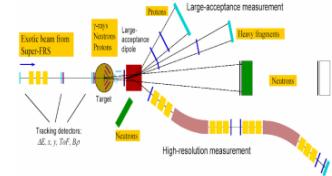


R³B

CALIFA community



**CIMA, Univ.
Vigo**



GENP USC



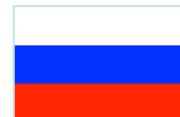
**IEM-R3B,
CSIC-Madrid**



SWEDEN:
Chalmers, Göteborg
University of Lund



GERMANY:
TU Darmstadt
TU Munich



**CSIC**
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

STAFF

**María José García Borge
Olof Tengblad**



**Enrique Nacher
Angel Perea**

PostDoc:

Jose Sanchez del Rio	contract	→ Jan. 2012
Francesca Zocca	contract	→ Jan. 2012

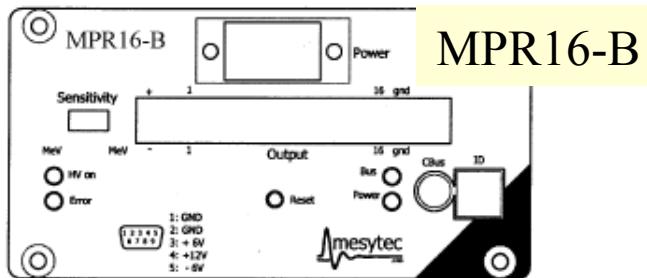
PhD students

Mario Cubero	grant	→ Oct. 2011
José Antonio Briz	FPI grant	→ Oct. 2012
Mariano Carmona	JAE predoc	→ Sep. 2013
Guillermo Ribeiro	FPI grant	→ Oct. 2014
Vicente Pesudo	contract	→ Nov. 2012

OLOF TENGBLAD

CALIFA R&D Projects

Barrel Readout



LAPD @ 350V

Gain: range 10-20

Noise: 10 to 20 keV CsI related.

MPR16 – Preamp

BIAS 600V +/- 2

Temperature compensation

HV monitoring

MPR16-B

O. Tengblad
A. Perea
M. Carmona

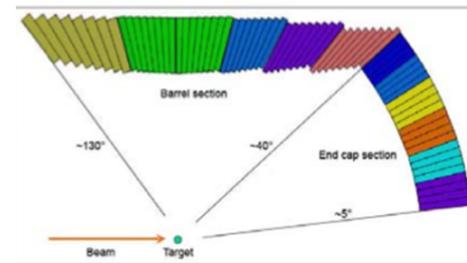
Endcap Assembly

E. Nacher
A. Perea
J. Sánchez del Rio

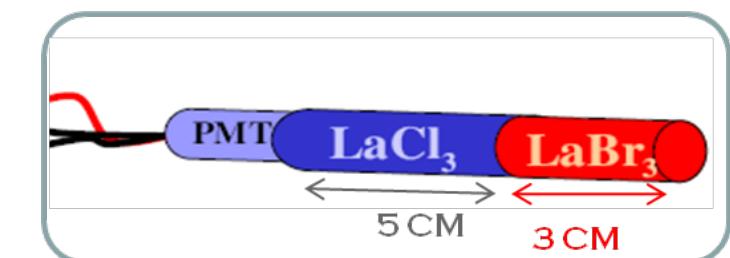
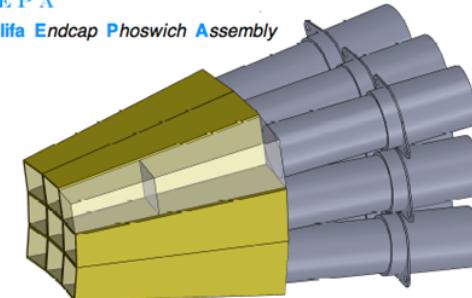
Slow control



MDI-2 VME
Sequencer and ADC
512 channels



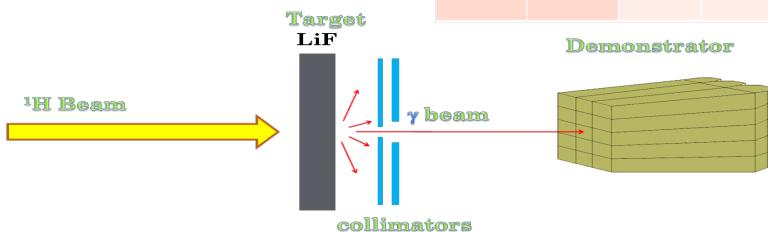
CEPA
Califa Endcap Phoswich Assembly



Gamma test Bench @ CMAM 5MV tandem



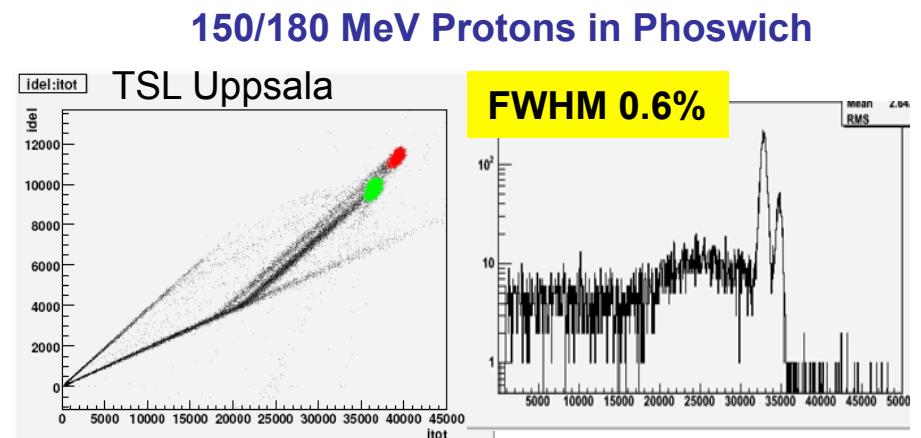
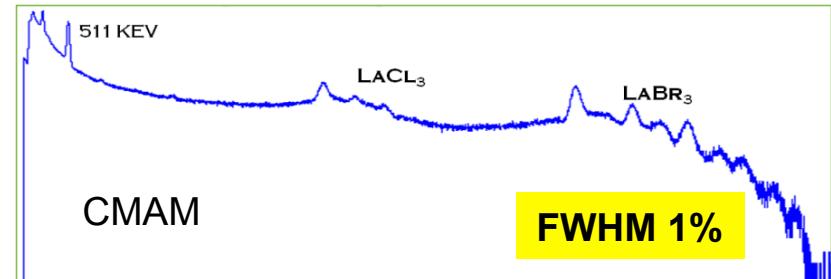
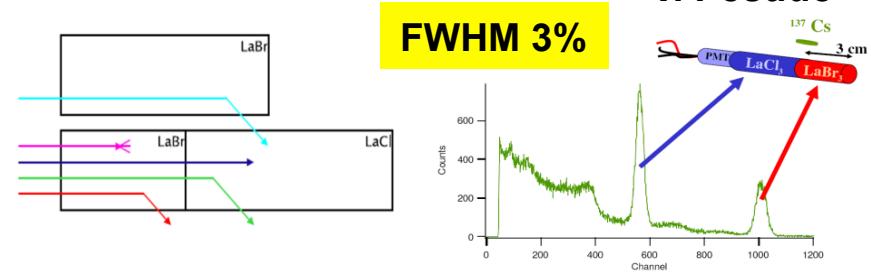
	E_p (MeV)	E_γ (MeV)	
^{19}F	1	6.129	RESONANCE
		5,618	SINGLE ESCAPE
		5,107	DOBLE ESCAPE
		0,511	



A. Perea
E. Nacher
G. Ribeiro
V. Pesudo

On-line tests γ & p

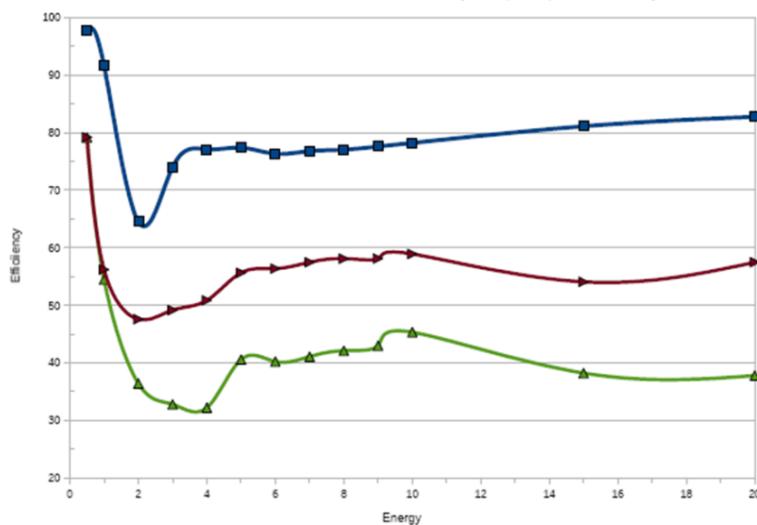
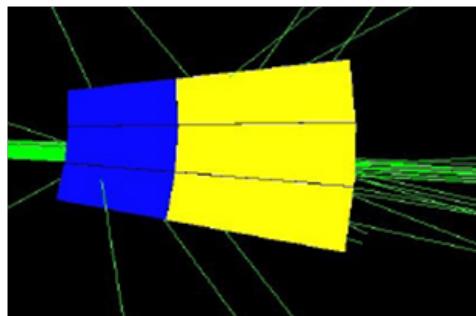
O. Tengblad
E. Nacher
M. Carmona
G. Ribeiro
V. Pesudo



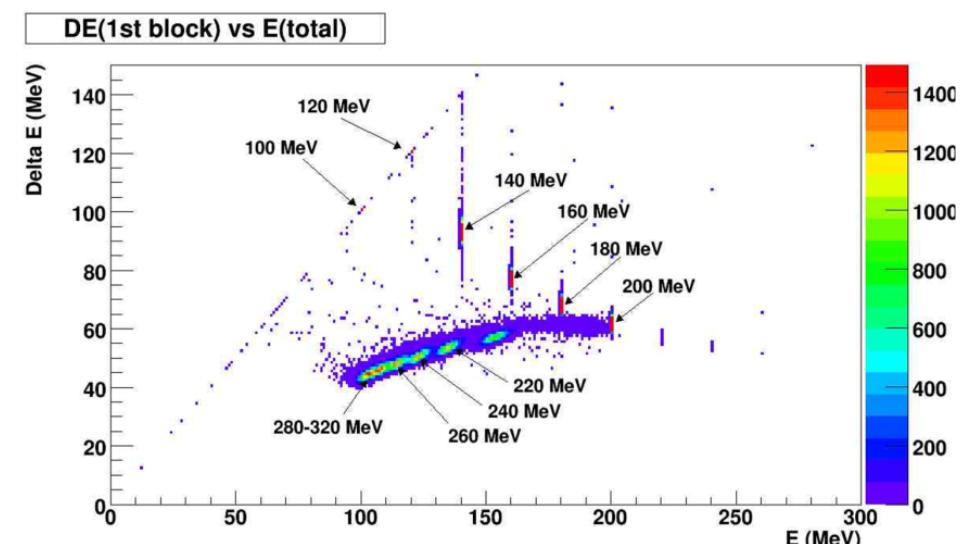
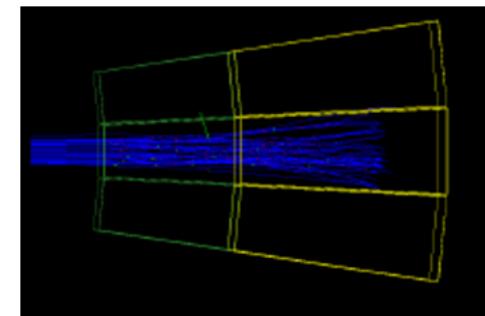
Simulations Geant4 - R³BRoot

E. Nacher
J. Sanchez del Rio
J-A. Briz

Gammas → 30 MeV



Protons → 320 MeV



Budget IEM-R3B 2009 - 2012

- **Demonstrator for CALIFA 220.000 €**
 - 100 CsI(Tl) crystals + LAPD + Electronic
- **Electronic readout of LAPD 105.000 €**
 - 16ch preamp board with individual Bias 600V +/- 200V
 - temperature controll (linear calibration)
 - 1st stage to be coupled to MESYTEC 16ch shaper MSCF-LN
 - 2nd stage multiplexed Shaper
- **Electronics Multiplexado**
 - continue the Monolithic electronic development
- **Phoswich Front Cap demonstrator 40.000 €**
 - CEPA 9 x Phoswich (4cm LaBr+ 6cm LaCl) from Saint-Gobain

Total: 360.000 €

Time plan CALIFA

2011

- Build & Test Barrel Demonstrator
- R&D PreAmp Temp-Bias Control electronics
- R&D on Front End Cap
- TDR CALIFA Barrel end 2011

2012

- Build final preamps
- Digital or Analog readout
- Decision on Front End Cap
- TDR CALIF Front end 2012

Next Project 2013-2016

- Construction
- Installation at GSI 2017

Matrix cost

	old	New
Spain	1230	1230 (550 2009-11 existing)
Sweden	950	950
TU Munich	200	800
TU Darmstadt	0	250
UK	600	0
Kurchatov	220	220
Poland	0	500
Total	3200	3950