

# TEMPORAL $\delta$

## R&D ACQUISITION AND IMAGING KIT



### What is temporal imaging ?

**Temporal imaging** is a new concept for gamma ray imaging that uses both light and time distribution of each scintillation event in monolithic to localize precisely each scintillation event in space (X,Y,Z), time (T) and energy (E).



**Temporal  $\delta$**  is the first device to use this new concept. It allows real time calculation of the characteristic vector (X,Y,Z,T,E) for each validated event [1].

It has 4 slots for connecting detector with Phillips DPC 3200 tiles.

### Temporal $\delta$ features

Temporal  $\delta$  Compton is composed of a processing unit and one or two detector units. , and a control PC.

- Temporal imaging read-out electronics for Phillips digital Si-PM detectors
- Time and energy calibrated detector modules (Crystals + Si-PM + Housing)
- Embedded software to reconstruct characteristic vector (X,Y,Z,T,E) in real time for each valid scintillation event.
- PC with image reconstruction codes.

#### Detector configuration

- Anti-coincidence : 2 units featuring 32x32x 5, 12 or 20 mm LYSO or CeBr<sub>3</sub> crystals read-out through Phillips DPC3200 Tile Sensor.

# DAMAVAN IMAGING IN SHORT

## IMAGE FROM TIMING



Spatial resolution

1.5x1.5x4mm for  
12mm crystal

Nb of photons @511keV Peak

4000-4500

Energy resolution @511keV

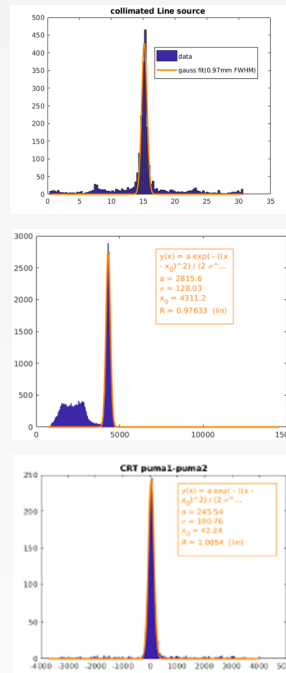
7%

Energy resolution @662keV

6.3%

Time resolution @511keV  
FWHM on two 20 mm CeBr<sub>3</sub>  
detector.

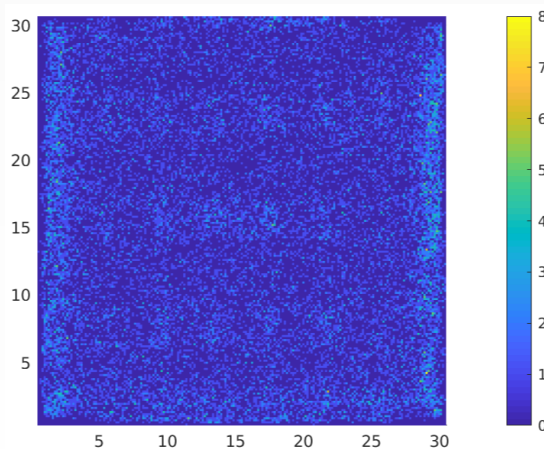
235ps



## Highlights

Damavan imaging was founded in December 2014 in Troyes (F) as a SAS (Société par Action - Simplified joint stock company). In July 2015, Damavan has won a 4 years research grant from « Investissements d'avenir »: (Investments for the Future Programme conducted by ANDRA), "Temporal" to develop a Compton camera based on temporal imagers. In October 2016 Damavan is issuing the first temporal imager: temporal  $\delta$ .

Flood image of a 5 mm thick CeBr<sub>3</sub> detector



Contact us for  
further information

DAMAVAN IMAGING

+33 (0)3 25 49 00 47

[contact@damavan-imaging.com](mailto:contact@damavan-imaging.com)

Technopole de l'Aube

2 rue Gustave Eiffel

(F) ROSIÈRES PRÈS TROYES

[www.damavan-imaging.com](http://www.damavan-imaging.com)

