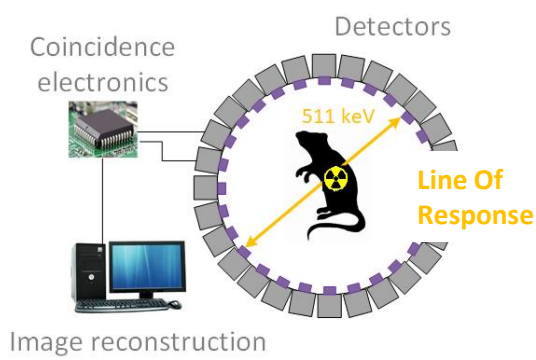


LabSTICC ARCAD : C. Lahuec – F. Seguin - C. Chavet
 LaTIM : D. Visvikis
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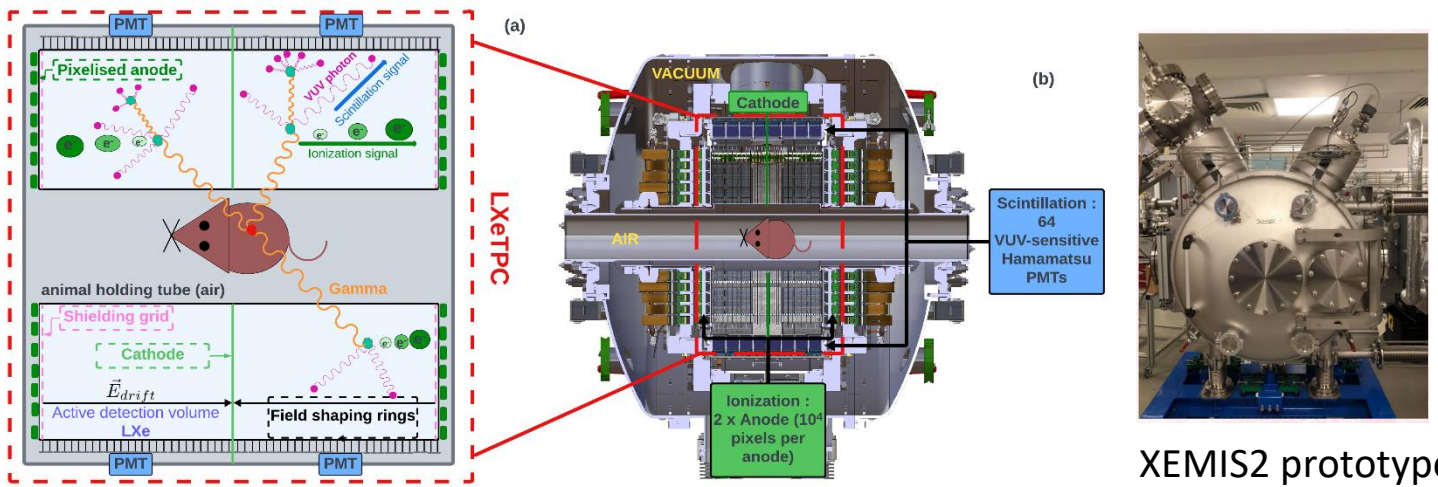
Nuclear medical imaging context

- Main tool: Positron Emission Tomography (PET)
- Injection of **radioactive tracer** ^{18}F
- γ photons (LOR) detected by **scintillation**.
- **Image quality = f(injected dose, duration)**
- **High time resolution (100s of ps)**
- **Power hungry**
- **Huge amount of data: not real-time**

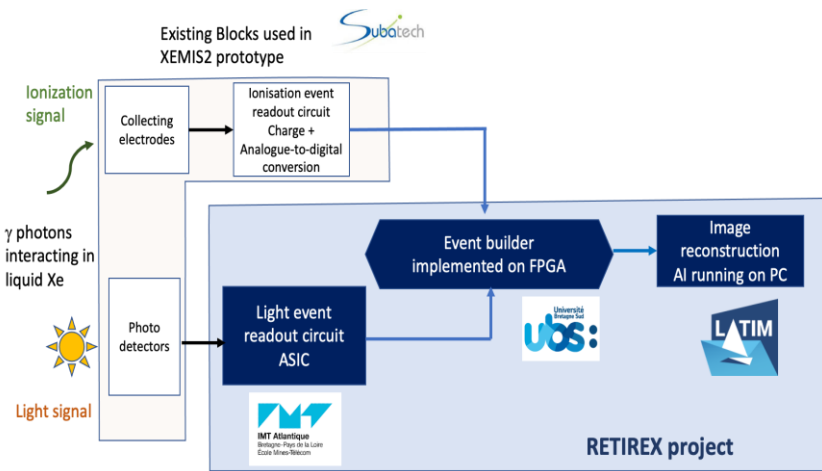


New tool: XEMIS2 3- γ Xenon camera prototype

- Use of a (β^+ , γ) emitter, e.g. Scandium 44 (^{44}Sc)
- **3 γ photons = Additional spatial information**
- **Fewer disintegration needed**
- Scintillator: **liquid Xenon (LXe)**
- Reduce the radiotracer dose acquisition times
- Localise accurately the disintegration
- Achieve real-time dynamic quantitative imaging

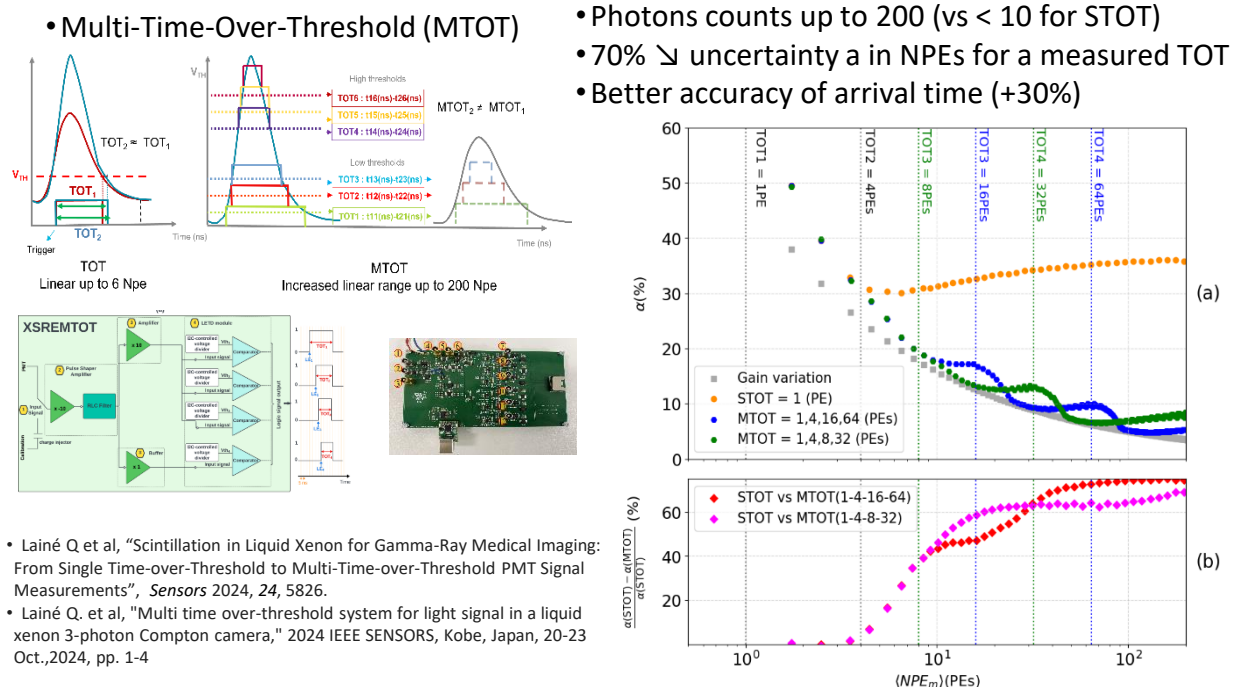


RETIREX scopes



- Need to improve photons count & arrival time
- Build event by combining ionisation and light
- Design image reconstruction algorithm

New light DAC: improved UV photons count



Event builder

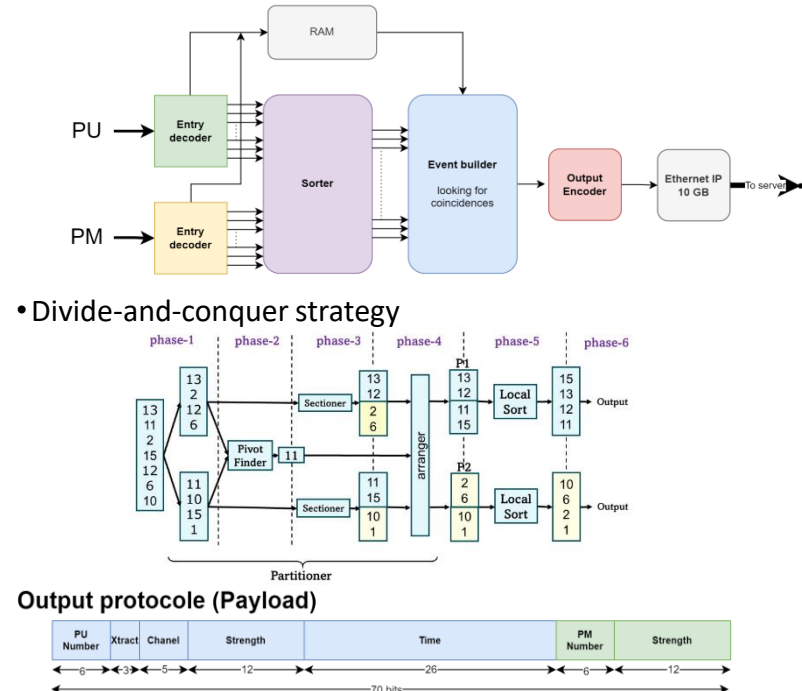


Image reconstruction

