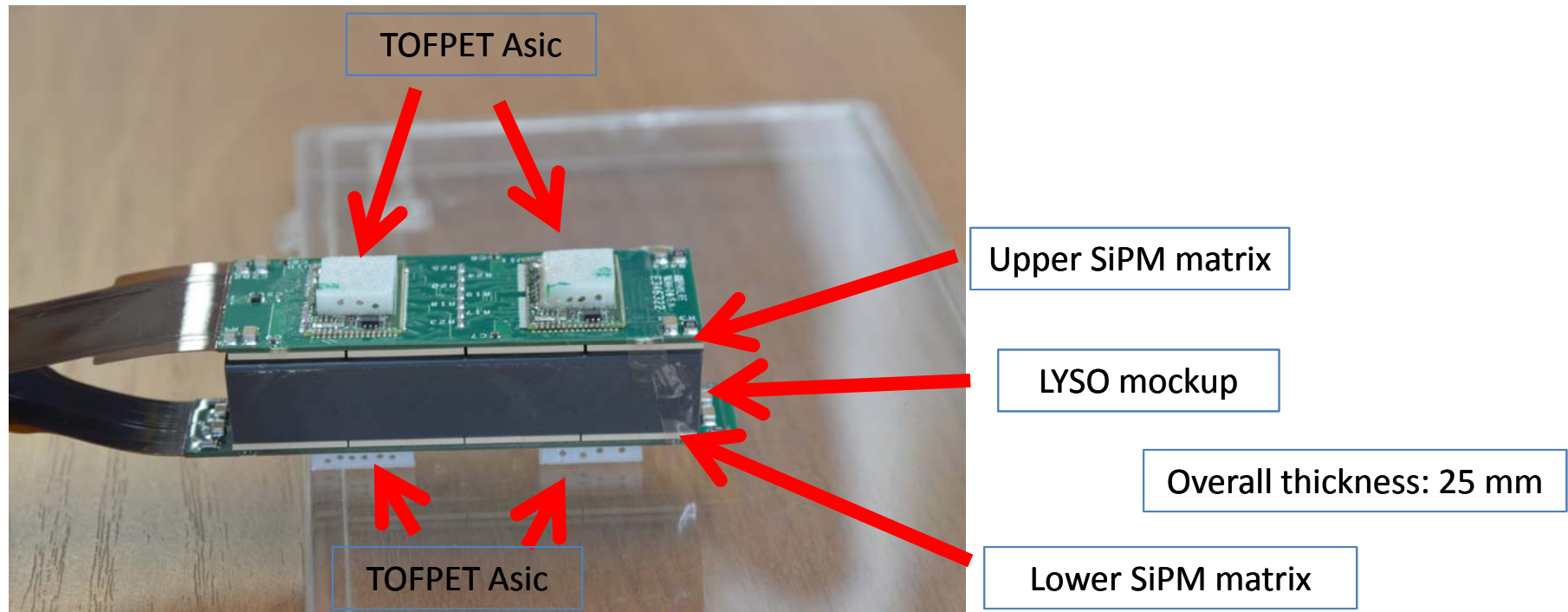


# The Endo-Rectal probe prototype for the TOPEM project

Paolo Musico on behalf of TOPEM collaboration

The detector is composed by a LYSO pixellated crystal is seen by a 128 SiPM matrix on both surfaces: this permits a DOI measurement.  
A dedicated integrated circuit was adopted to have the minimum dimensions: the TOFPET Asic.



- The external container was made using 3-D printing technology: internal channels on the external surface permit the flowing of controlled temperature ( $\approx 35\text{ }^{\circ}\text{C}$ ) water.
- Electronic components power is dissipated using an internal air flow kept at lower temperature ( $\approx 20\text{ }^{\circ}\text{C}$ ).
- The probe is MR compatible: a dedicated small antenna can be accommodated in the container. This will permit simultaneous imaging in MRI and PET systems.



**Cabled probe inserted  
in the container**

