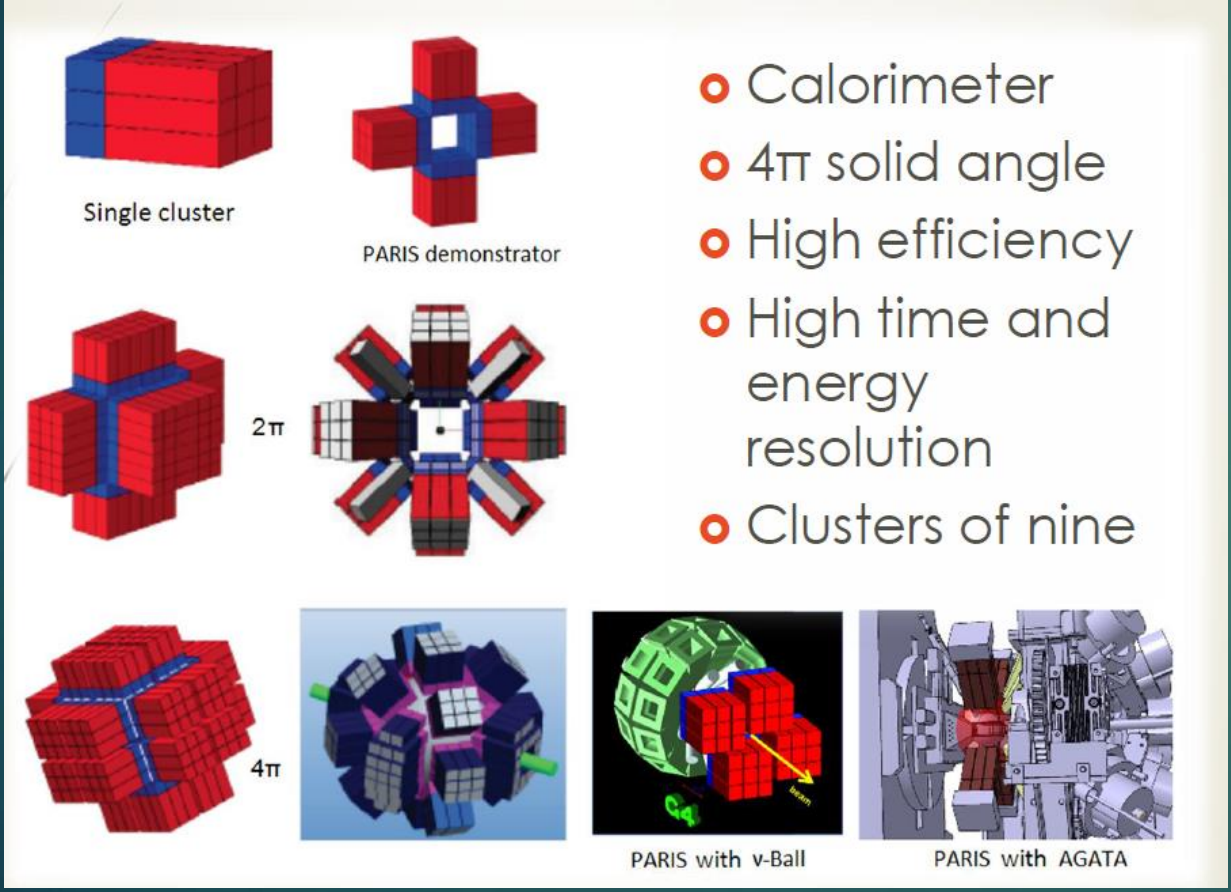
PARIS
Photon Array for Studies with Radioactive Ion and Stable beams

Michał Ciemała (IFJ PAN Krakow) et al.

(on behalf of the PARIS collaboration)

EURISOL-DF, Lisbon, 15.11.2017

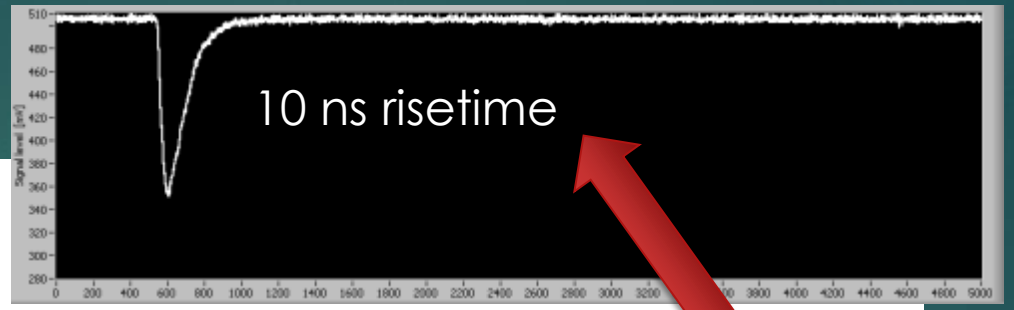
Photon Array for studies with Radioactive Ion and Stable Beam

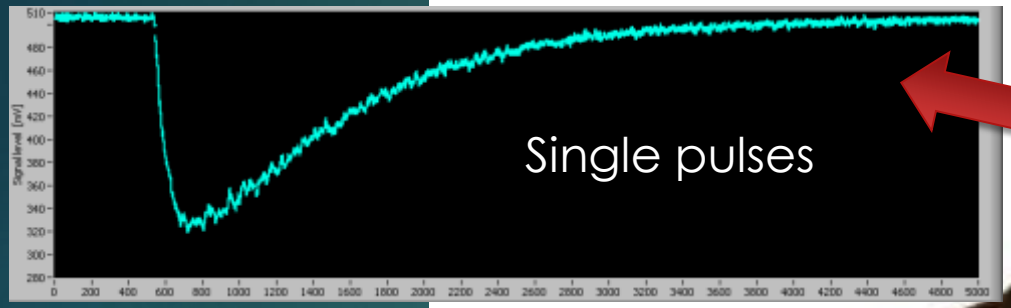


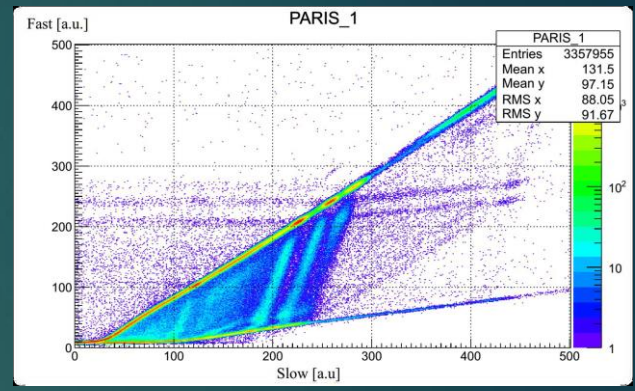
- Calorimeter
- 4π solid angle
- High efficiency
- High time and energy resolution
- Clusters of nine

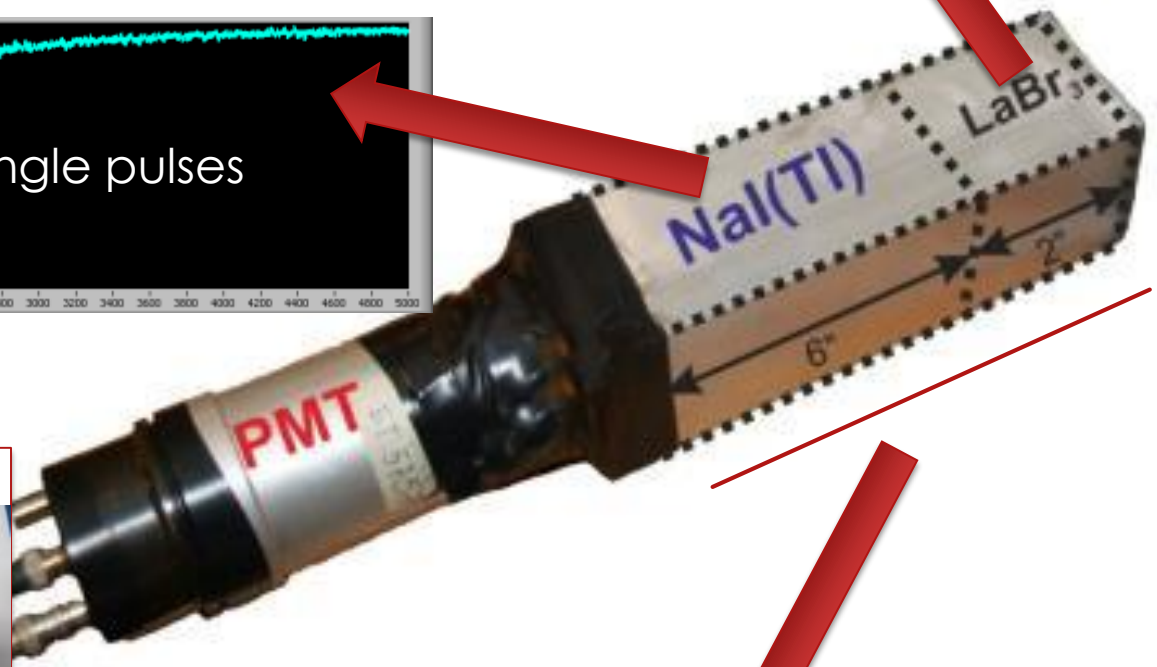
PARIS to be made of clusters:
Cluster = 9 *phoswiches*
This allows, in its final phase, *cubic* or *semi-spherical* geometry with 24 clusters (216 phoswiches)

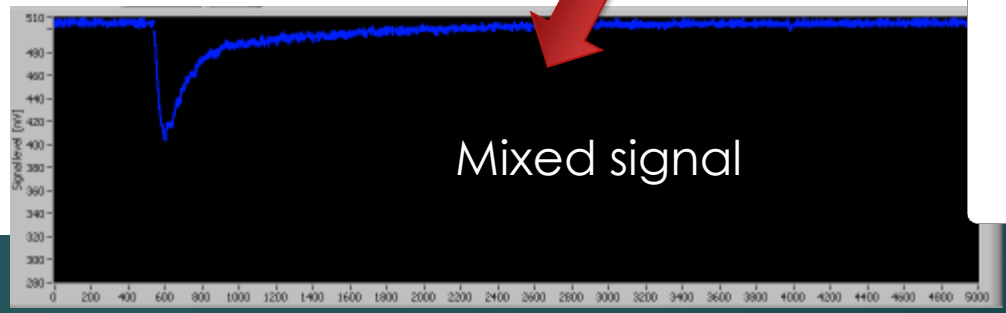
The PARIS PHOSWICH at work

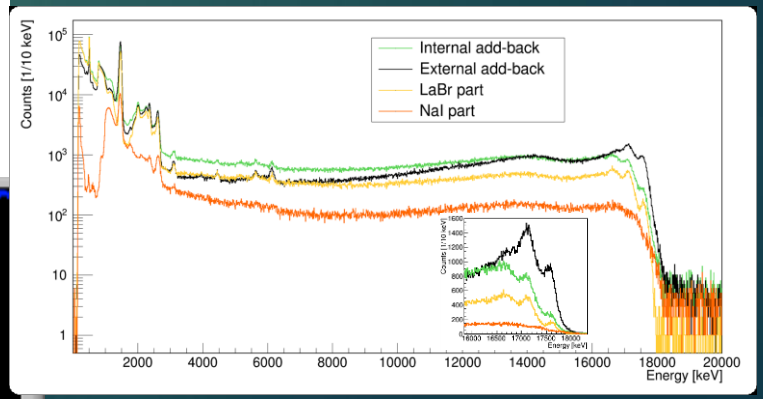












First PARIS experiments

Experiments performed at IPN Orsay:
1. M. Lebois et al. "Prompt gamma and neutron emission for ^{238}U fast neutron induced fission as a function of incident neutron energy" (April 2016) (IC, $LaBr_3$, BAF_2, PARIS)
2. A. Kozulin et al. "Prompt γ-rays as a probe of nucleardynamics" (June 2016)
Motivation and Goal: Challenging fission around the interaction barier (CORSET + ORGAM + PARIS).

Experiment performed atGANIL:
S. Leoni, B. Fornal, M. Ciemala et al., Lifetime measurements of excited states in neutron-rich C and O isotopes (2 clusters + 2 large $LaBr_3$), AGATA, VAMOS

Experiment performed at CCB, Krakow:
F. Crespi, M. Kmiecik, et al. „Studies of gamma decay of GQR (E_{GQR}=10.6 MeV) and GDR (E_{GDR}=13.9 MeV) in ^{208}Pb with 85 MeV protons on ^{208}Pb target" (March 2017), (PARIS, HECTOR, KRATTA).

Experimenta to be performed at IPN Orsay:

B. Blank et al., „Measurement of the super-allowed branching ratio of ^{10}C".

P.J. Napiorkowski et al., „Coulomb excitation of super-deformed band in ^{40}Ca".

M. Kmiecik, F. Crespi, J. Wilson et al., „Feeding of low-energy structures in ^{188}Pt of different deformations by the GDR decay: the nuBall array coupled to PARIS".

Experimenta to be performed at GANIL:

P. Bednarczyk, A. Maj et al., Investigation of a high spin structure in ^{44}Ti via discrete and continuumy-spectroscopy with *AGATA, PARIS* (4 clusters) and *DIAMANT*

B. Fornal, S. Leoni, M. Ciemala et al., „Gamma decay from near-threshold states in ^{14}C: a probe of clusterization phenomena in open quantum systems", AGATA, PARIS (4 clusters), NEDA, DIAMAND, DSSD

LoI with PARIS applied at SPES.

For more information please see the poster!