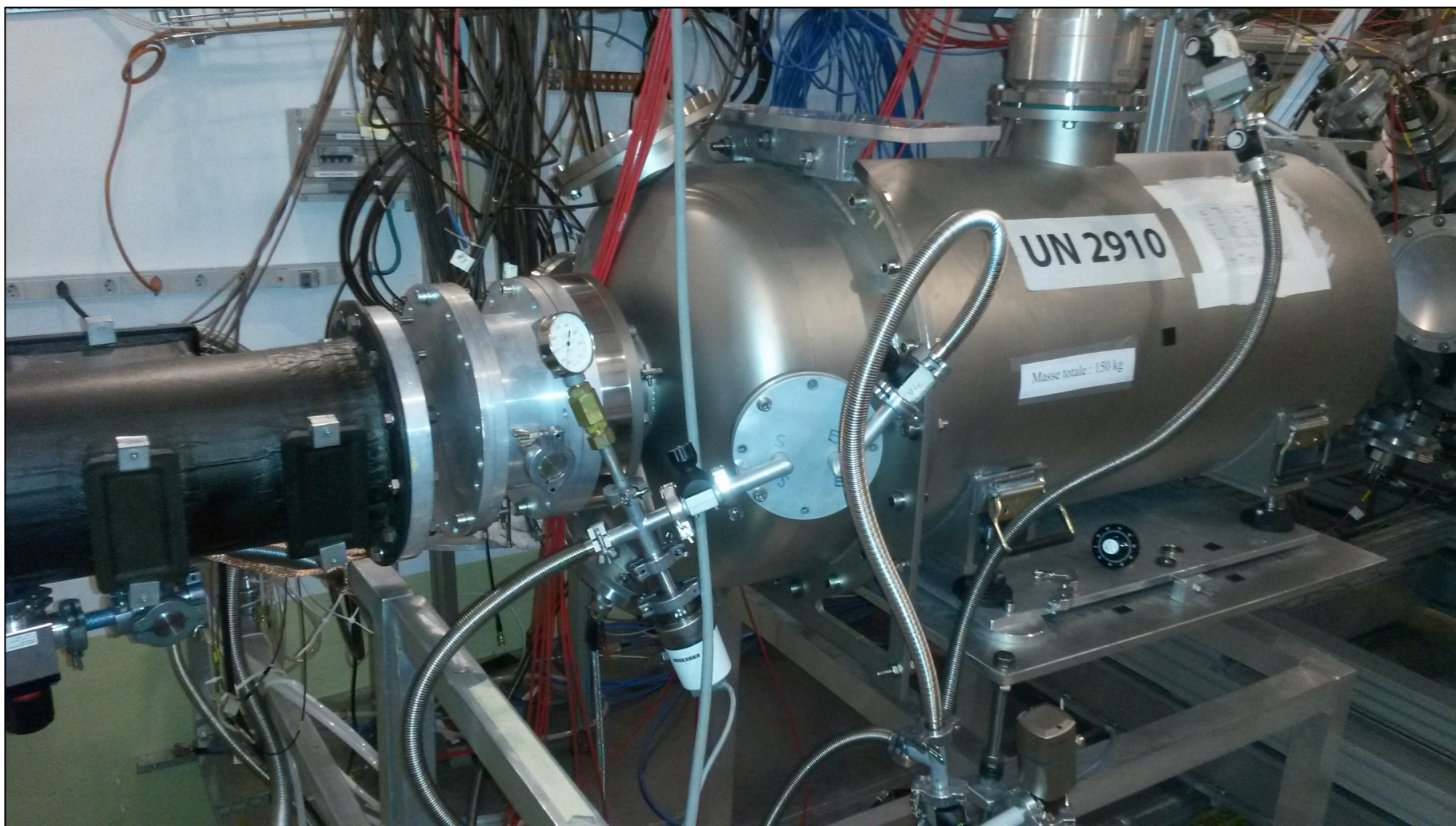


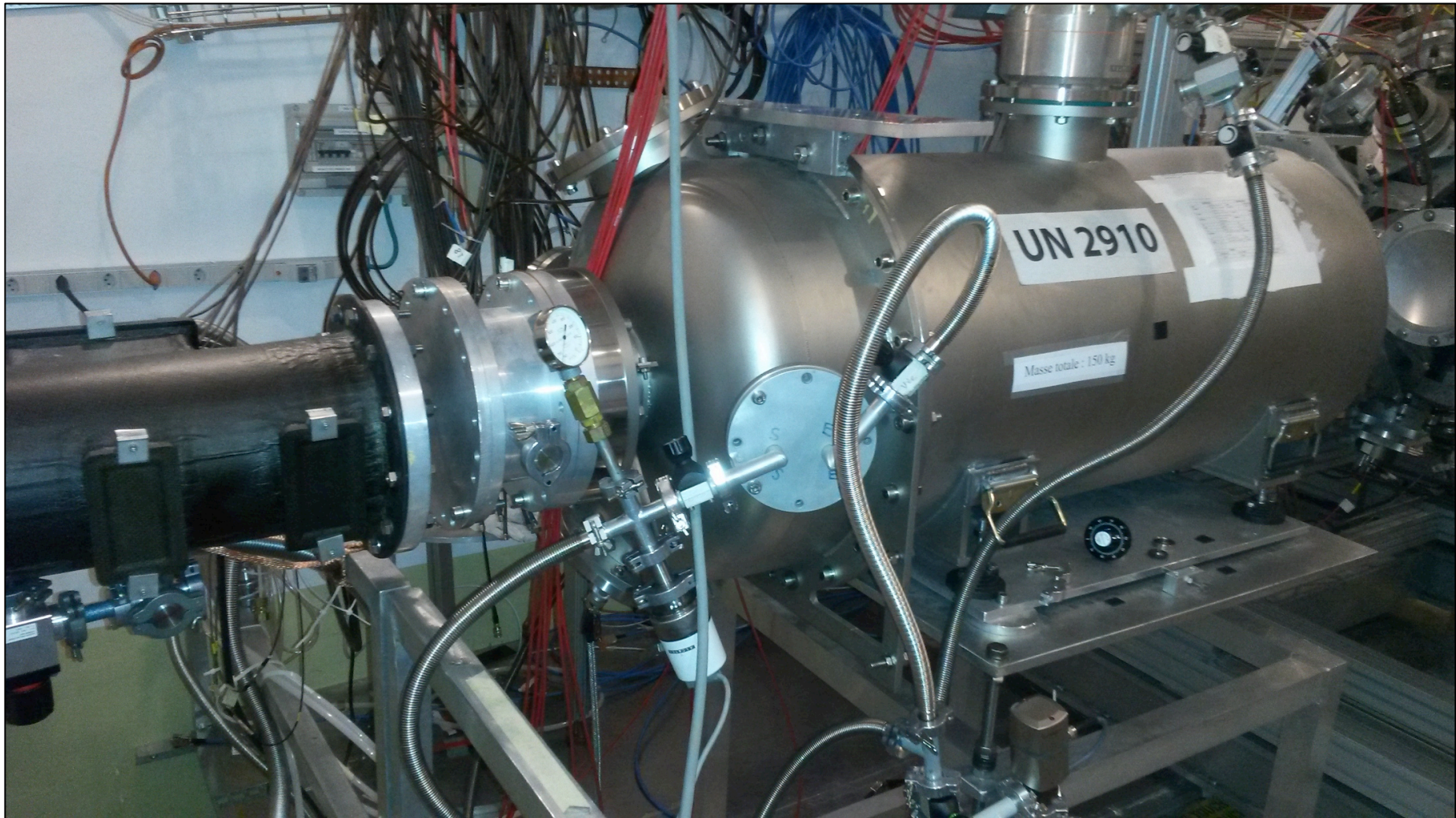
common  
setup



HPGe  
test  
setup





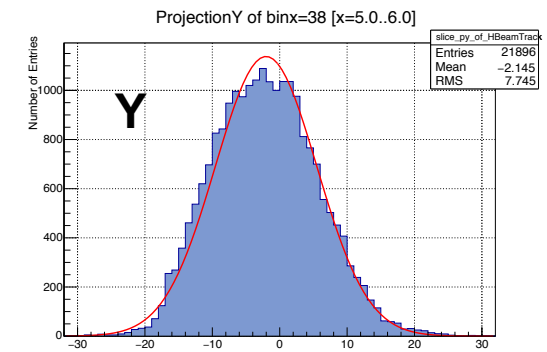
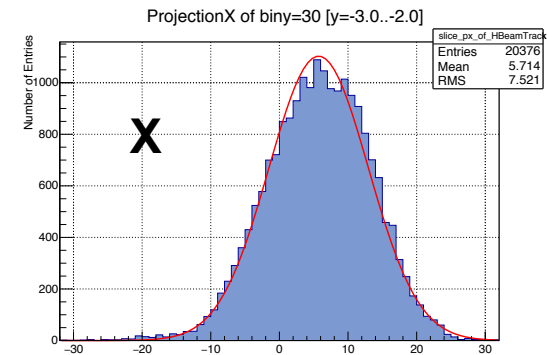
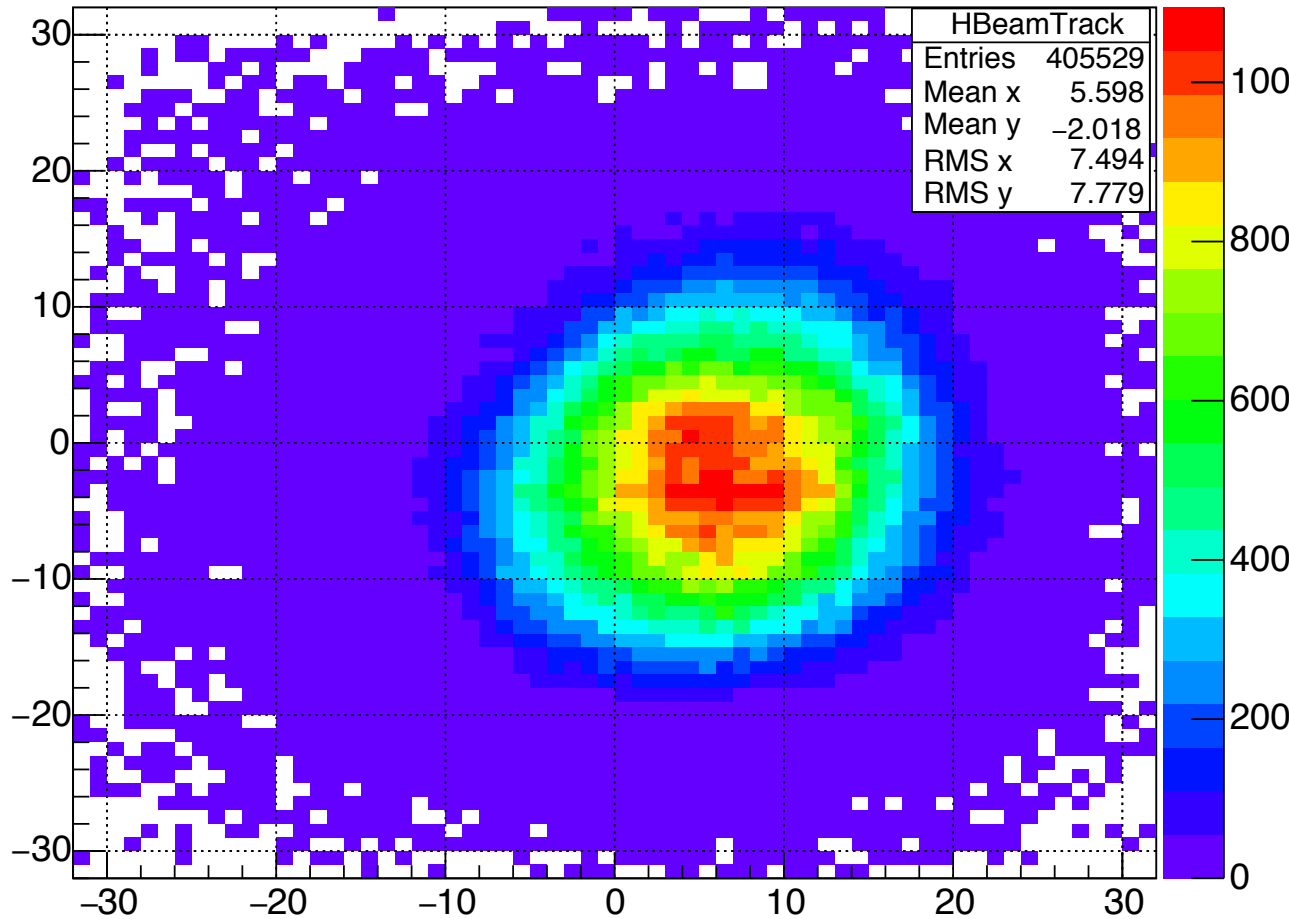


**DAQ issues!**

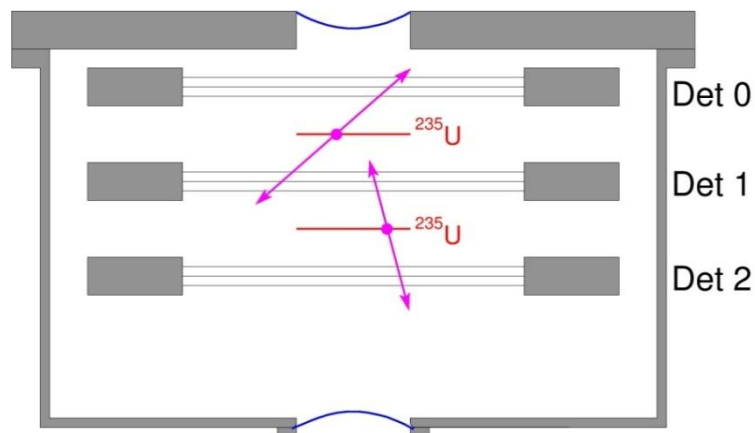
# EAR2



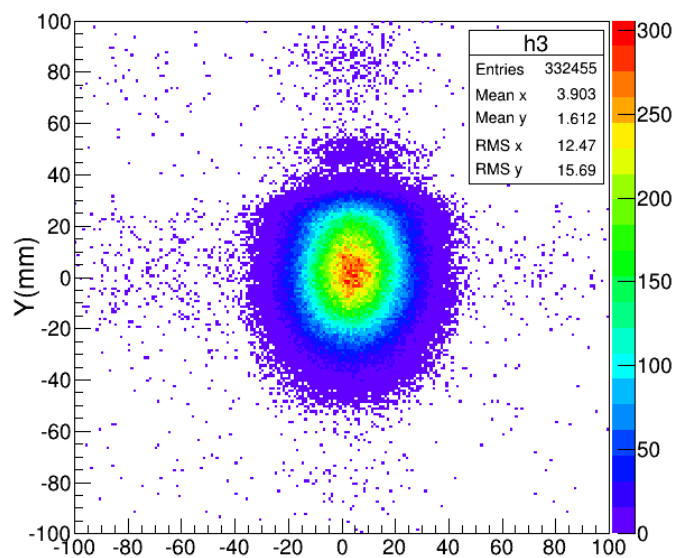
## Beam image (track X, track Y)



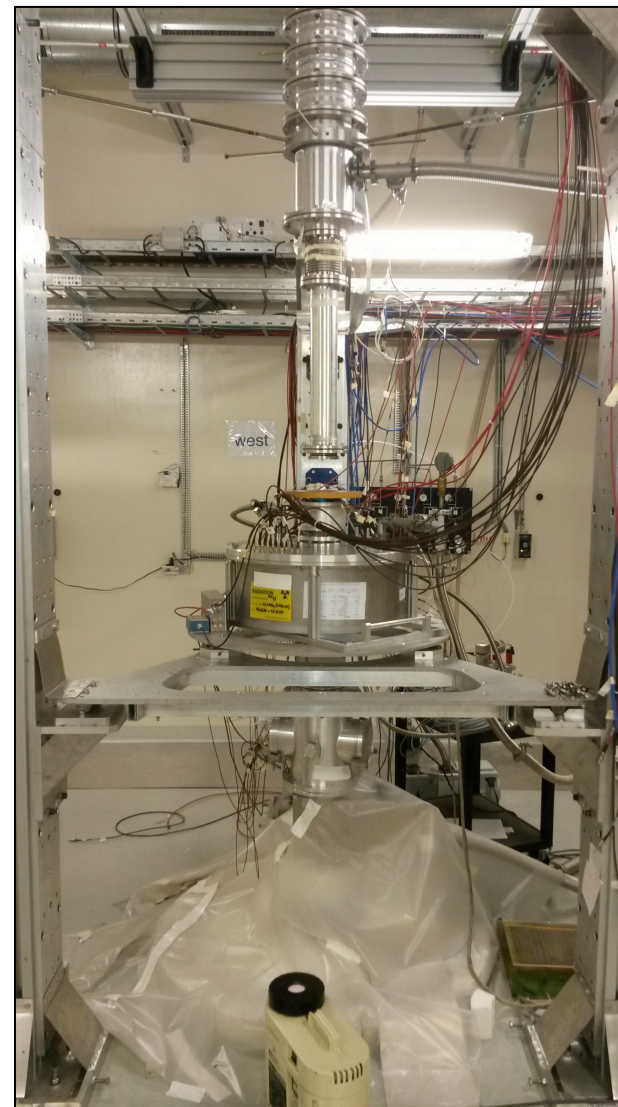
**data: M. Diakaki**

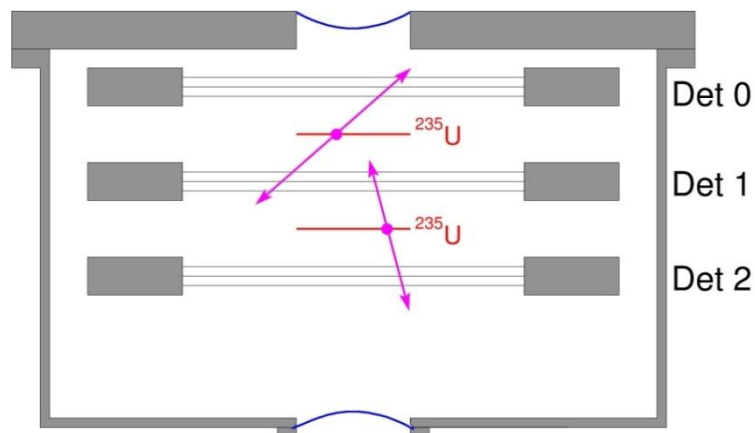


Hitting point on PPAC2

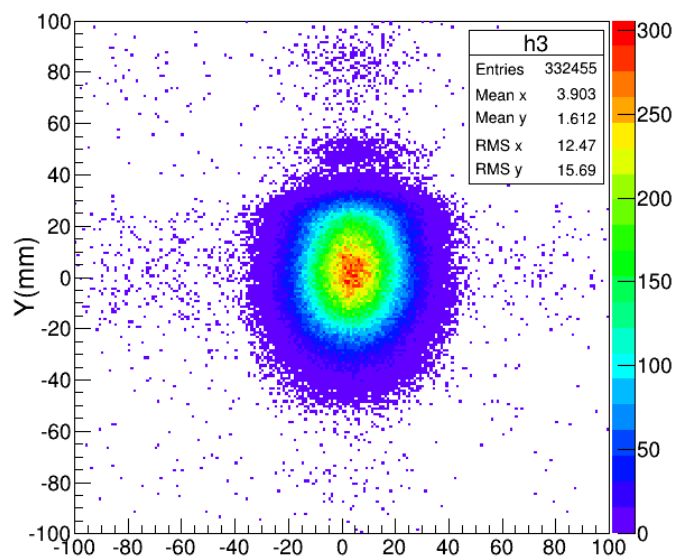


data: Y. CHEN X(mm)

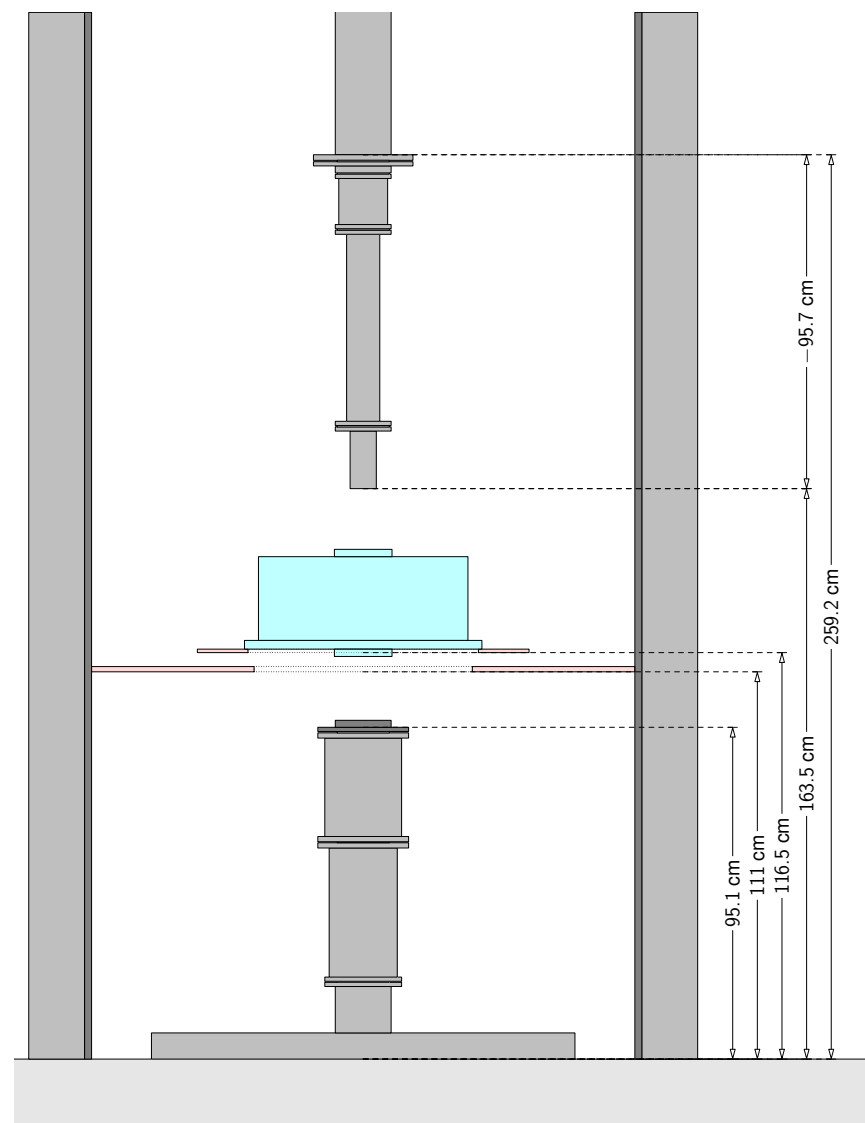


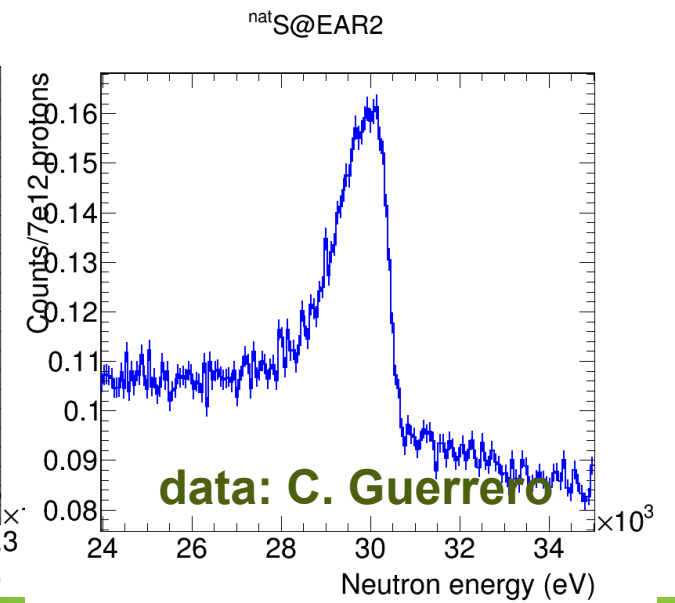
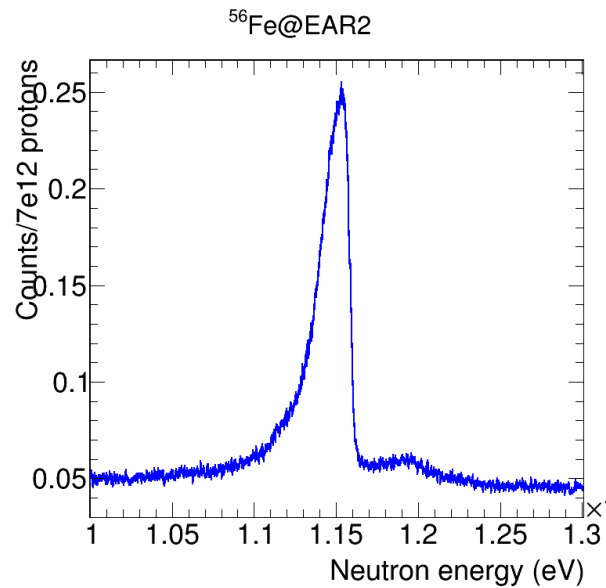
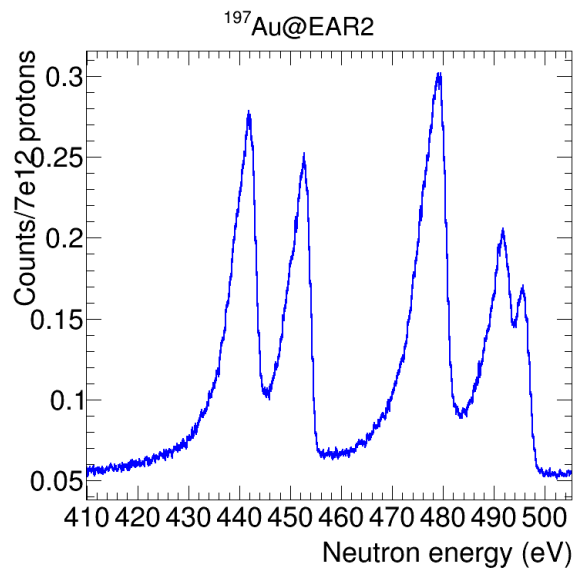
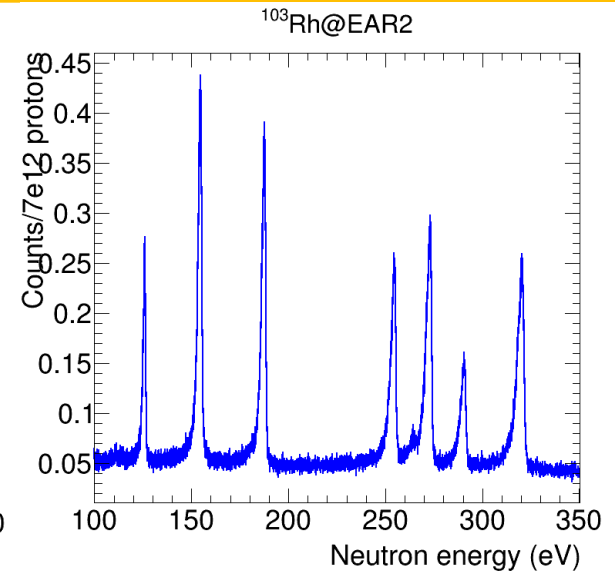
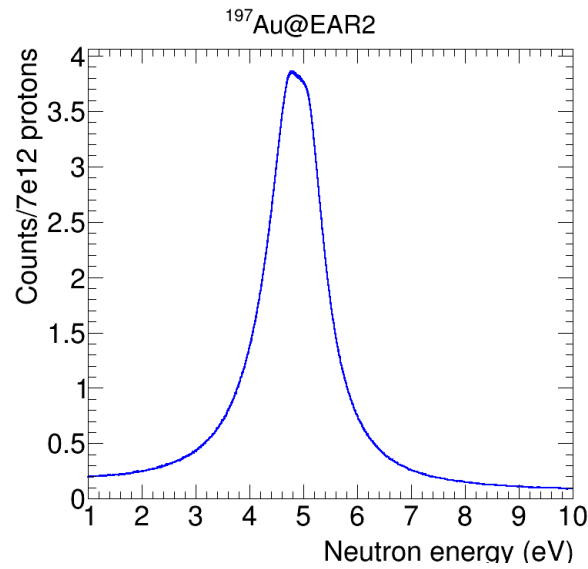
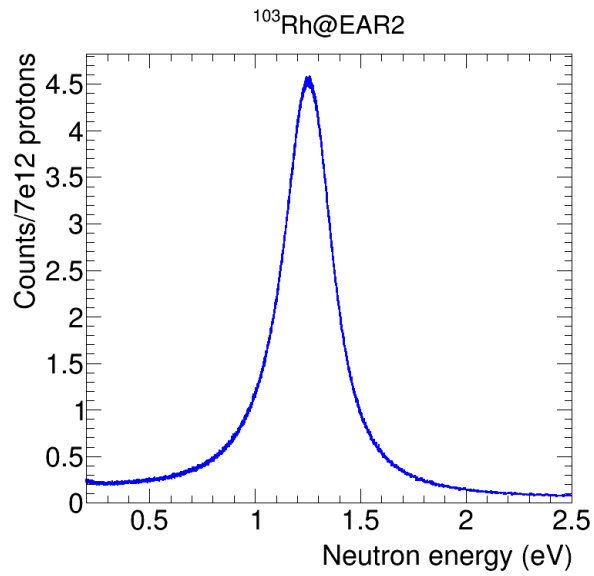


Hitting point on PPAC2



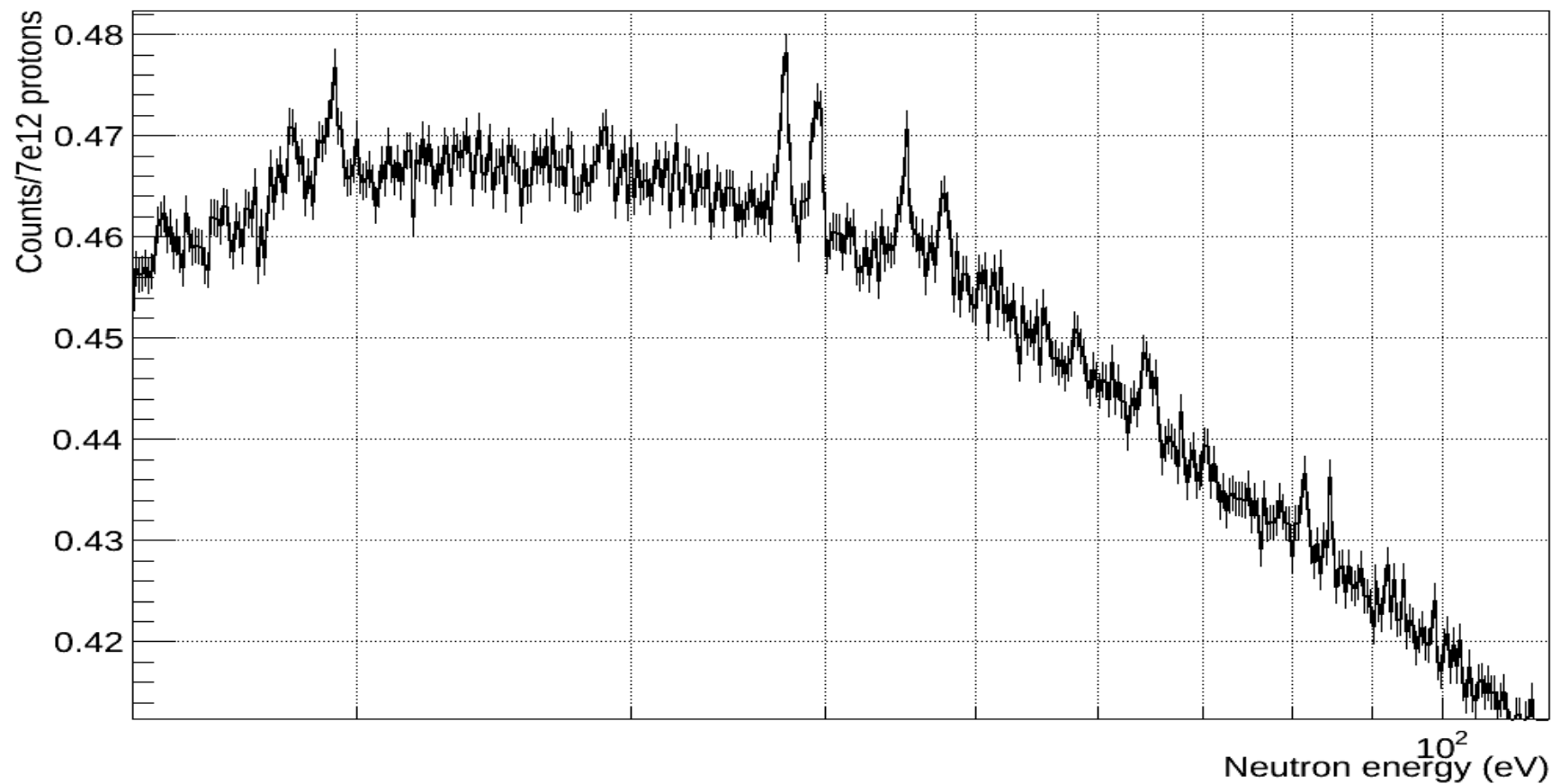
data: Y. CHEN X(mm)





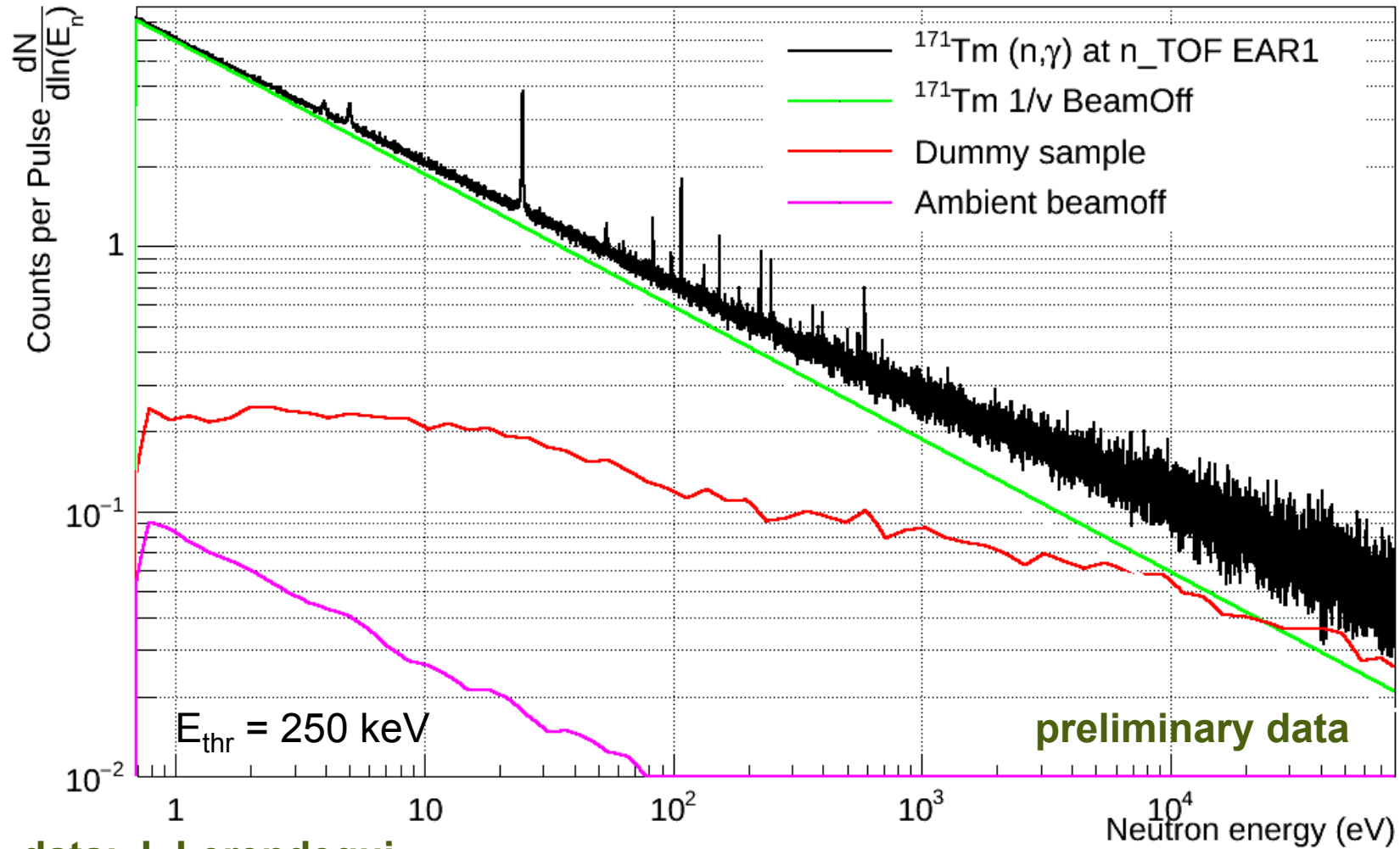
0.3 mg sample

$^{147}\text{Pm}@EAR2$

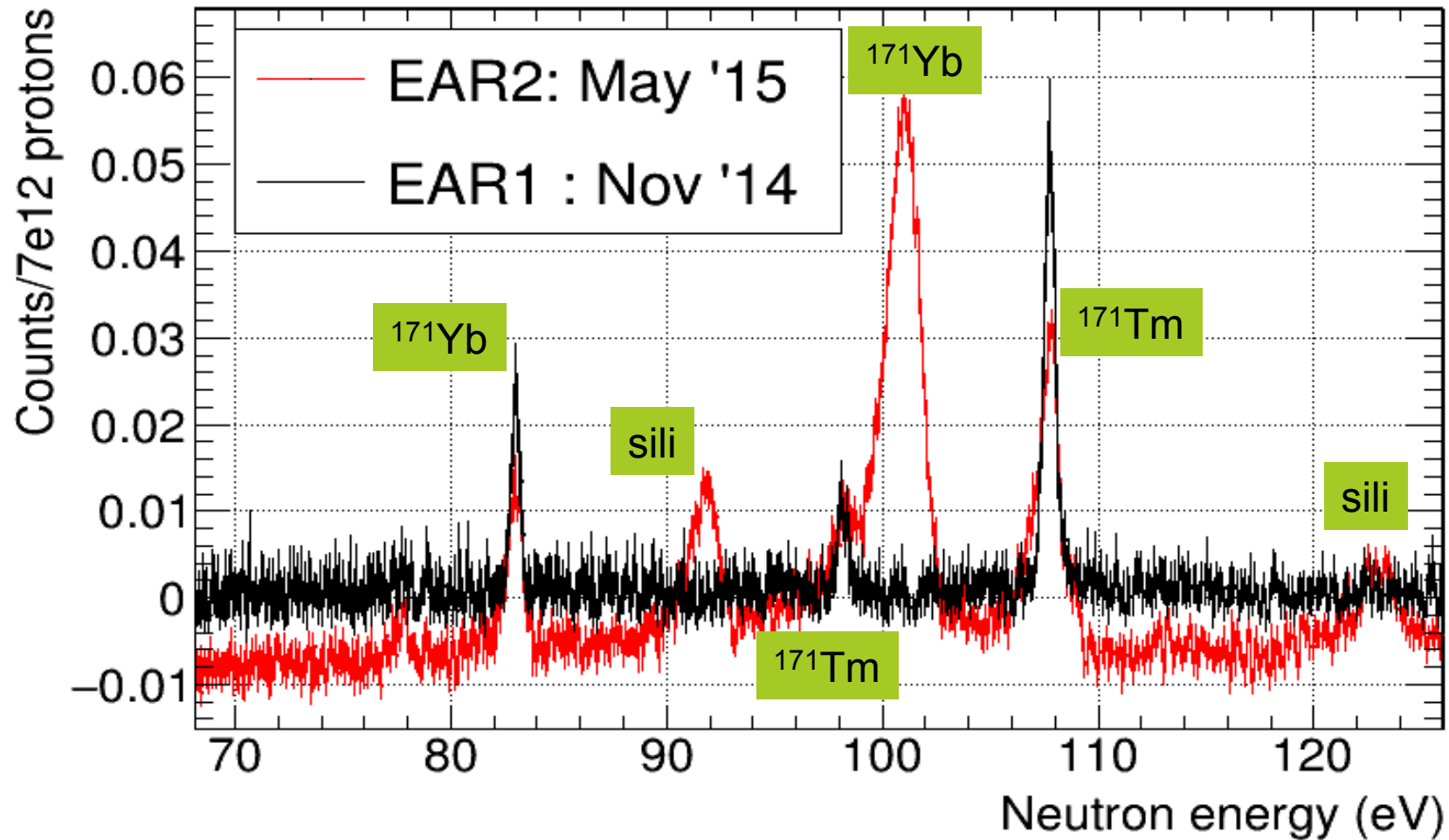


**data: J. Lereendegui**

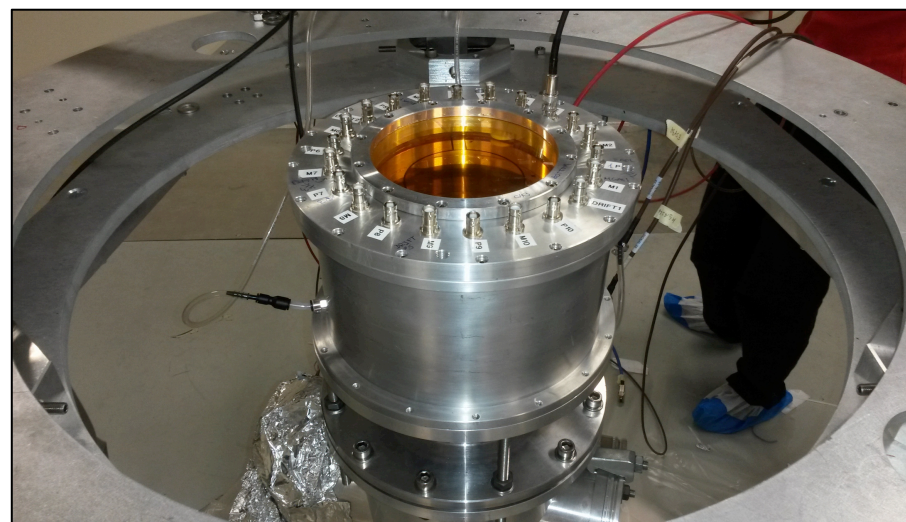
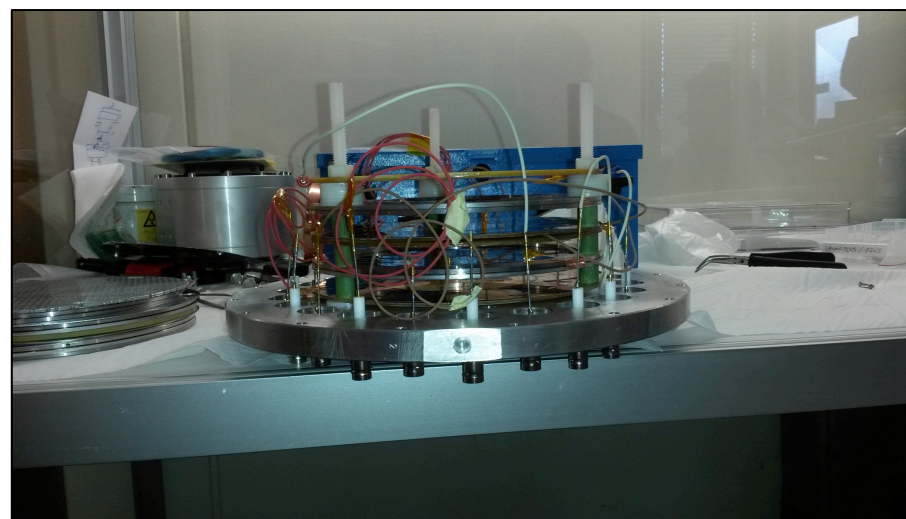
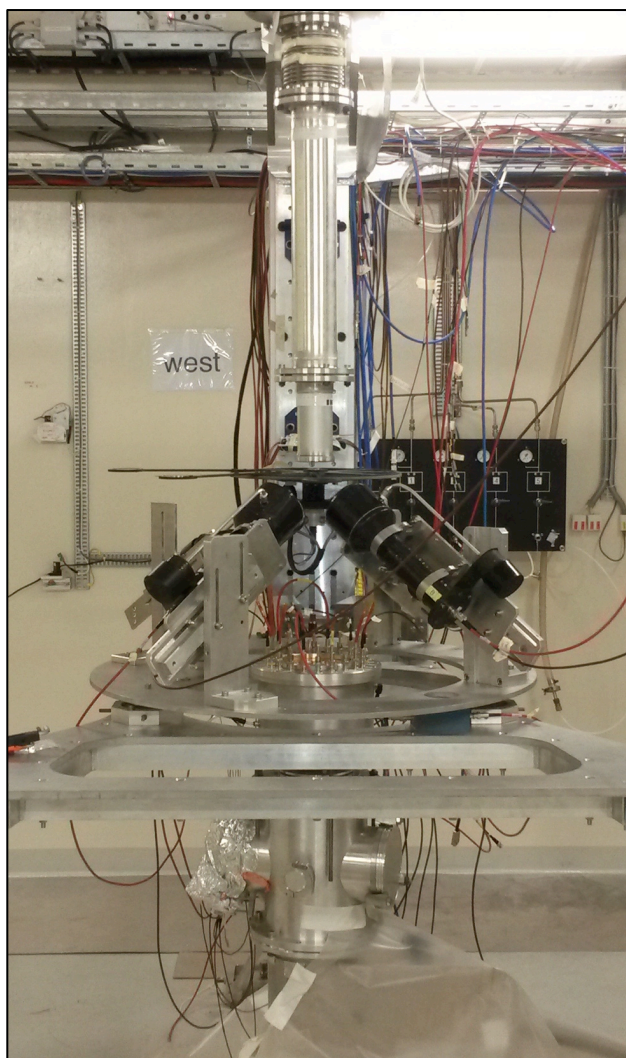
## $^{171}\text{Tm}(n,\gamma)$ at n\_TOF EAR1



**data: J. Lerendegui**



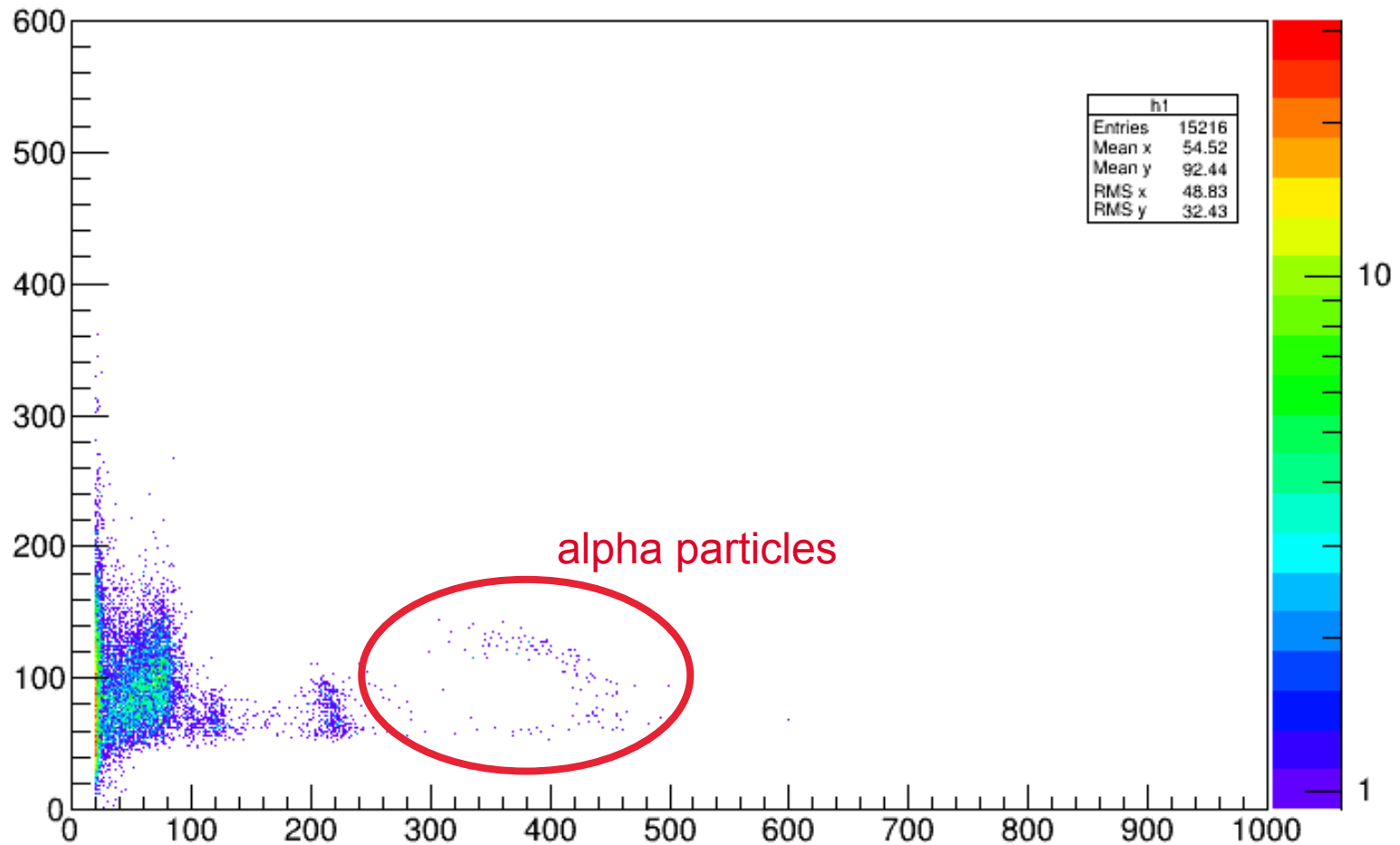
data: J. Lerendegui



**data: M. Sabaté-Gilarte**

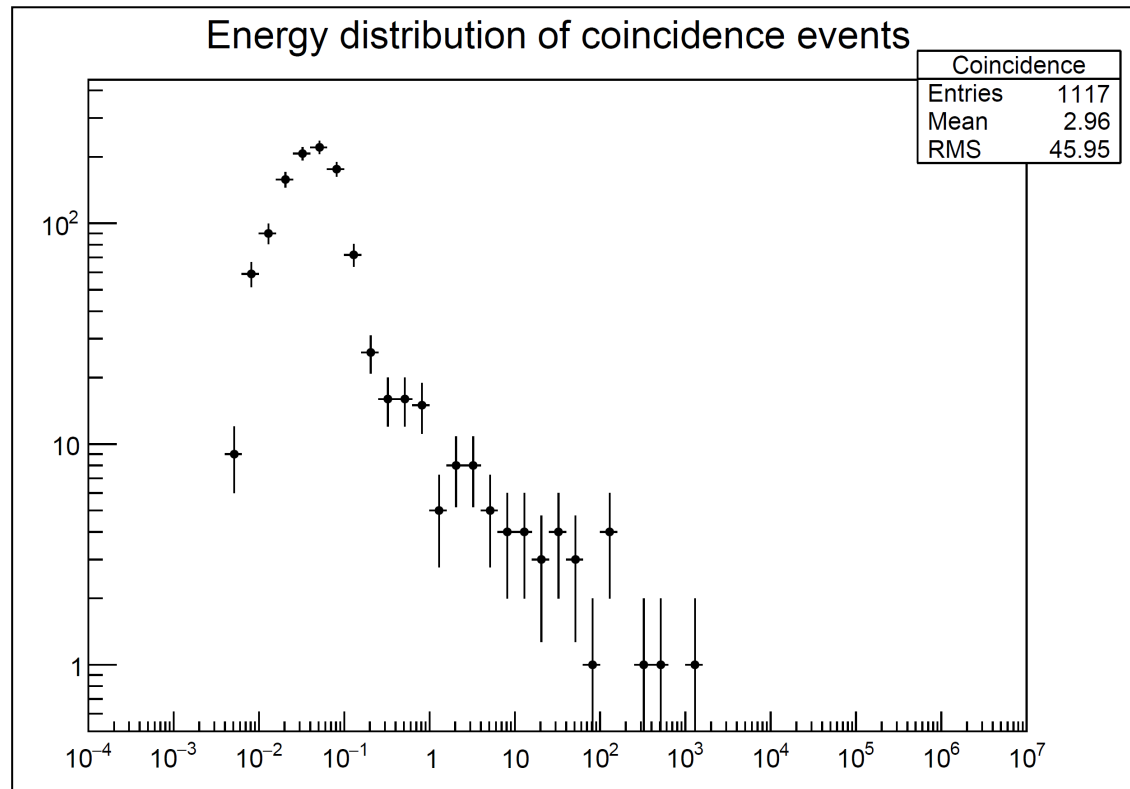
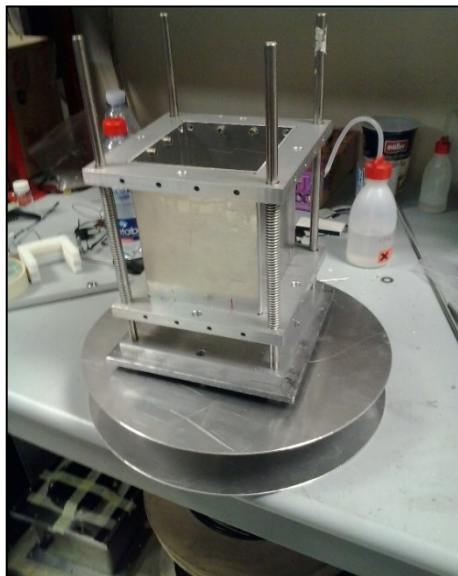
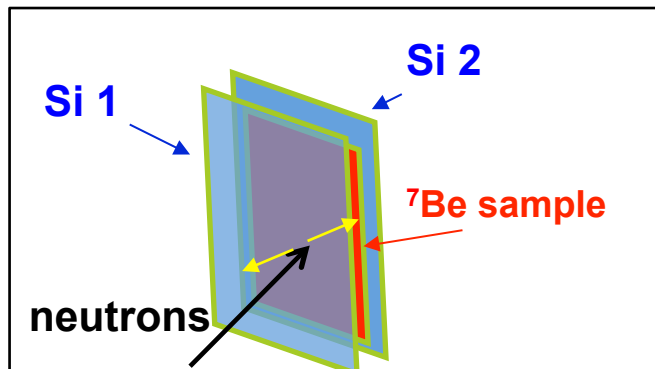


risetime:amp {detn==4 && tof-tflash>1.e5}



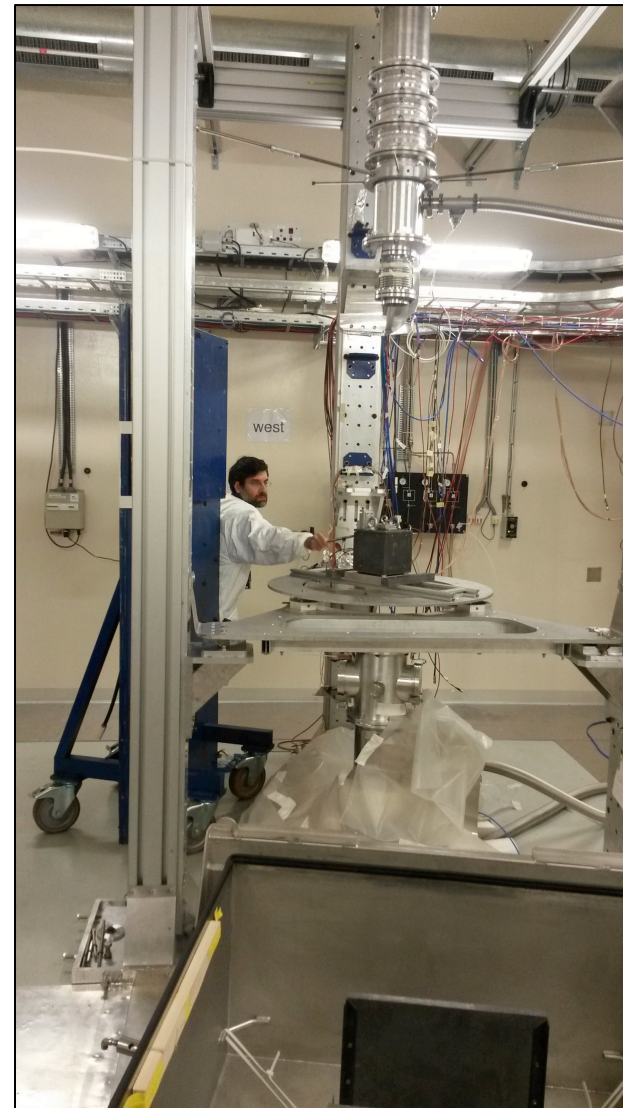
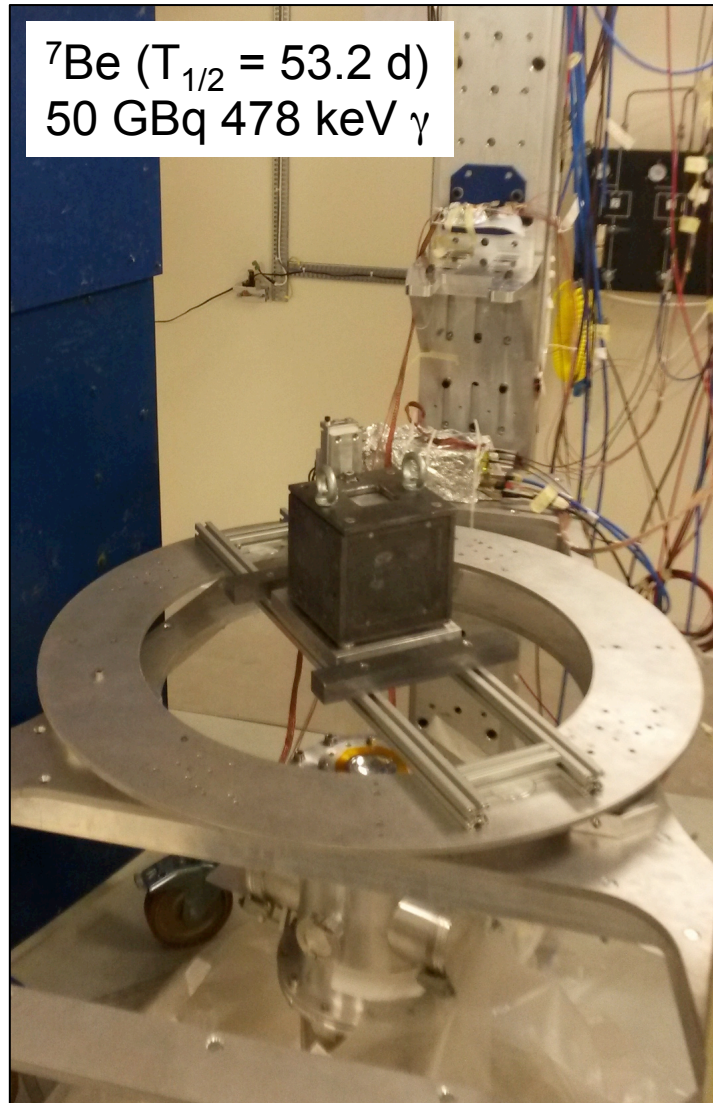
**data: M. Sabaté-Gilarte**

## $^7\text{Be}(n,\alpha)$ : in-beam detector

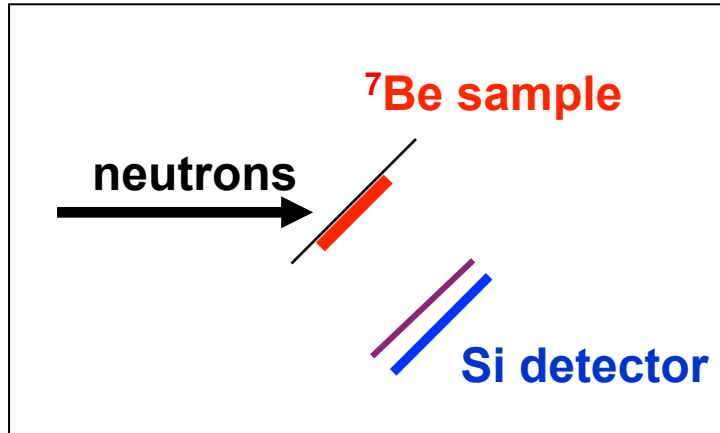


data: M. Barbagallo

# ${}^7\text{Be}(n,\alpha)$ EAR2



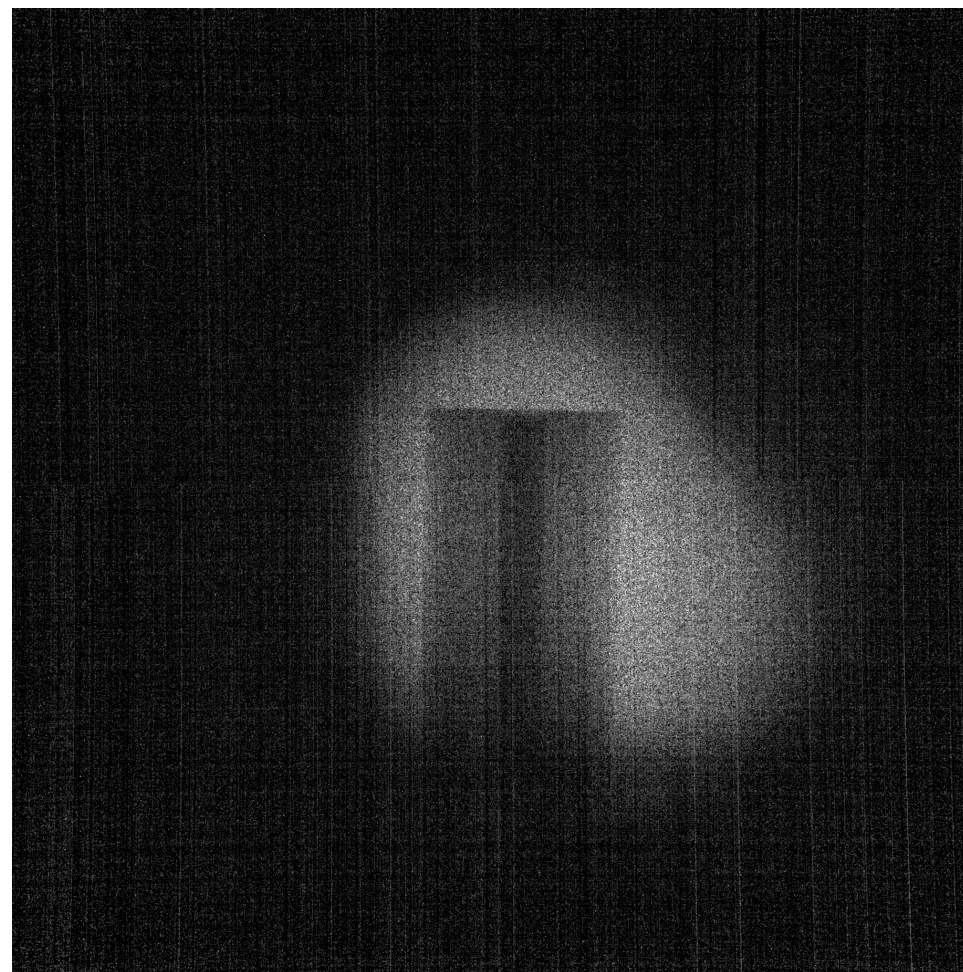
$^7\text{Be}(n,\alpha)$ : off-beam detector:



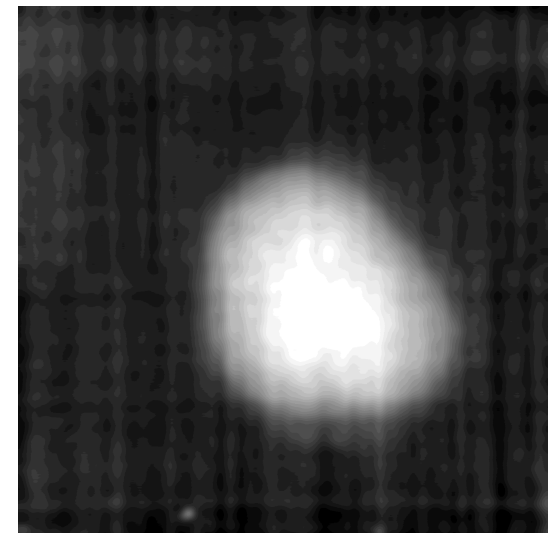
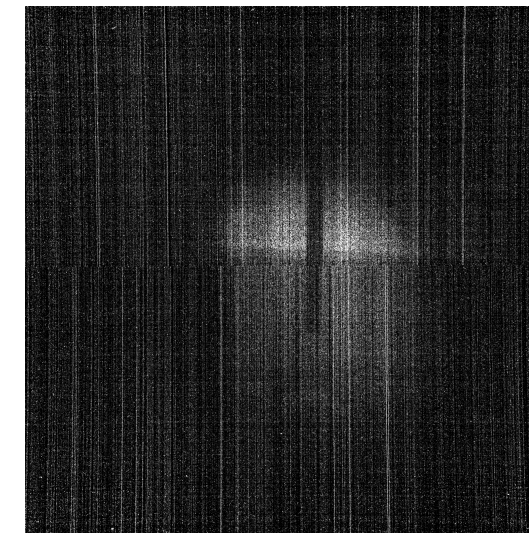
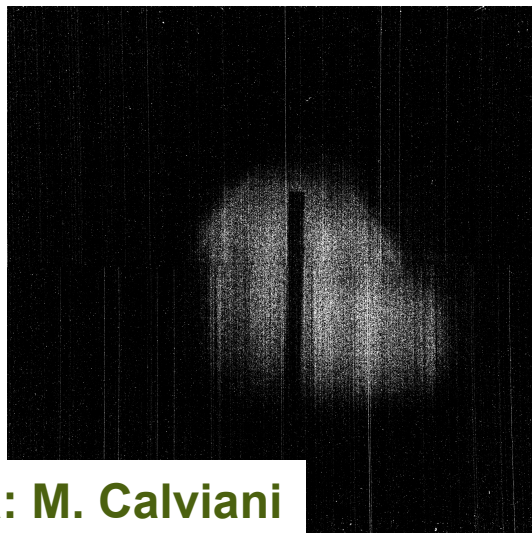
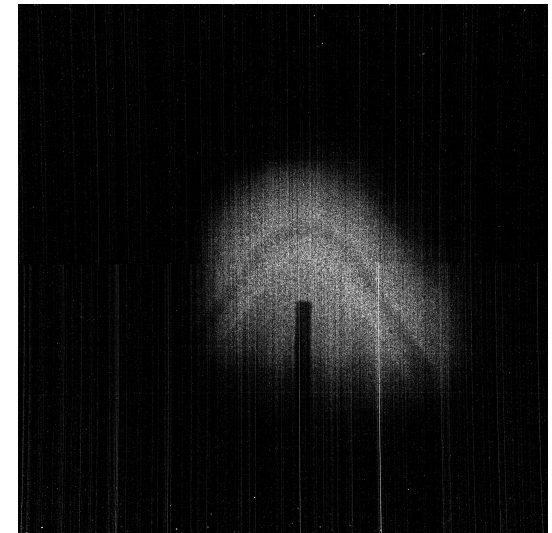
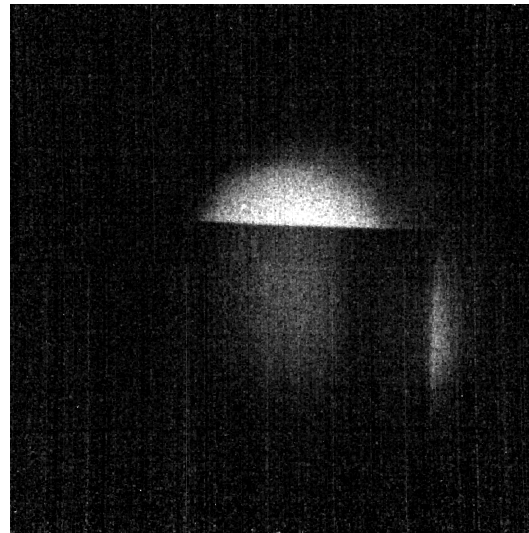
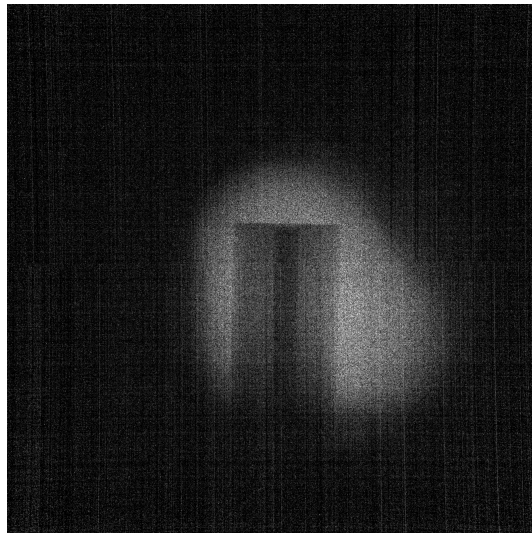
- 100 ng of  $^7\text{Be}$  (material from water cooling of SINQ spallation source at **PSI**)
- Offline mass separation required at ISOLDE, starting from 100 GBq of  $^7\text{BeNO}_3$
- Implantation on C backing



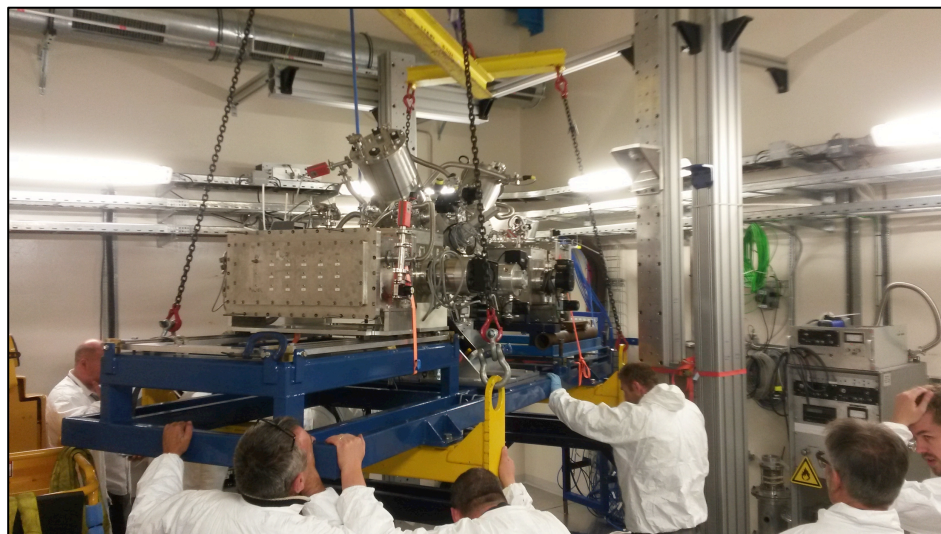
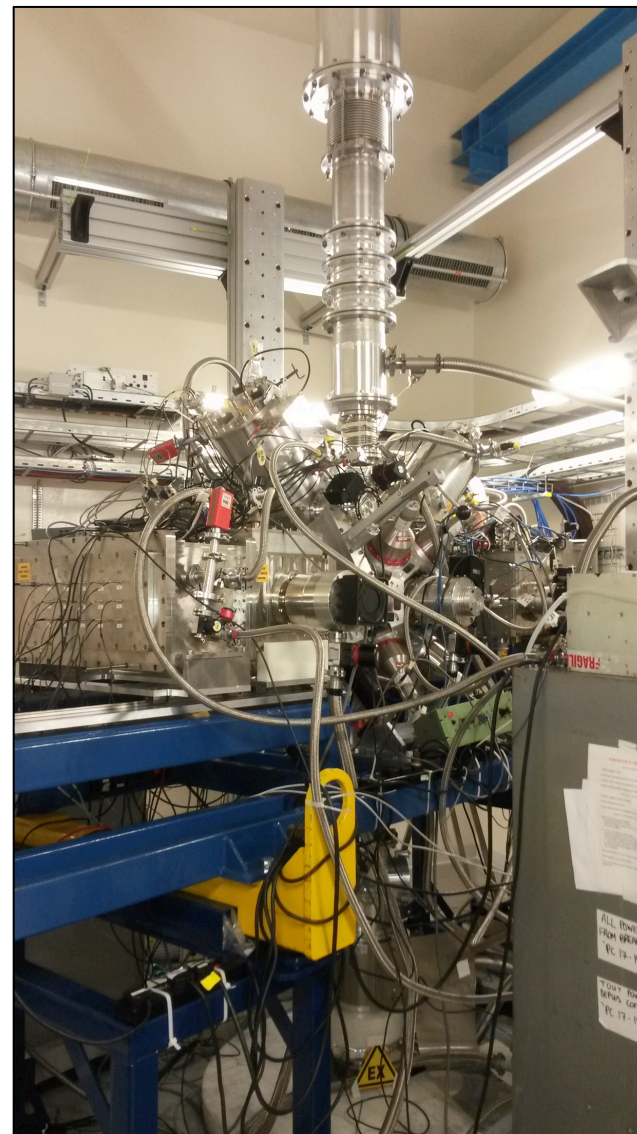
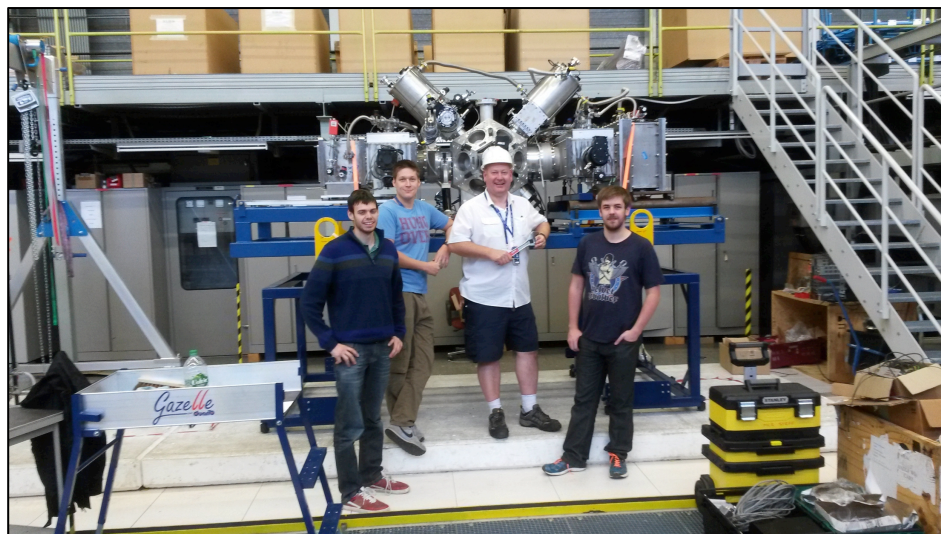
data: M. Barbagallo

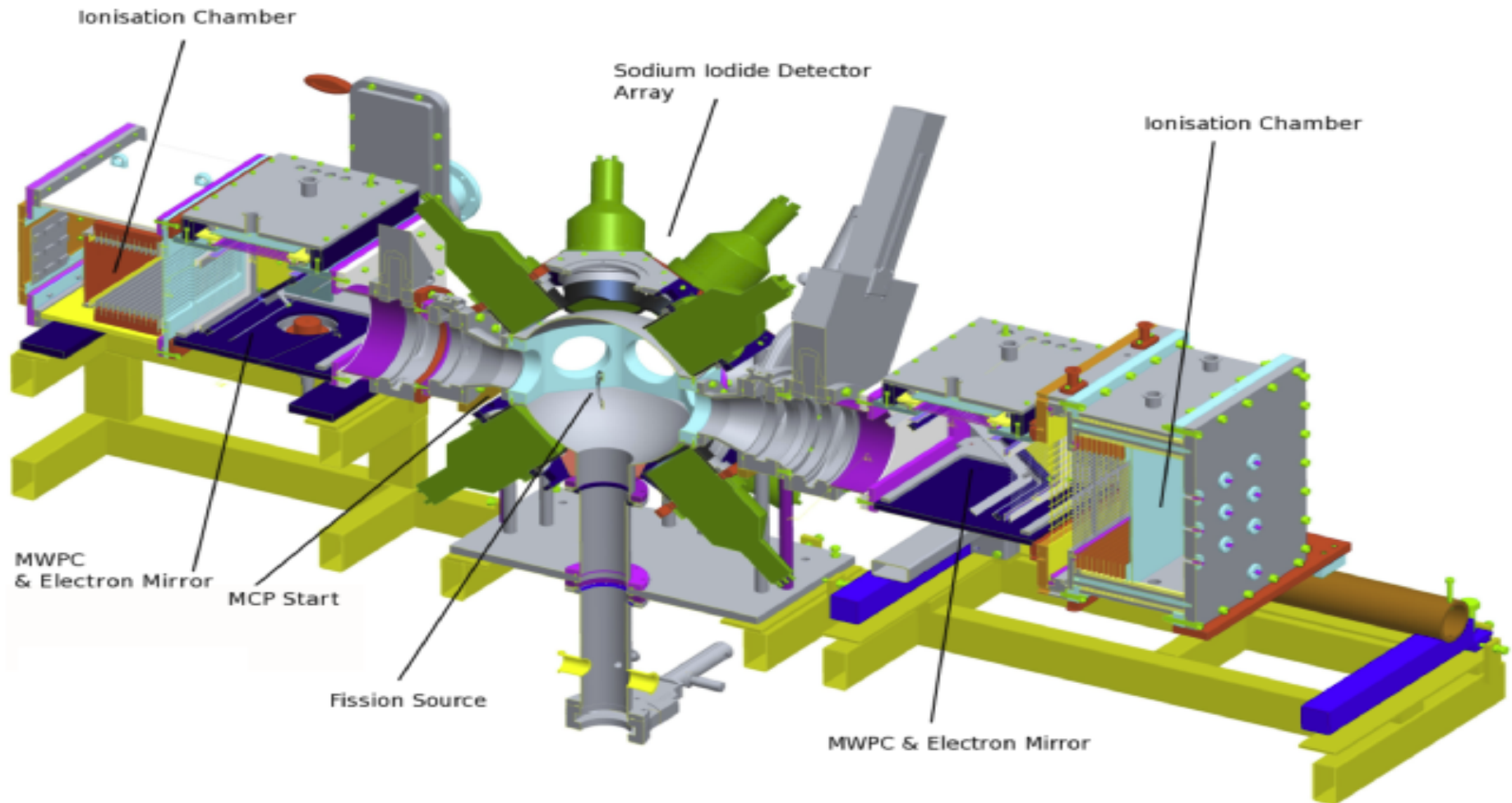


**data: M. Calviani**



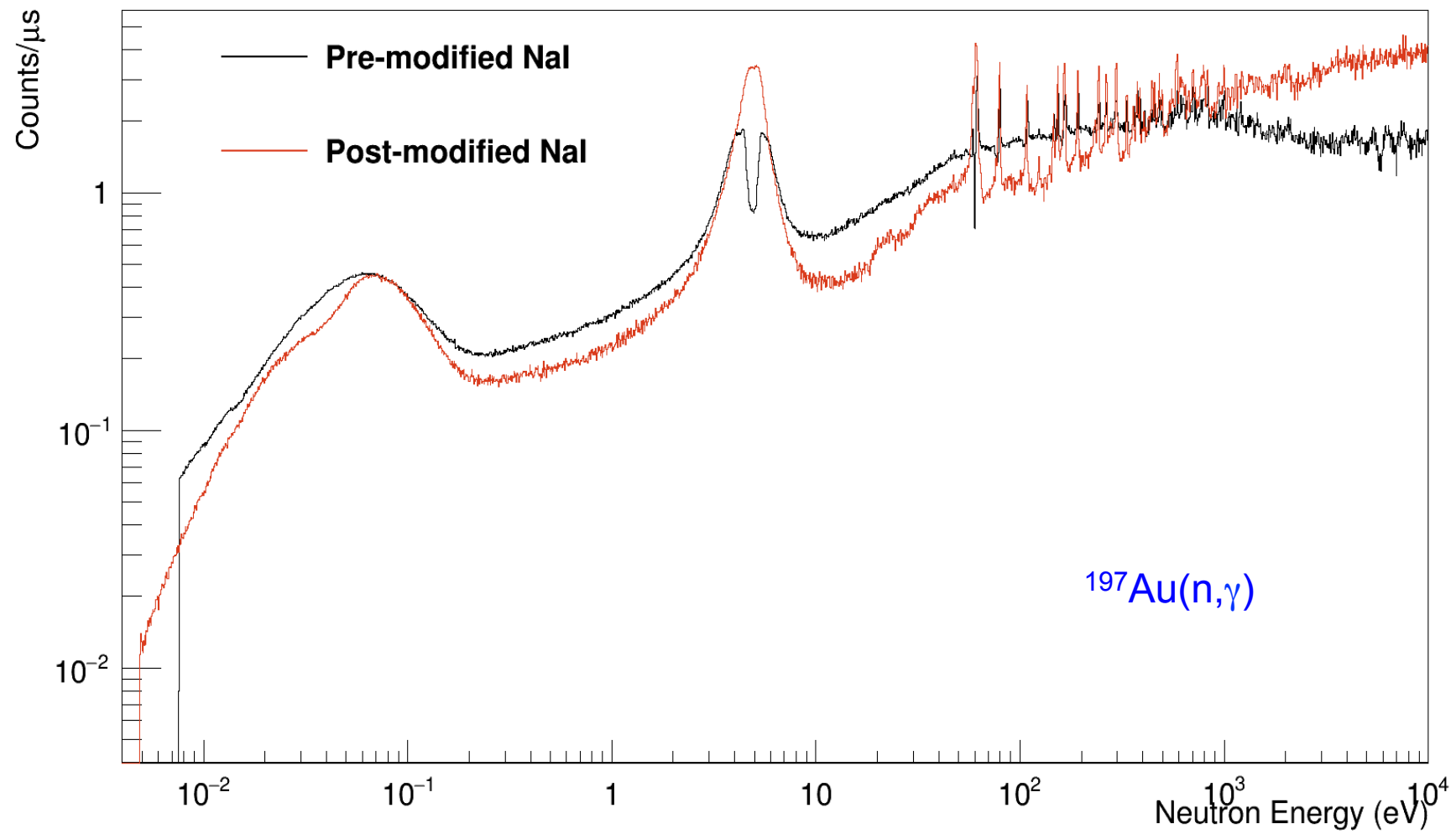
**data: M. Calviani**





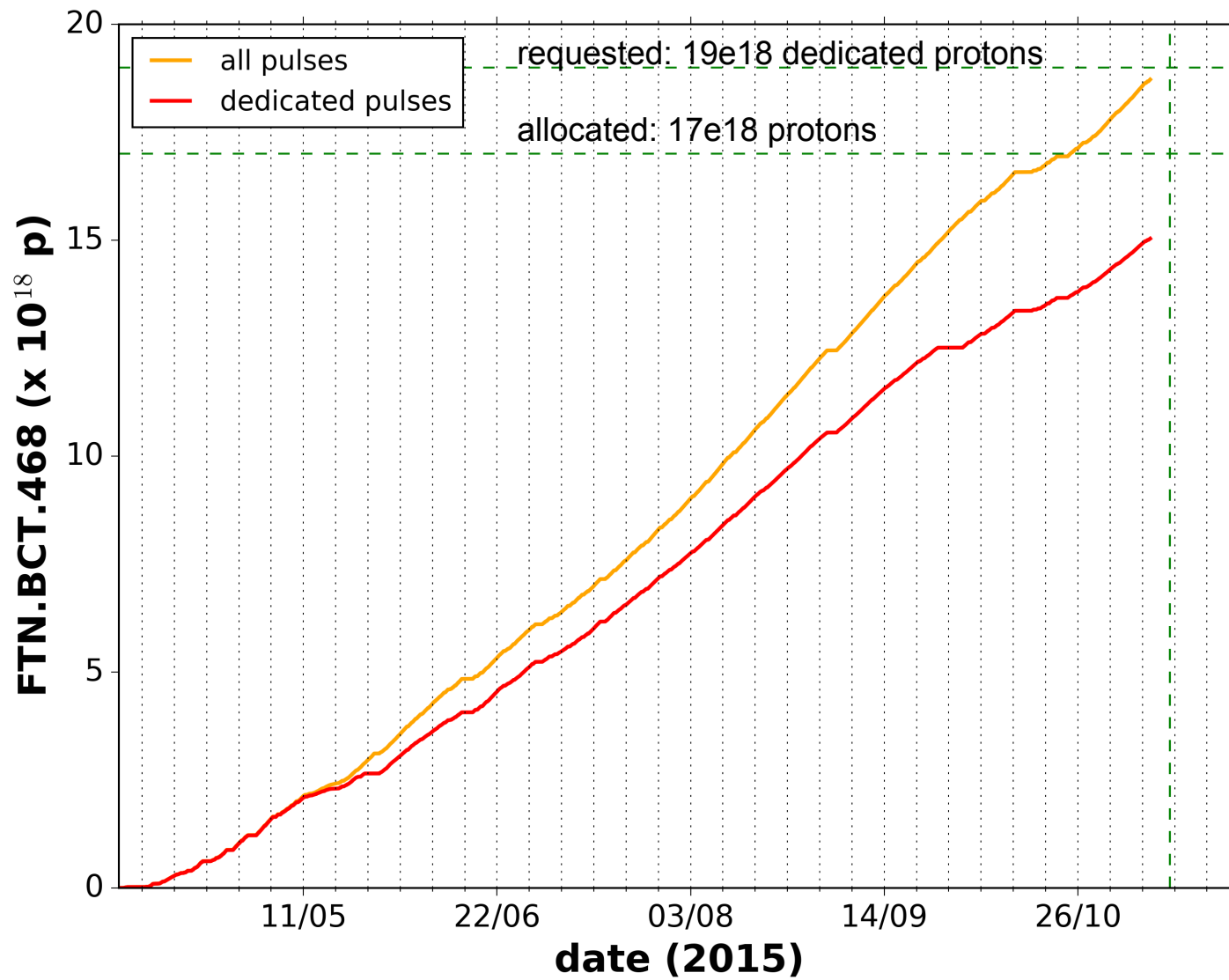


## Improved NaI response









Thank you for your attention

