

HYDE project UPDATE

↳ G_{ASPARD} H_{YDE} T_{RACE} Collaboration Meeting ↳

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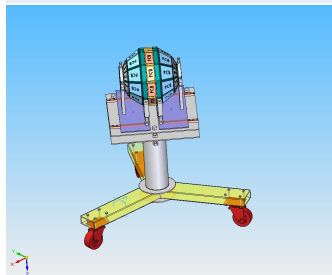
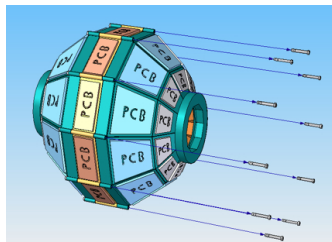
Outline

- 1 Mechanics
3D model & material stress studies done.
- 2 Electronics
first ASIC prototype is being delivered.
- 3 Detectors
Arrived about a year ago. Experiments performed during 2012.
- 4 What's next?

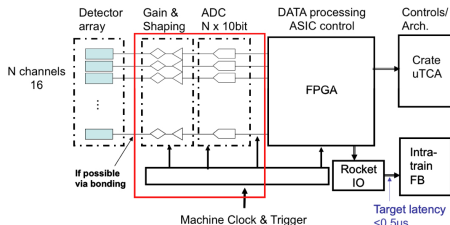
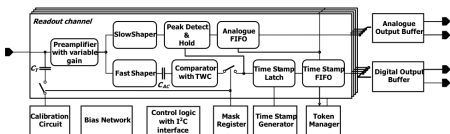
HYDE Mechanics

HYbrid DETector Array

- LEB of FAIR (if?), fits in AGATA.
- Trapezoidal and rectangular shapes.
- Outer diameter < 400 mm.
- 4 DSSD Si telescope (640 chns/cell).
- Z & A identification from H to S.
- E & ϕ resolution: < 50 keV, $1^\circ/0.1^\circ$.
- FEE outside the chamber.



High & Low density ASICs



- Aim to put 128 chns/chip.
- Low power consumption with spectroscopy properties.
- The variable gain preamplifier accepts both signal polarities.
- Aim mass resolutions down to 1/50 and 1/70 in charge, with low energy thresholds.
- Wide band preamplifiers > 300 MHz and fast digitizers $> \text{GHz}$, 10 bit.

HYDE telescope

Manufactured by Micron Semiconductors

	BB7-20	BB13-100	BB13-500	BB7-1500
Wafer type	FZ	6 inch (nTD)	4 inch (nTD)	FZ
	< 100 >	< 100 >	< 100 >	< 100 >
		8° off-axis	8° off-axis	
Resistivity	3 k Ω cm	200 Ω cm	2 k Ω cm	20 k Ω cm
Thickness	22 μ m	101 μ m	511 μ m	1531 μ m
Active area (mm²)	62 \times 62	62 \times 62	62 \times 62	62 \times 62
Strips	32 \times 32	128 \times 128	128 \times 128	32 \times 32
Metal coverage	Al 300 nm	Al 300 nm	Al 300 nm	Al 300 nm
Dead layer	< 1 μ m	< 1 μ m	< 1 μ m	< 1 μ m
Depletion voltage	5 V	100 V	300 V	300 V
Package material	FR4	FR4	FR4	FR4

What's next?

- 2012 ends 3 years phase.
- We need to apply for funding, but very unlikely to get it.
- More research should be done with our detectors and electronics.
- Carry on with our GHT collaboration.

THANK YOU FOR YOU ATTENTION