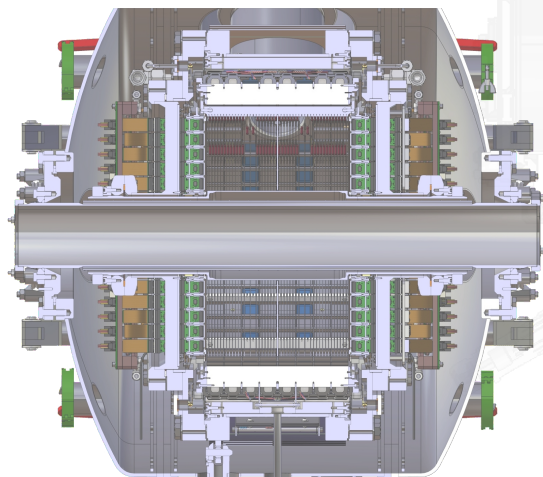
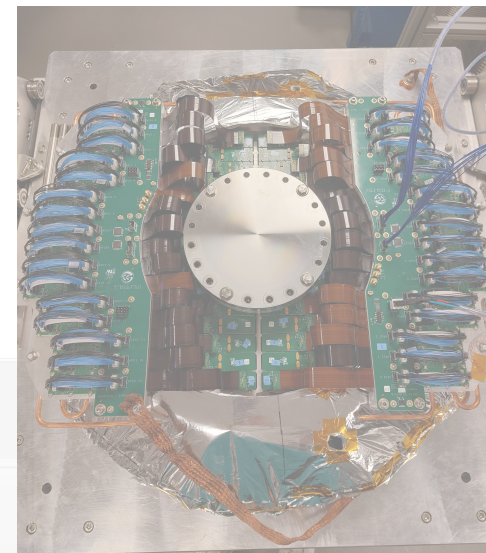


The XEMIS project (Xenon Medical Imaging System)



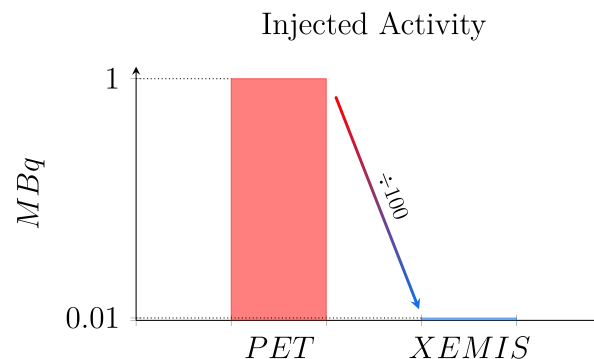
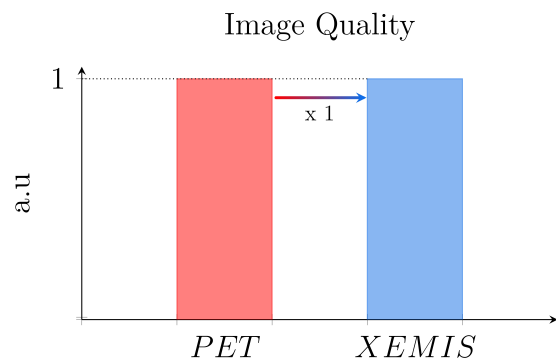
Nicolas Beaupère, Physicist, AP (MC) at IMT Atlantique,
bureau H111, email: beupere@subatech.in2p3.fr
Subatech laboratory, Nantes, France



A new camera technology for metabolic imaging

The XEMIS project (Xenon Medical Imaging System)

Targets:



Technologies:

- **Detector** : Compton Telescope (TPC)
- **Detection medium** : Xenon in liquid phase (LXe)
- **Radio-isotopes** : 3 photons emitter (β^+ et γ)

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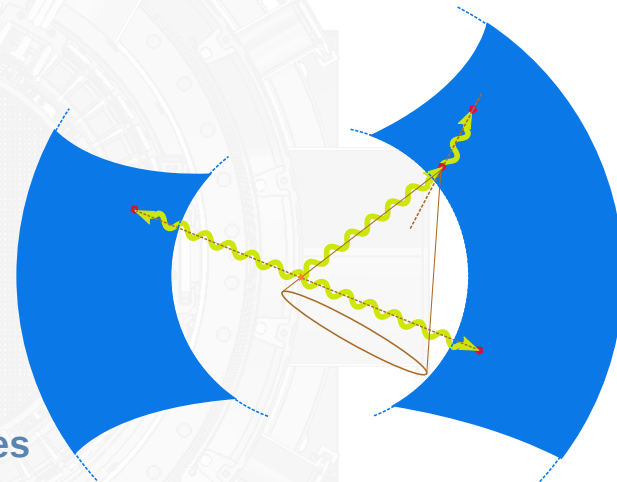
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Principles

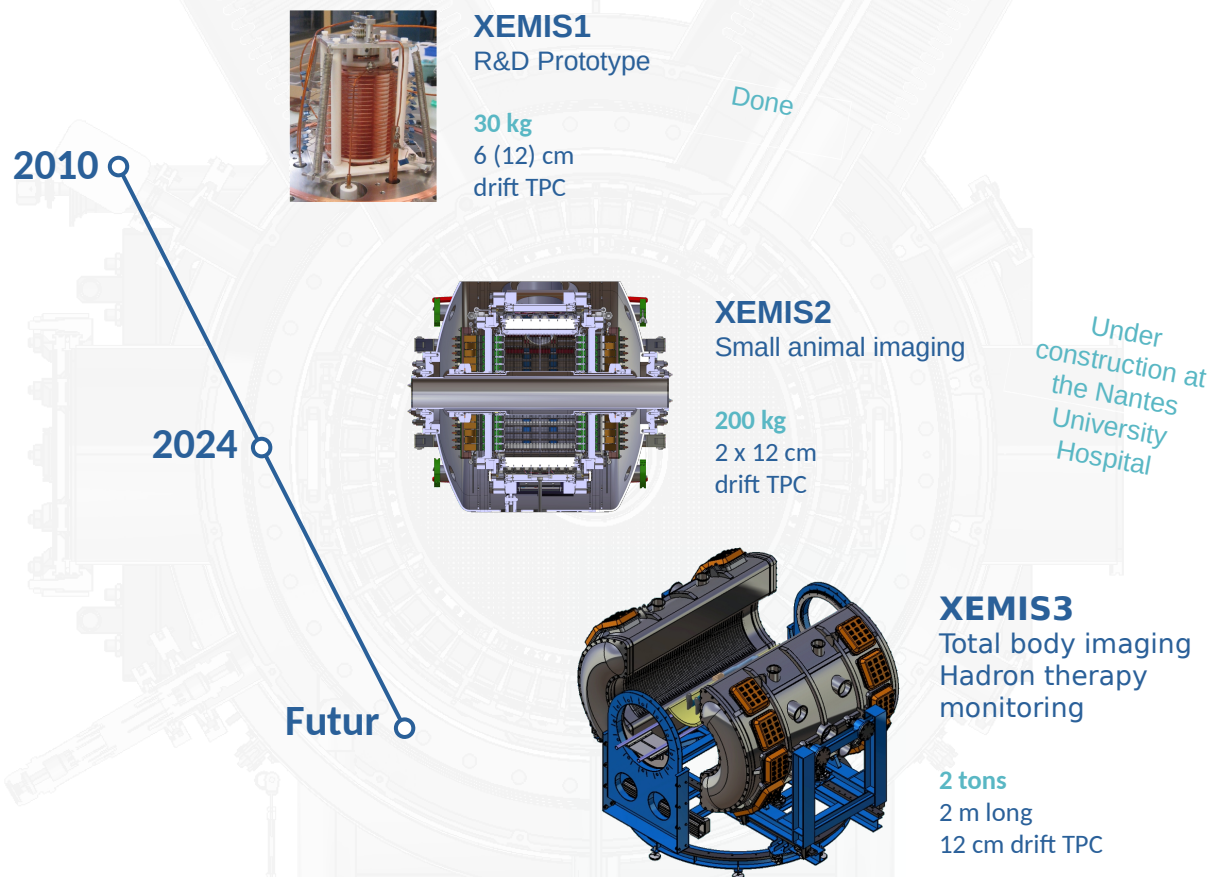
- 3 photons emission (>400 keV)
- Detector
- Interactions (PE, C)
- Observables (r, E_{dep})
- Reco cone-LOR
- Cone-LOR crossing points

$$\theta^C = \arccos \left[1 - m_e c^2 \left(\frac{E_{dep}}{E_i (E_i - E_{dep})} \right) \right]$$



Interests

- Direct 3D localisation of each isotopes
- No photon time of flight (TOF) measurement
- Low activity imaging technic



XEMIS2 camera installation progress at the Nantes University Hospital

