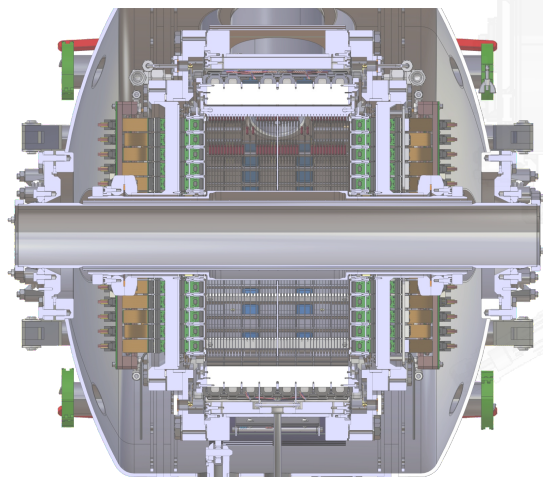
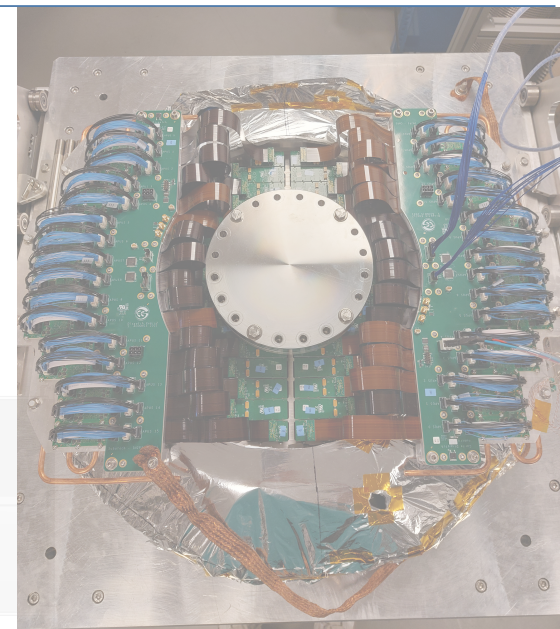


The XEMIS2 camera construction at the Nantes University Hospital

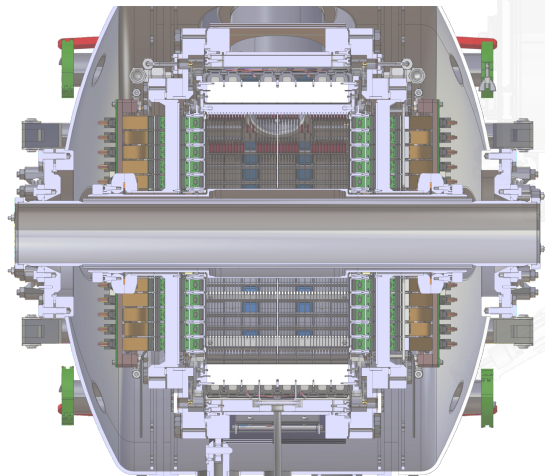


Nicolas Beaupère, Physicist, AP (MC) at IMT Atlantique,
office H111, email: beaupere@subatech.in2p3.fr
Subatech laboratory, Nantes, France



A new camera technology for small animal metabolic imaging ...

The XEMIS2 camera construction at the Nantes University Hospital

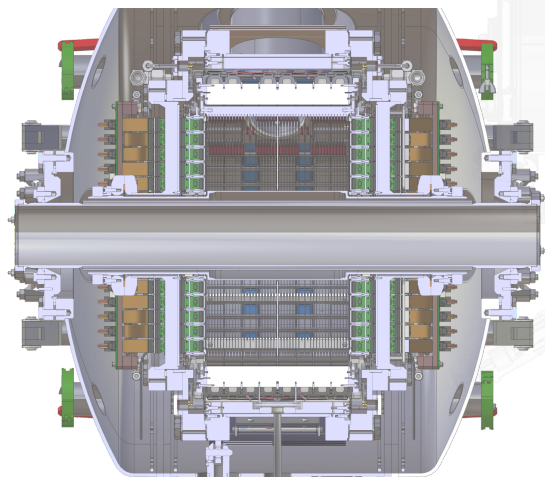


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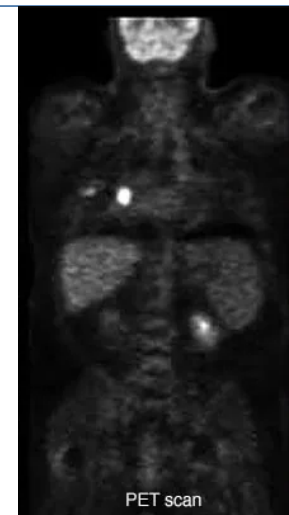


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Subatech laboratory, Nantes, France



A new camera technology for small animal metabolic imaging ...

Non-IN2P3 laboratories:

- LS2N (reco image, problème inverse)
- LaTIM (reco image)
- CERI Digital Systems (data processing)
- CRCI2NA (biologie)

IN2P3 laboratory:

- Subatech

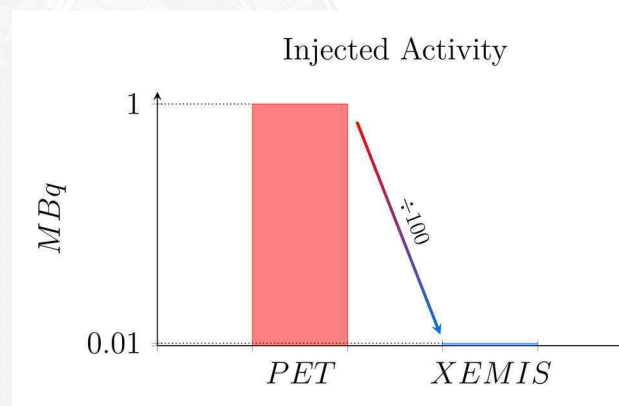
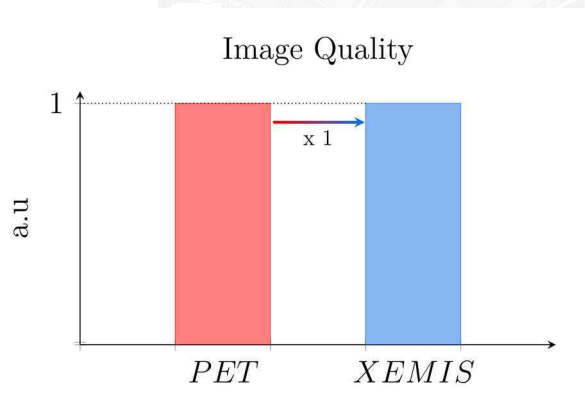
Members Xénon team:

- Dominique Thers, phys. [0.5]
- Nicolas Beaupère, phys [0.5]
- Eric Morteau, elec. [1 → 0.5]
- Sara Diglio, phys. [0.2]
- Julien Masbou, phys. [0.1]

Technical departement : ~8 prs

The XEMIS project (Xenon Medical Imaging System)

Targets:

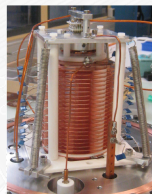


Technologies:

- Radio-isotope : 3 photons emitters (β^+ et γ)
- Detection medium : Xenon in liquid phase (LXe) [scintillation + ionisation]
- Detector technology: Time Projection Chamber (TPC)
- Imaging algorithm : Compton imaging

The XEMIS three main steps

2010

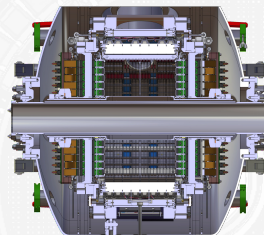


XEMIS1
R&D Prototype

30 kg
6 (12) cm
drift TPC

Done

2024

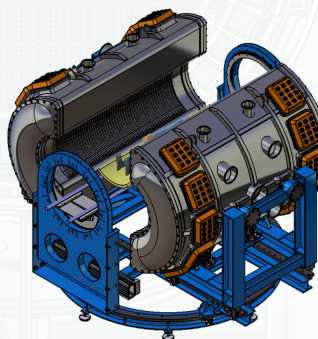


XEMIS2
Small animal imaging

200 kg
2 x 12 cm
drift TPC

Under
commissioning at
the Nantes
University
Hospital

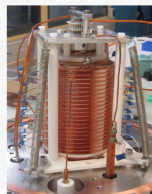
Futur



XEMIS3
Total body imaging
Hadron therapy
monitoring

2 tons
2 m long
12 cm drift TPC

The XEMIS three main steps



XEMIS1
R&D Prototype

30 kg
6 (12) cm
drift TPC

Done

2010 ○

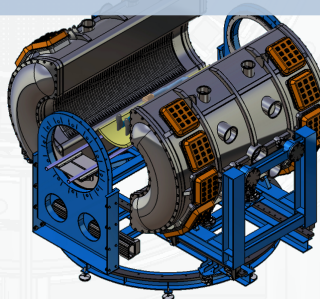


XEMIS2
Small animal imaging

XEMIS2 : image small animals with low activity: 20 kBq, during: 20 min.

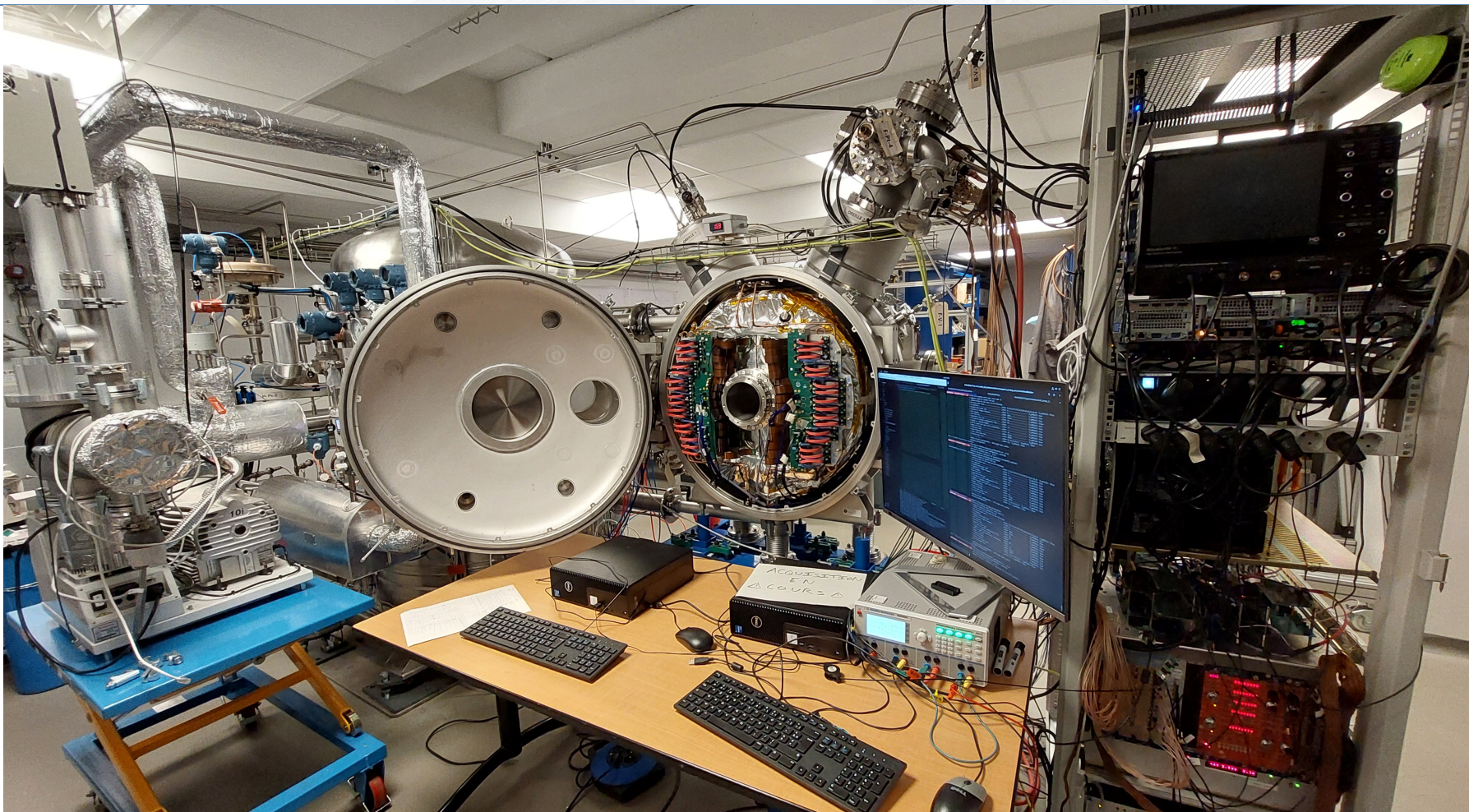
Under construction at the Nantes University Hospital

Futur ○



XEMIS3
Total body imaging
Hadron therapy monitoring

2 tons
2 m long
12 cm drift TPC





1 internship for 4 months : ~ 2600 €