

Tungsten supply and assembly, test beam setup

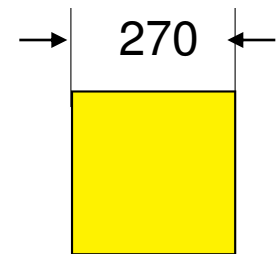
- Market survey on tungsten supply
- Ideas on the frame design
- Experimental area
- Test beam setup

Wolfgang Klempt/ CERN

Towards an HCAL Tungsten Prototype Workshop, Hamburg 2 March 2010

Market Survey on Tungsten Supply

- MS presented to CERN Finance Committee in dec 2009
- Send out 20.1.2010 to 9 companies
- MS closed on the 19.2.2010
- Received 3 positive answers

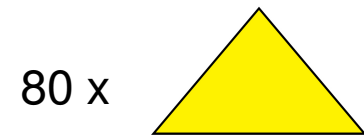
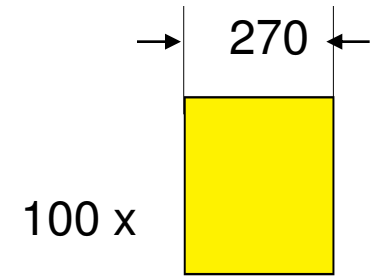


Tungsten plates

- **PLANSEE Metall GmbH, Austria**
pure W $\rho \approx 19.3 \text{ g/cm}^3$
- **PLANSEE Tungsten Alloys – CIME BOCUZE, France**
pure W $\rho \approx 17.5 \text{ g/cm}^3$
- **Special Metals and Products, Spain**
pure W $\rho \approx 19.3 \text{ g/cm}^3$

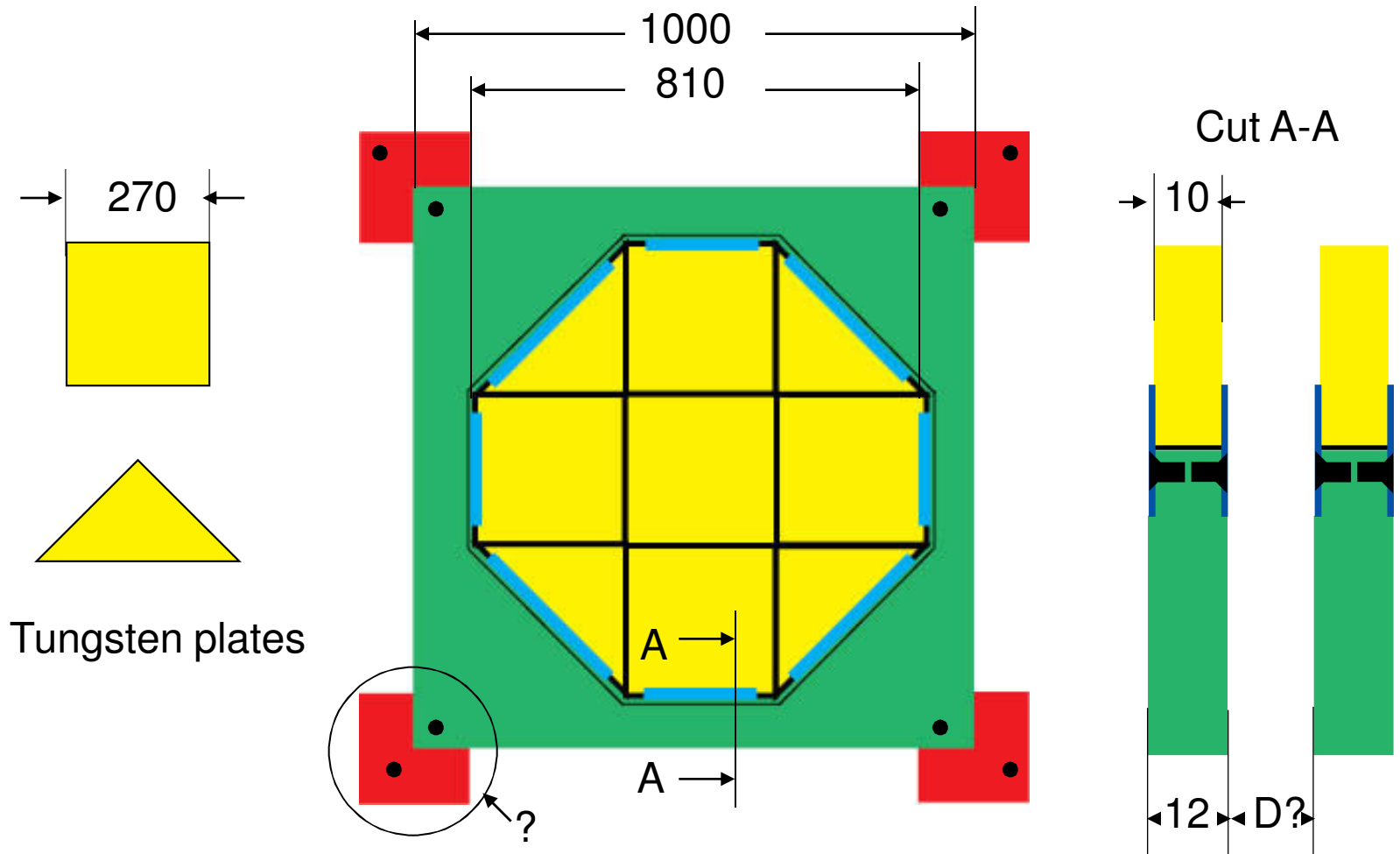
Invitation to Tender

- Invitation to tender is prepared now, will be send out this week
- Delay for answers is 4 weeks invitation for tender will be closed by ~ 15.3.2010
- Place order by 30.4.2010
- Receive 4 batches of 25 squares and 20 triangles on 15 June, 30 June, 15 July and 31 July
- Start to equip absorber plates from 15 June onwards



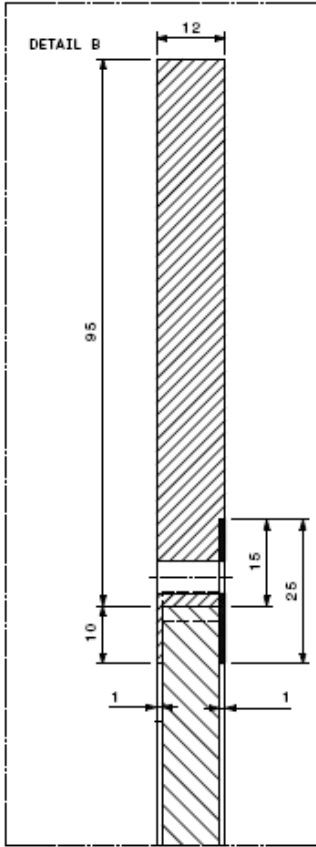
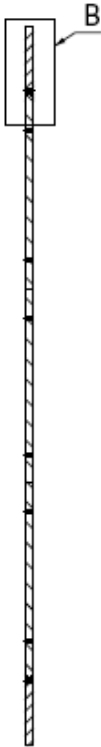
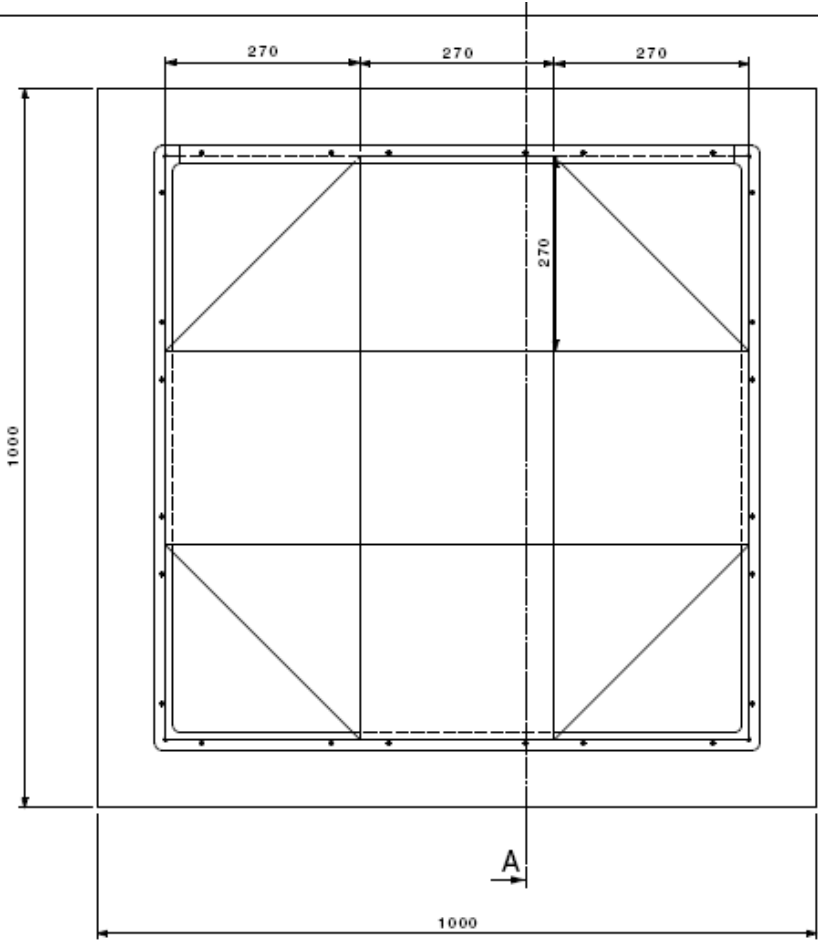
Tungsten plates
Thickness 10 mm

Design of Frames



What distance D do we adopt between iron plates (for 2010) ??
How is the cassette design?
How do we design the “corners” to fit with cassettes?

Design of Frames



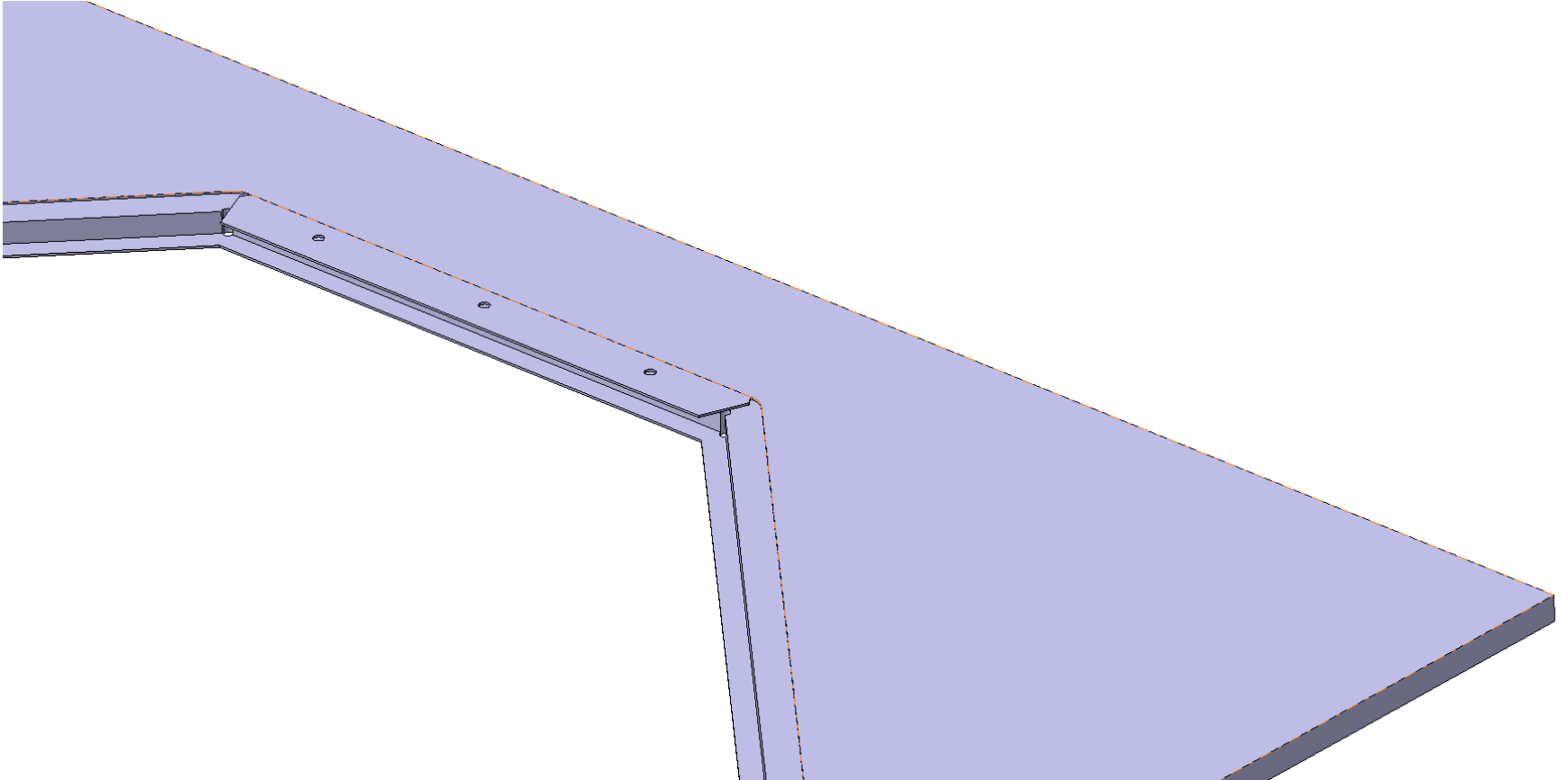
DESIGN: P. LENCER
 CHECKED: P. LENCER
 APPROVED: P. LENCER



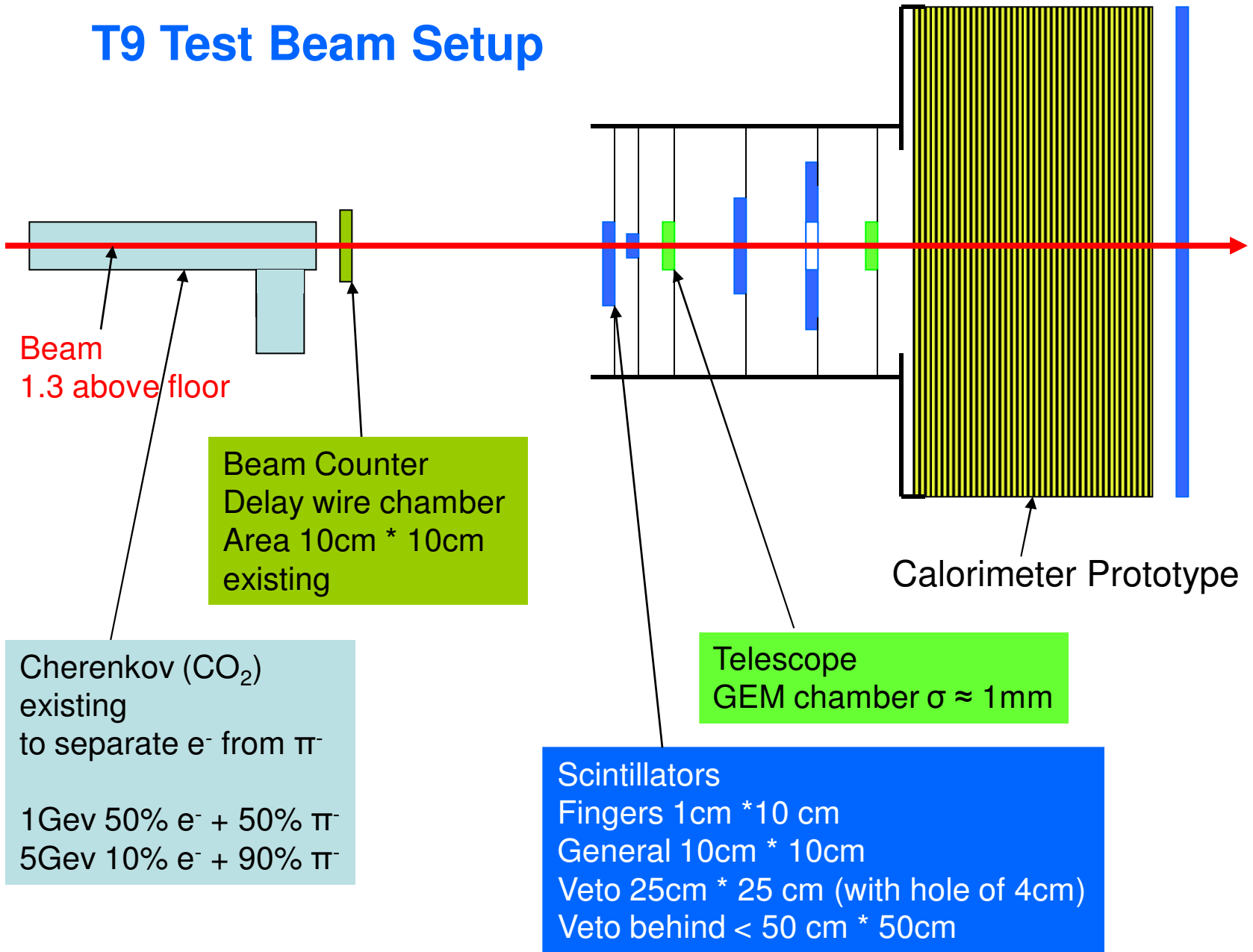
CONSTRUCTION AND MATERIALS SPECIFICATIONS
 COMPANY: [unreadable]
 PROJECT: [unreadable]
 DATE: [unreadable]

NEW VALABLE FOUR EXECUTION NOT VALID FOR EXECUTION	DESIGN	P. LENCER	2010-02-12
	CONTROL		
	RELEASE		
	APPROVE		
	REPLACE/REPLACES		
ST0261918_02	SIZE	2	1

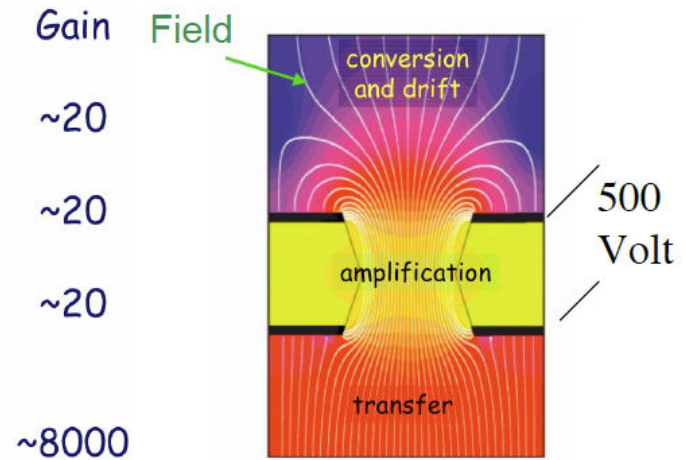
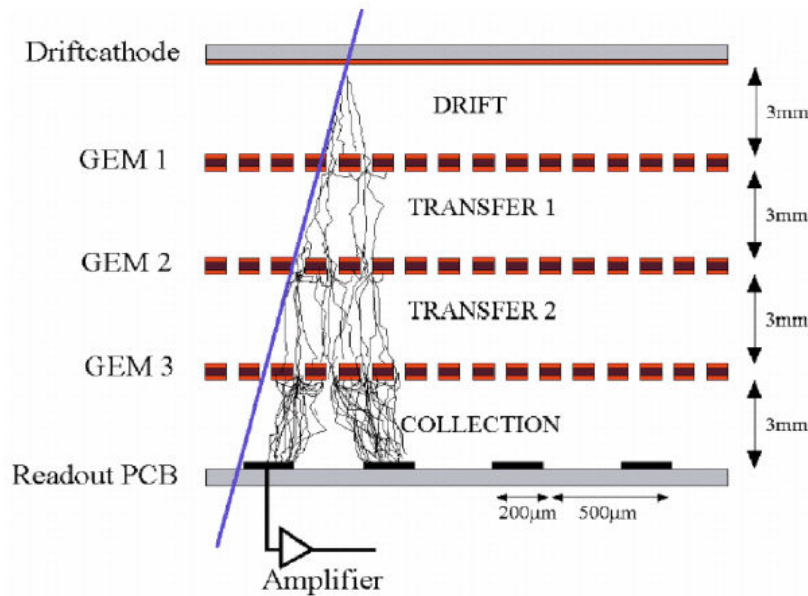
Design of Frames



T9 Test Beam Setup



Triple-GEM Detector

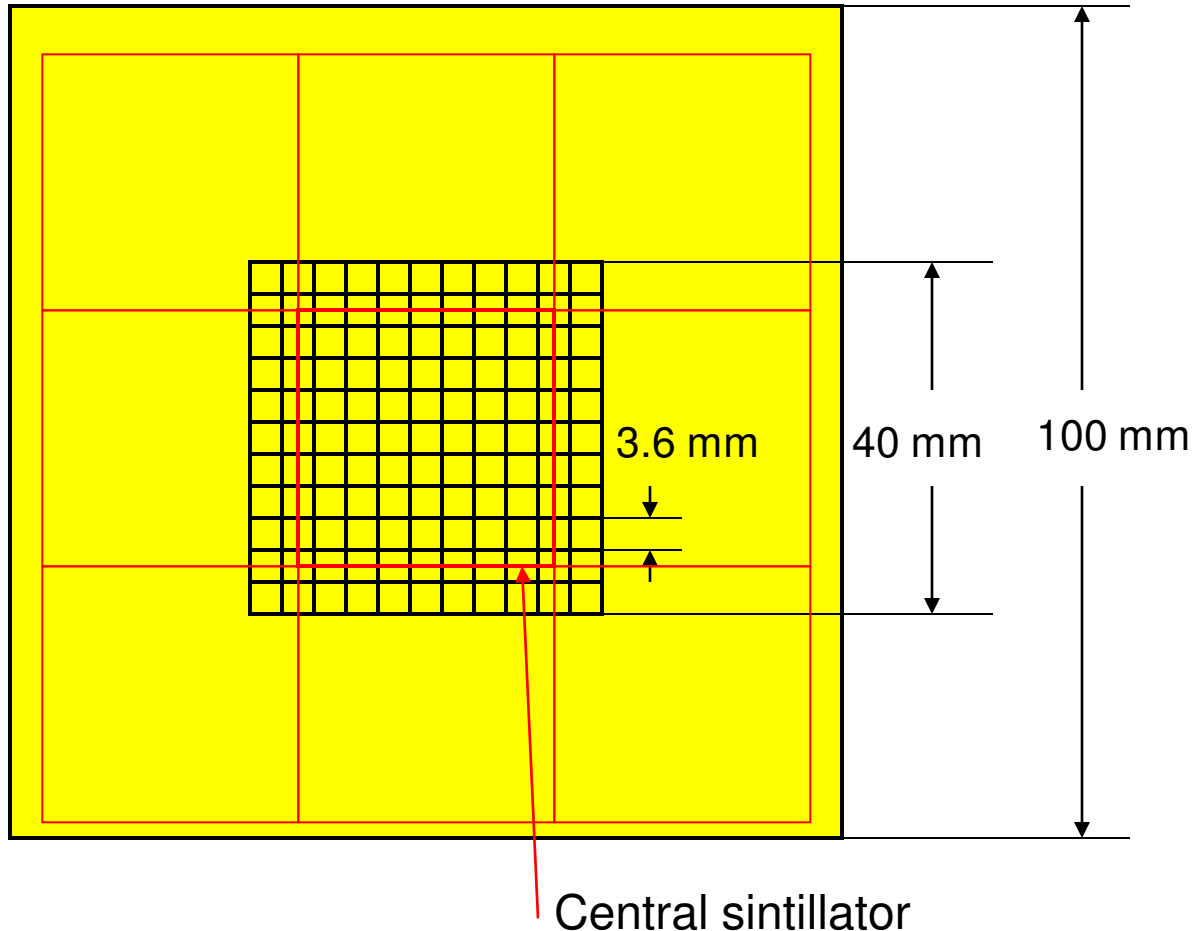


“Standard” size :
10cm * 10cm

Ar/C02 70:30 gas-mixture

One may choose pad plane geometry

Cathode Plane and Read Out



Resolution:

$$\sigma = \frac{3.6 \text{ mm}}{\sqrt{12}} \cong 1 \text{ mm}$$

11*11 = 121 Channels

Digital read out

AVP-25 chip

128 channels per chip

Need 1 chip/ chamber

H. Mueller is producing
read out chain

Conclusion

Preliminary PS/SPS Schedule we run 8/11 to 22/11

		Thu 21 Oct	Fri 22 Oct	Sat 23 Oct	Sun 24 Oct	Mon 25 Wk43	Tue 26 Oct	Wed 27 Oct	Thu 28 Oct	Fri 29 Oct	Sat 30 Oct	Sun 31 Oct	Mon 1 Wk44	Tue 2 Nov	Wed 3 Nov	Thu 4 Nov	Fri 5 Nov	Sat 6 Nov	Sun 7 Nov	Mon 8 Wk45	Tue 9 Nov	Wed 10 Nov	Thu 11 Nov	Fri 12 Nov	Sat 13 Nov	Sun 14 Nov	Mon 15 Wk46	Tue 16 Nov	Wed 17 Nov	Thu 18 Nov	Fri 19 Nov	Sat 20 Nov	Sun 21 Nov	Mon 22 Wk47
Machine		8 16 WED MD																																
EAST HALL	T7	8h M Glaser		Irradiation																														
	T8	8h L Nemenov		DIRAC																														
	T9	8h G Alexeev		PANDAM																8h W Klempt								WHCAL						
	T10	8h C Cecchi		SUPERB								8h A di Mauro								ALICE-TOF														
	T11	8h J Kirkby		CLOUD																														

We have just to do it !