

**CERN workshop upgrade
Aida fund
Transfer to industry**

Rui De Oliveira

CERN workshop upgrade for MPGD

- **First step:**

- Find 9 adapted machines for large size objects production → OK
- purchasing phase → nearly finished
- 4 are being installed

Initial planning : all machines running mid 2011

realistic planning : all machines running September 2011

- **Second step:**

- redefine all the process parameter related to the new equipments
- Build some prototypes of the # detectors

WG6: TE/MPE/EM Workshop upgrade

- Last year, agreement was reached with CERN management to purchase the subset of machines necessary to carry out R&D on large size GEM (2m x 0.5 m) & Micromegas (2m x 1m) and the associated large size read-out boards in the current CERN TE/MPE/ME facility.

GEM	market survey	call for tender	order	received	ready
– 1 continuous polyimide etcher	x	x	x	x	06/2011
– 1 Cu electroetch line	x	x	x		06/2011
Micromegas					
– 1 large laminator	x	x	x		06/2011
– 1 large Cu etcher	x				09/2011
– 1 large UV exposure unit	x	x	x	x	06/2011
– 1 large resist developer	x				09/2011
– 1 large resist stripper	x				09/2011
– 1 large oven	x	x	x	x	06/2011
– 1 large dryer	x	x	x	x	06/2011



- UV exposure unit limited to 2m x 0.6m → 2.2m x 1.4m



- Resist developer limited to 0.6m width → 1.2m

- Resist stripper “

- Copper etcher “

- Dryer “



- GEM resist stripping limited to 1m → 2m

- GEM electro etch “



- GEM polyimide etch limited to 1m → 2m

- Ovens limited to 1.5m x 0.6m → 2.2m x 1.4m

- Laminator limited to 0.6m width → 1.2m





- Ovens limited to 1.5m x 0.6m → 2.2m x 1.4m
- In building 102 .
- It took 2 month to prepare cabling
- Will be connected next week
- Some minor problems during transport

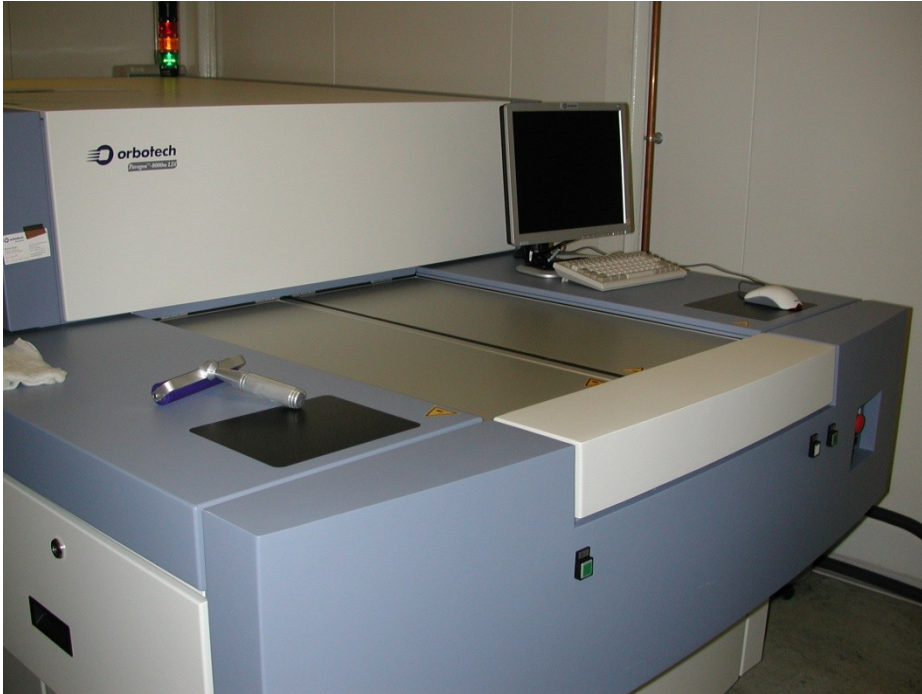


- UV exposure unit limited to 2m x 0.6m → 2.2m x 1.4m
- In building 254
- Room is being prepared
- Electricity is missing
- Air renewal is missing
- Ready within 2 months



- GEM polyimide etch limited to 1m → 2m
- In building 254
- Machine assembly is not done
- Power connection missing
- Air exhaust missing
- Chemical connection missing
- Ready within 2 month





- Out of RD51
- LDI is fully operational
- Single side GEM
- Special readouts
- Repetitive work
- High alignment accuracy

AIDA

- CERN investment:

- Equipments for large size GEM manufacturing (2m x 0.5m goal)
- Equipments for large size Micromegas manufacturing (2m x 1m goal)
- Participation of 4 technicians (15% of their time)

- Request to AIDA:

- Finance a technician during 2 years to:
 - Set up the equipments
 - Produce some large prototypes for: (non exhaustive list)
 - Kloe inner tracker (Frascati)
 - SLHC ATLAS Muons detector upgrade
 - CMS Muons detector upgrade
 - Panda inner tracker (Munich)
 - Florida Tech university (home land security)
 - ILC calorimeters (Lapp Annecy, Arlington Texas)
 - Large area, High spacial resolution Tracker at Jefferson Lab
 - Etc...

Implementation plan
WP: WP9.2

Budget codes: EU 99326
CERN 99325

PPA code: RLU-PRJ

WP.task	PPA	EU funding to project (CHF)	Budget code for EU funding	CERN funding for project (CHF)	Budget code for CERN funding	Person-Months	Personnel direct costs (EU funds)	Consumable and prototype direct costs (EU funds)	Travel direct costs (EU funds)	Personnel direct costs (CERN funds)	Consumable and prototype direct costs (CERN funds)	Travel direct costs (CERN funds)
WP9.2	RLU-PRJ	239,300	99326	239,100	99325	53	239,300			236,400	-	2,700

EU-part of budget allocation (CHF) Code 99326

category / year	2011	2012	2013	2014	total	Total EU fund.	Plan	
staff (PSI)	0				0	240000	239300	Manpower
fellow (PFE)	60000	120000	60000		240000	0	0	Consumable + travel
materials (M)					0			
total	60000	120000	60000	0	240000			

CERN-part of budget allocation (CHF) Code 99325

category / year	2011	2012	2013	2014	total	Total CERN fund.	Plan	
staff (PSI)	46833	93666	93666	46833	280998	280998	236400	Manpower
fellow (PFE)					0	2700	2700	Consumable + travel
materials (M)	2700				2700			
total	49533	93666	93666	46833	283698			

EU versus CERN post by post

Item	P-M	P-M	2011	2012	2013	2014	COST	% EU	% existing department resources	% additional CERN resources	EU	existing department resources	additional CERN resources	total CERN
R. De Oliveira		4.2	7.50%	10%	10%	7.50%	59,900	0%	100%	0%	0	59,900	0	59,900
A.Teixeira		4.8	7.50%	10%	15%	7.50%	60,400	0%	100%	0%	0	60,400	0	60,400
O.Pizzirusso		4.8	7.50%	10%	15%	7.50%	60,400	0%	100%	0%	0	60,400	0	60,400
S.Ferry		4.8	7.50%	10%	15%	7.50%	60,400	0%	100%	0%	0	60,400	0	60,400
FELLOW (to be hired)		24	July-Dec	Jan-Dec	Jan-June		240,000	100%	0%	0%	240,000	0	0	0
Purchase of equipment							1,300	0%	100%	0%	0	1,300	0	1,300
Travel							1,400	0%	100%	0%	0	1,400	0	1,400
Planned		42.6												
		53												
Totals											240,000	243,800	0	243,800
											239,300			239,100

Transfer to industry

- **Micromegas:**

- Cirea → handled by Saclay → one std Bulk produced successfully
- Eltos ? Do we start something?
- US → handled by Viennetos BNL → large PCB produced and BULK?
- Other companies ?
- Resistive coatings?

- **GEMs:**

- New-Flex → Handled by CERN/ Corea . 100 x 100 GEM are being produced
- Micrometal → problem of width → stop?
- India → few information. Waiting for their visit at CERN

Thank you