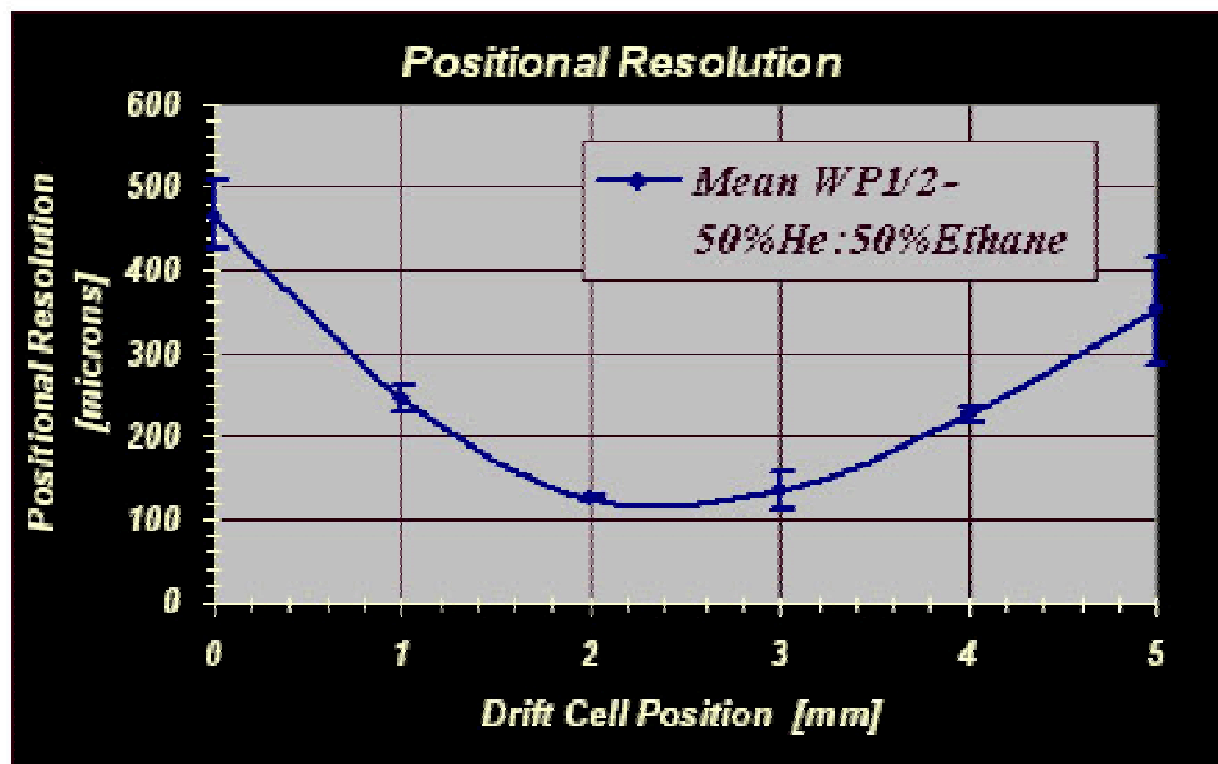


$\mu \rightarrow e\gamma$ Drift Chambers

- Test Chambers Tokyo and mini-Prototype
- Further Development and Tests
 - Double Cathode Test Chamber
 - Charge Division Test Chamber
- Chamber Construction
- (Alignment and Calibration)
- (Software Development)
- Schedule and Man power

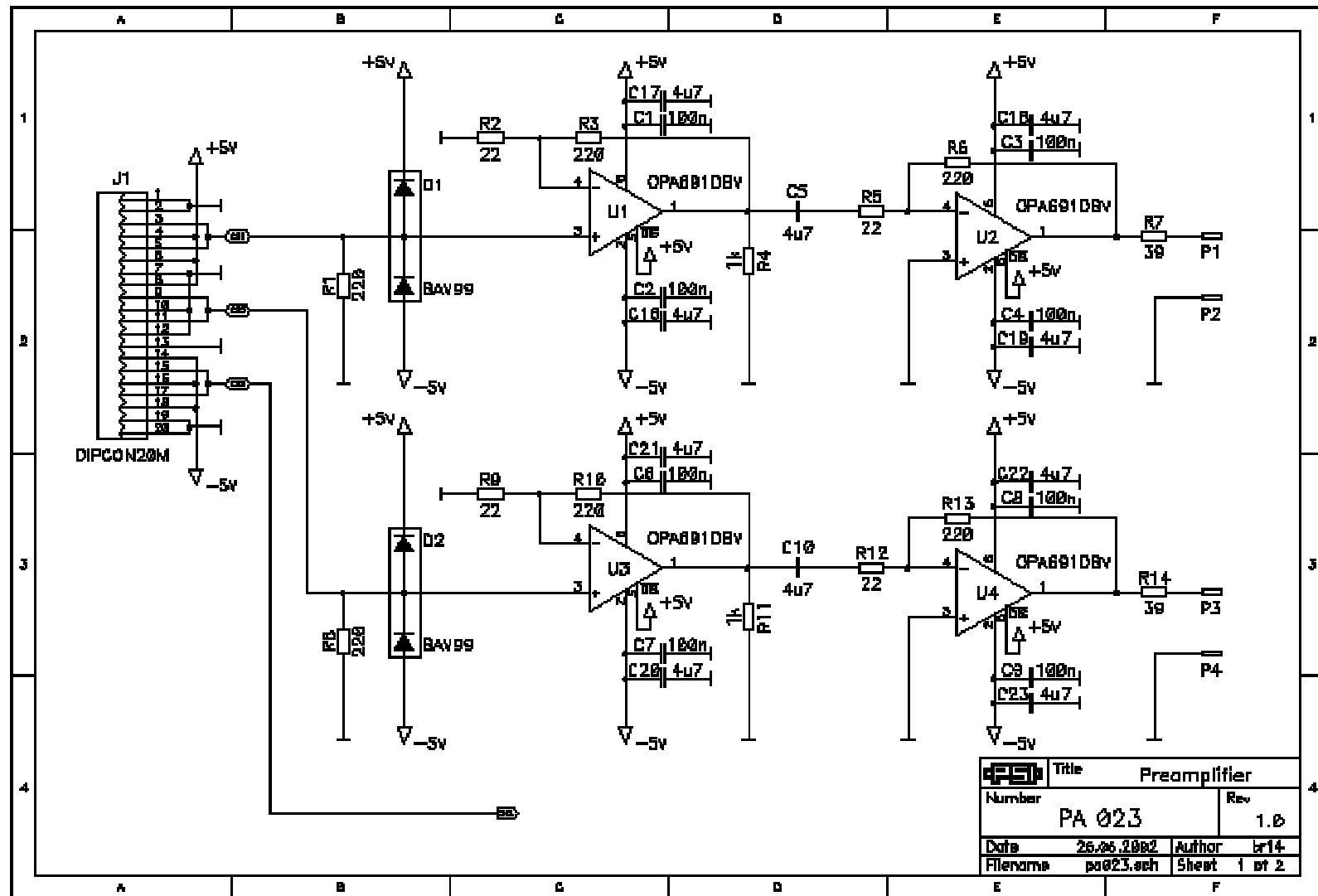
Table 3: Comparison of the obtained precision of the various resolutions and the proposal values, for the measurement conditions see [9]

Resolution given in σ from:	Tokyo	Proposal [1]
drift time measurement	100-150 μm	200 μm
vernier cathode measurement	425 μm	300 μm
charge division measurement	2 cm	1 cm
drift velocity and drift time	4-12 ns	5 ns



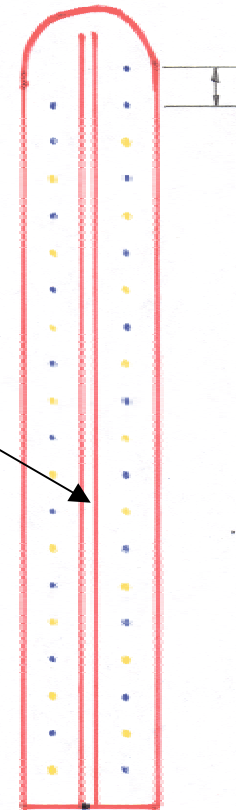
- New Preamplifier
 - parallel resistor to easily adapt input impedance
 - Geometrical requirements to be mounted directly on the frame
- Second stage of amplification
 - Same chip
 - Outside COBRA
- Anode and cathode prints

Layout showing 2 of the 3 channels of the new preamplifier



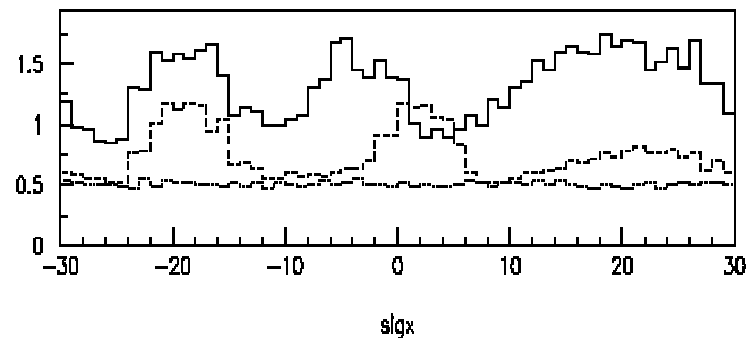
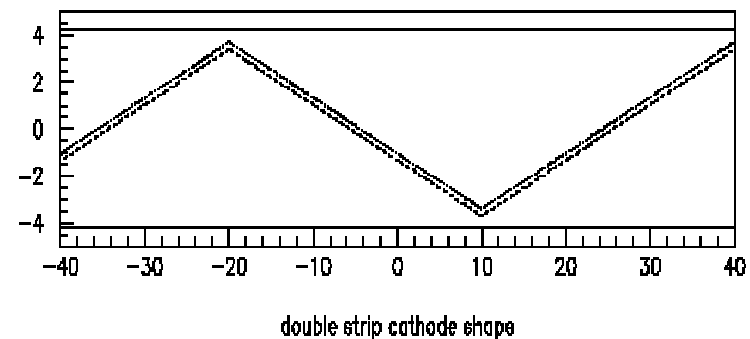
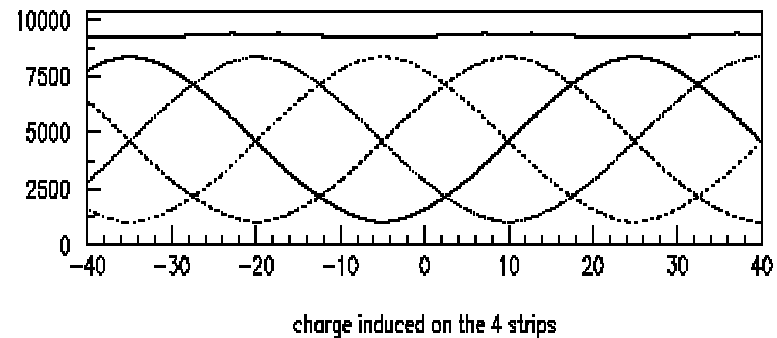
Schematic view of anodes and cathodes

- Add half a dummy cell
- double central cathode

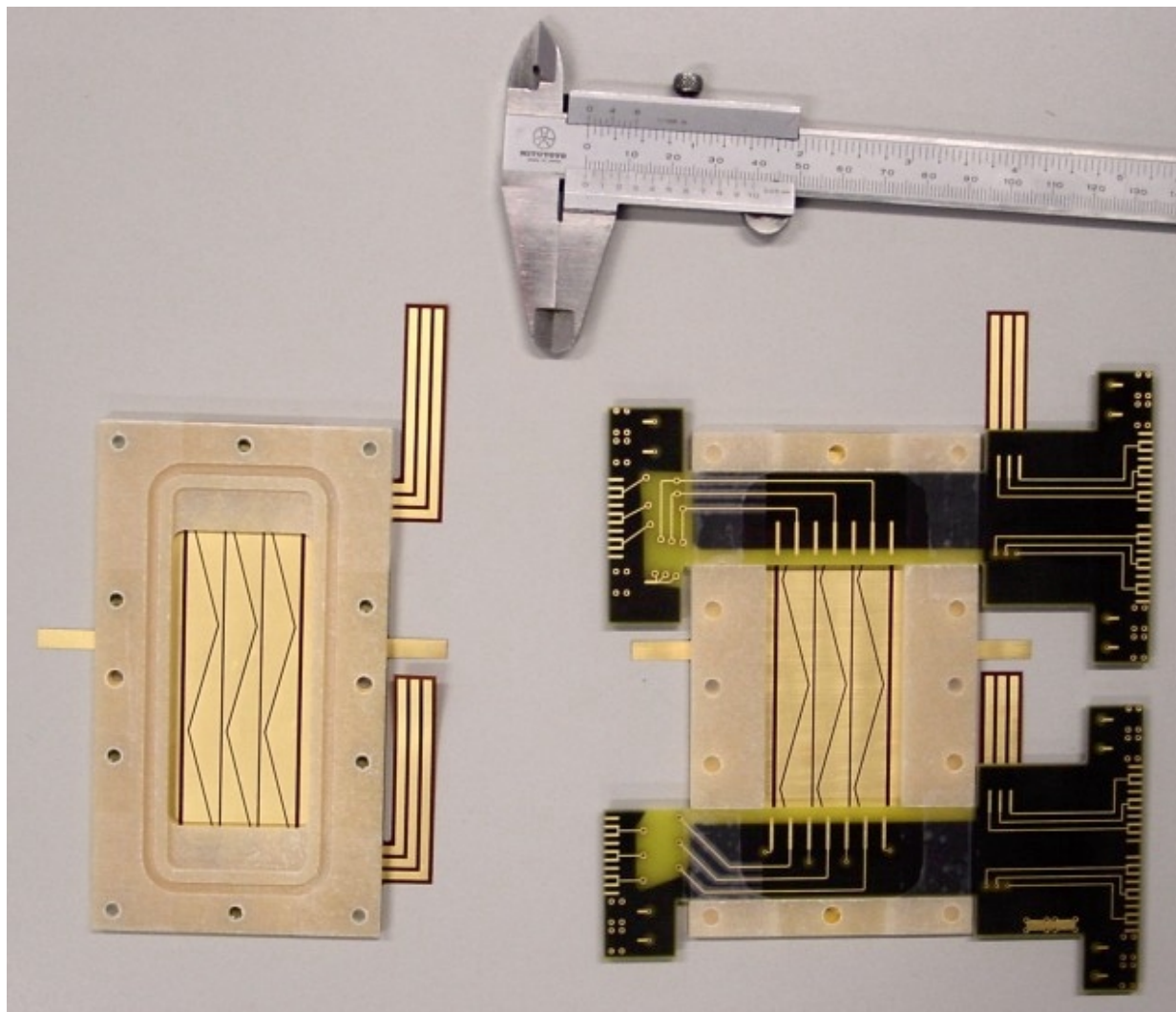


Cathode shape and resolution

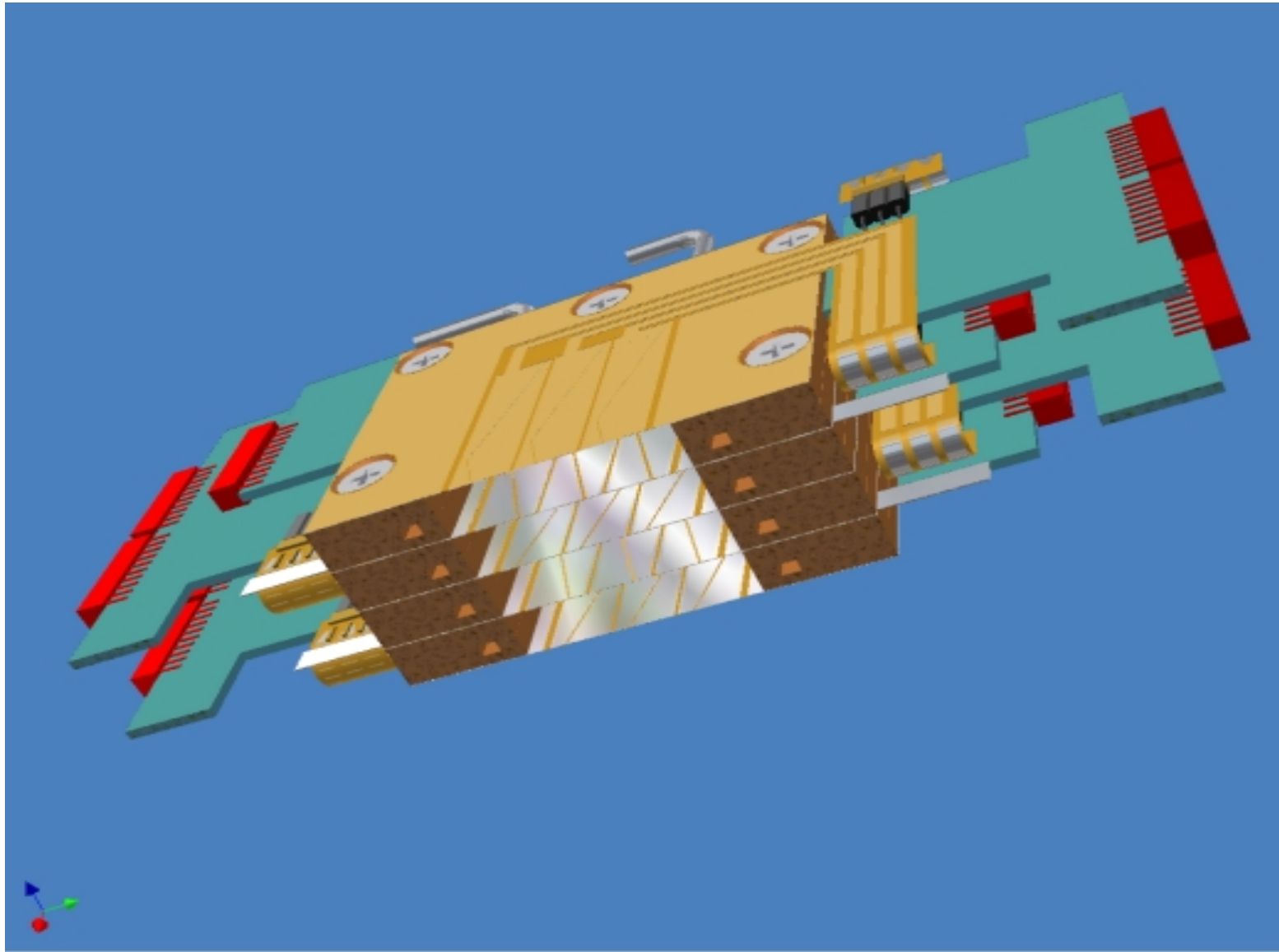
- Triple-strip vernier →
2 double-strip cathode
- Momentum resolution
.9 % FWHM
- Efficiency
98 % → 96.8 %
- Better homogenous position resolution
- Cross Talk between 2 central cathode
- Gas, magnetic field
- „auto calibration“
- Test THREE BONDS 1350



Test Prototype 2

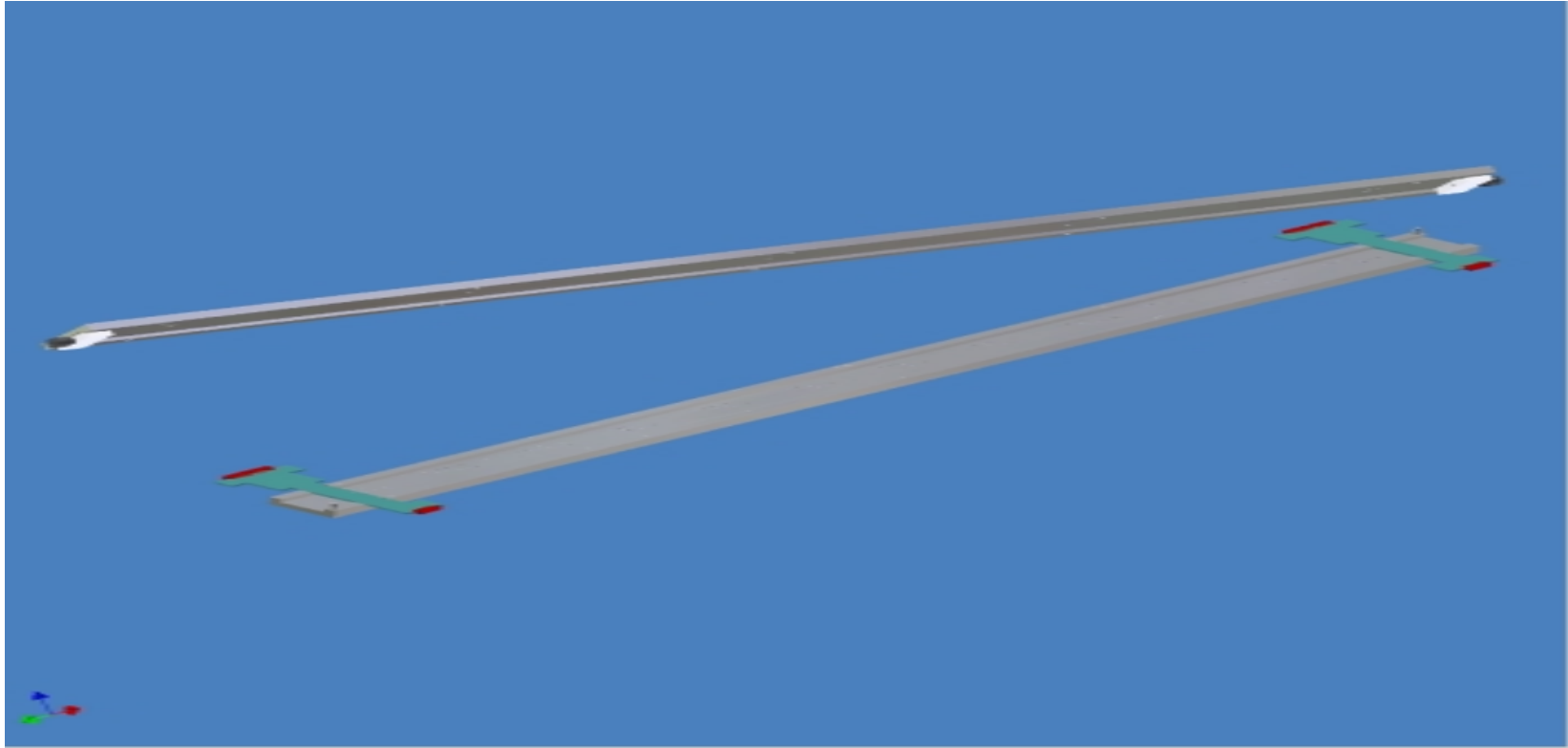


Je 15/07/2002



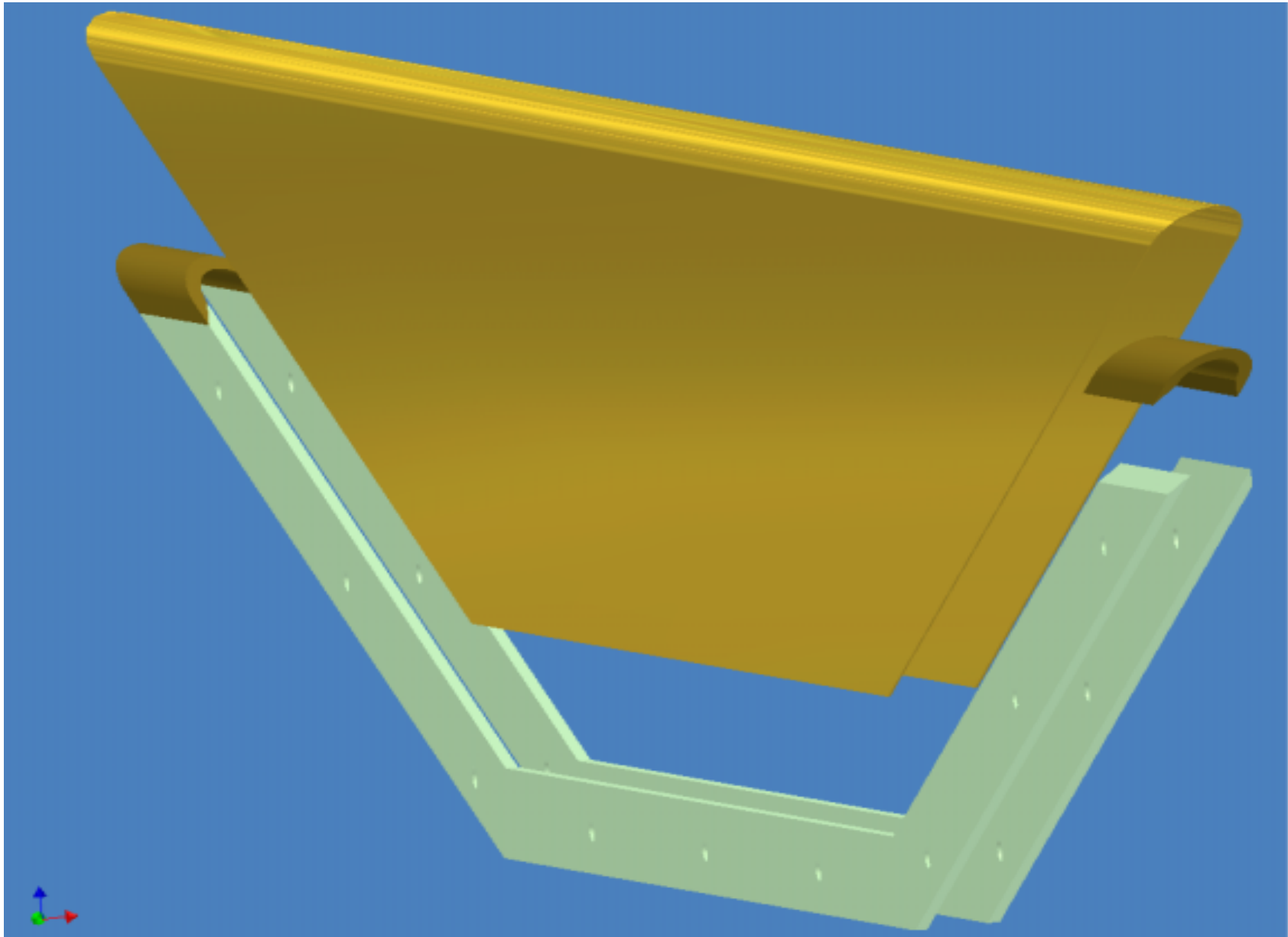
Je 15/07/2002

Charge Division Test Chamber

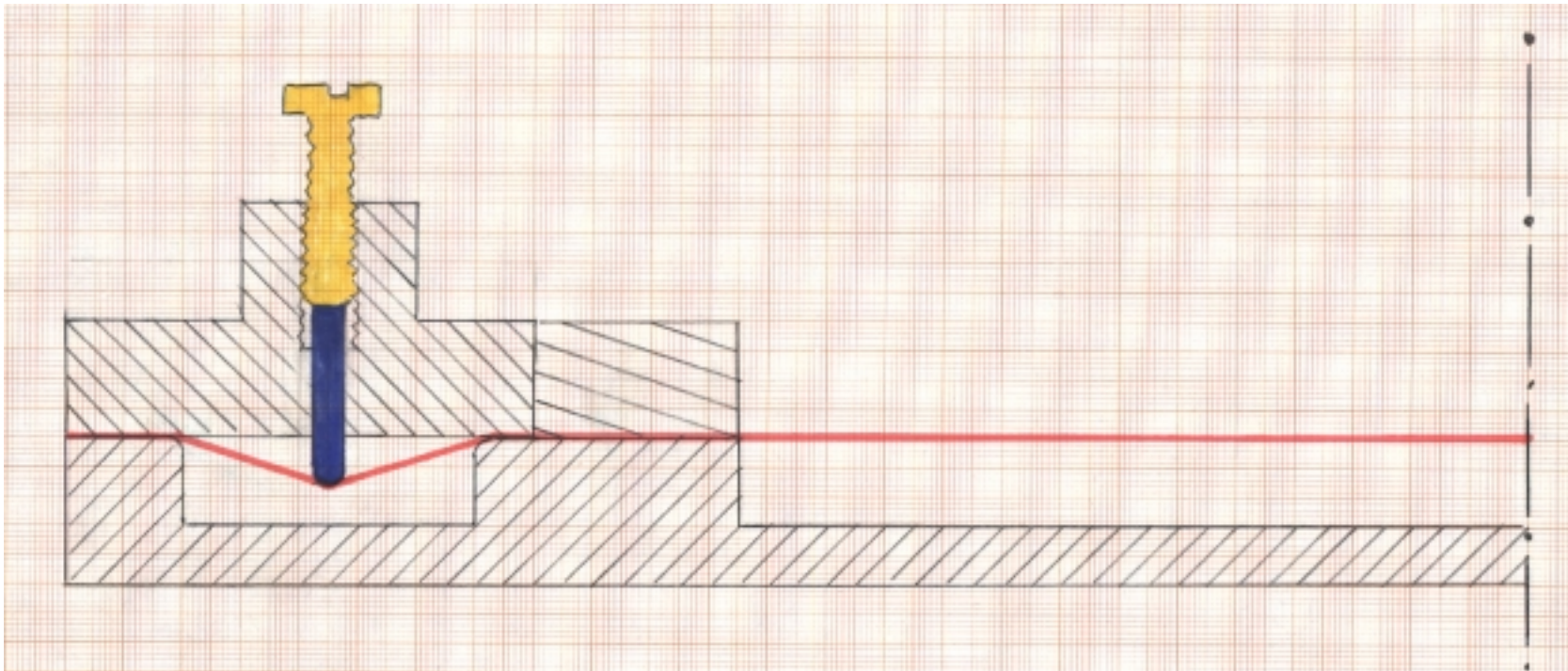


- W(330 Ω /m) or Steel(1200 Ω /m)
- Anode print and readout
- Test THREE BONDS 1350

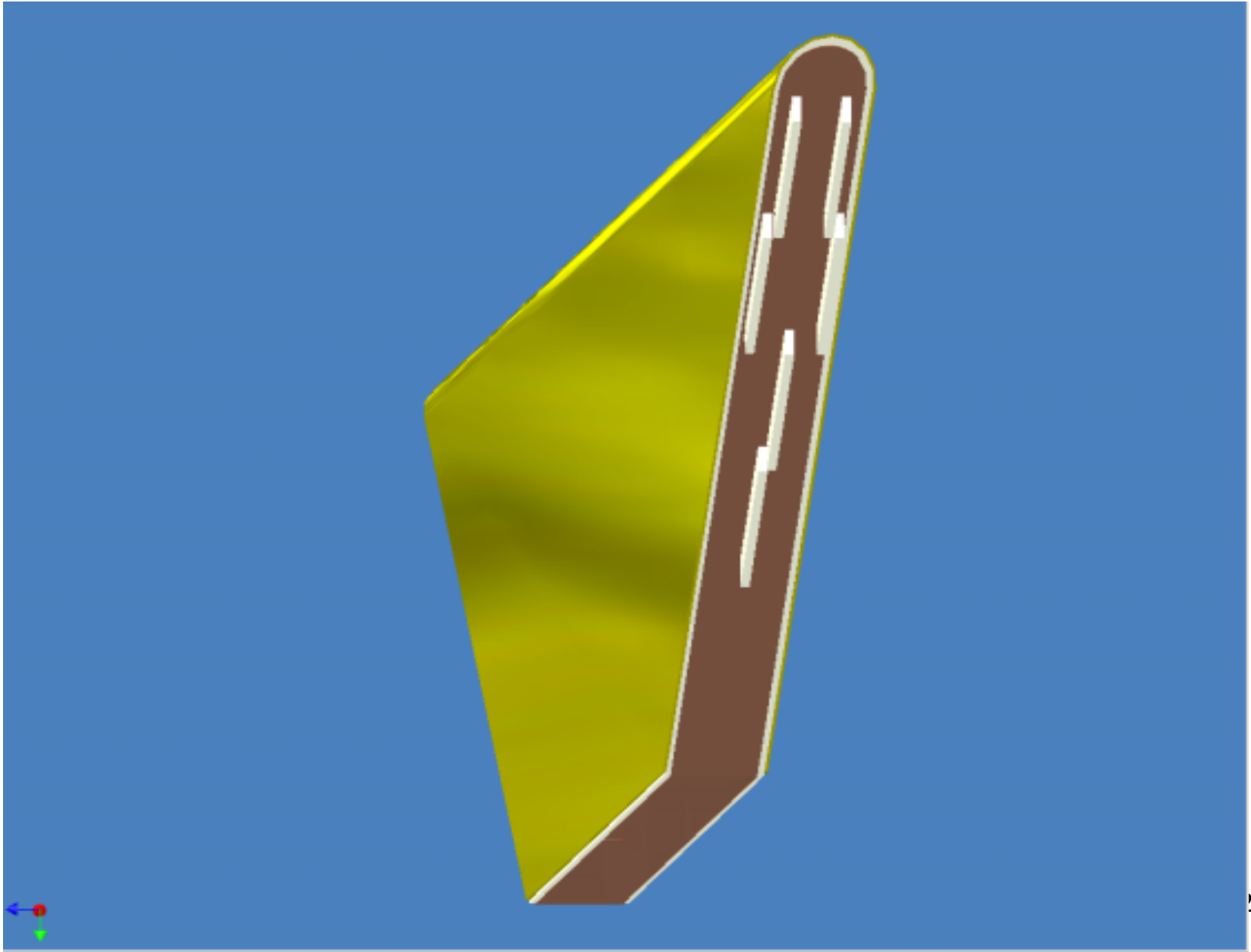
Cathode hood

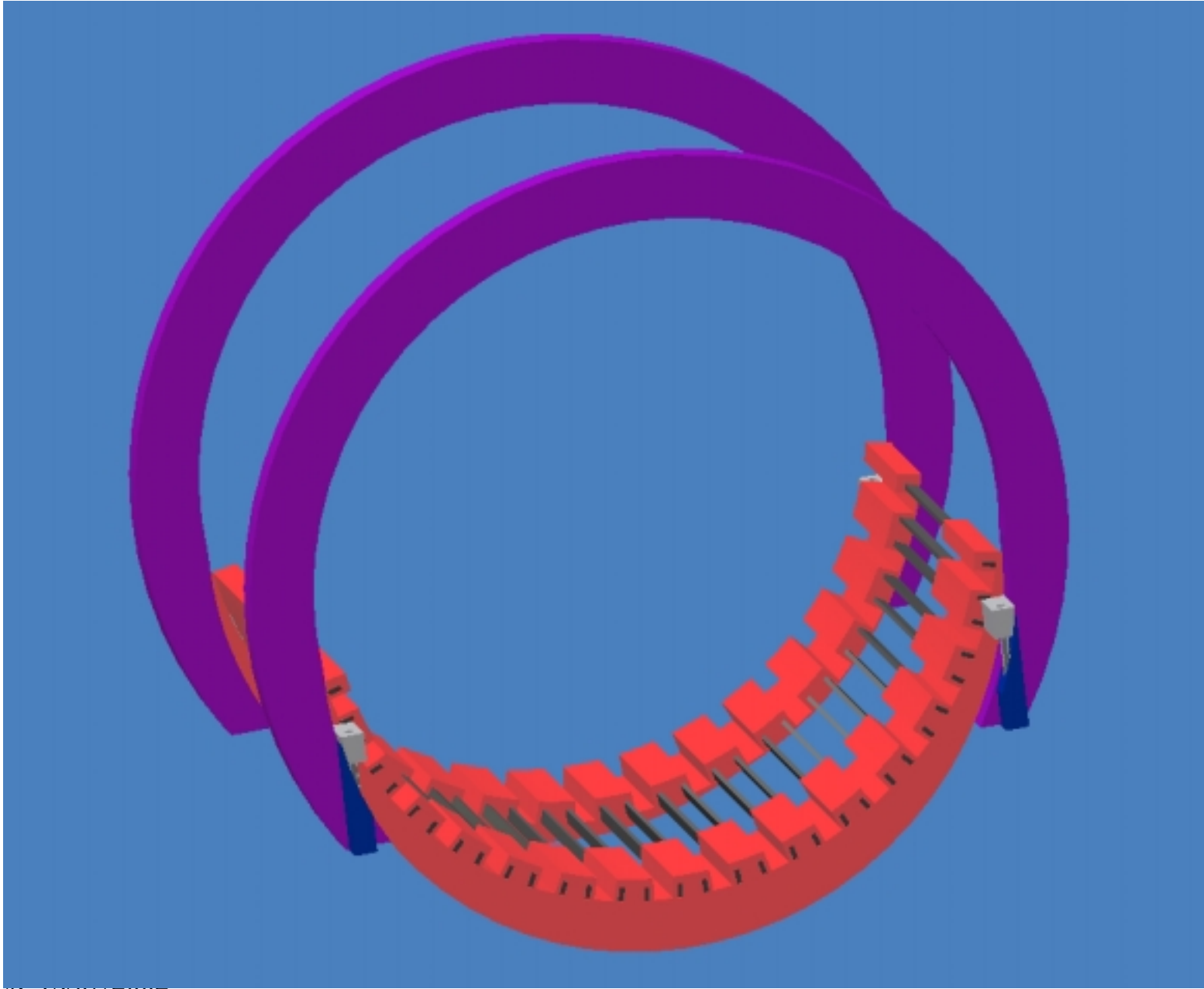


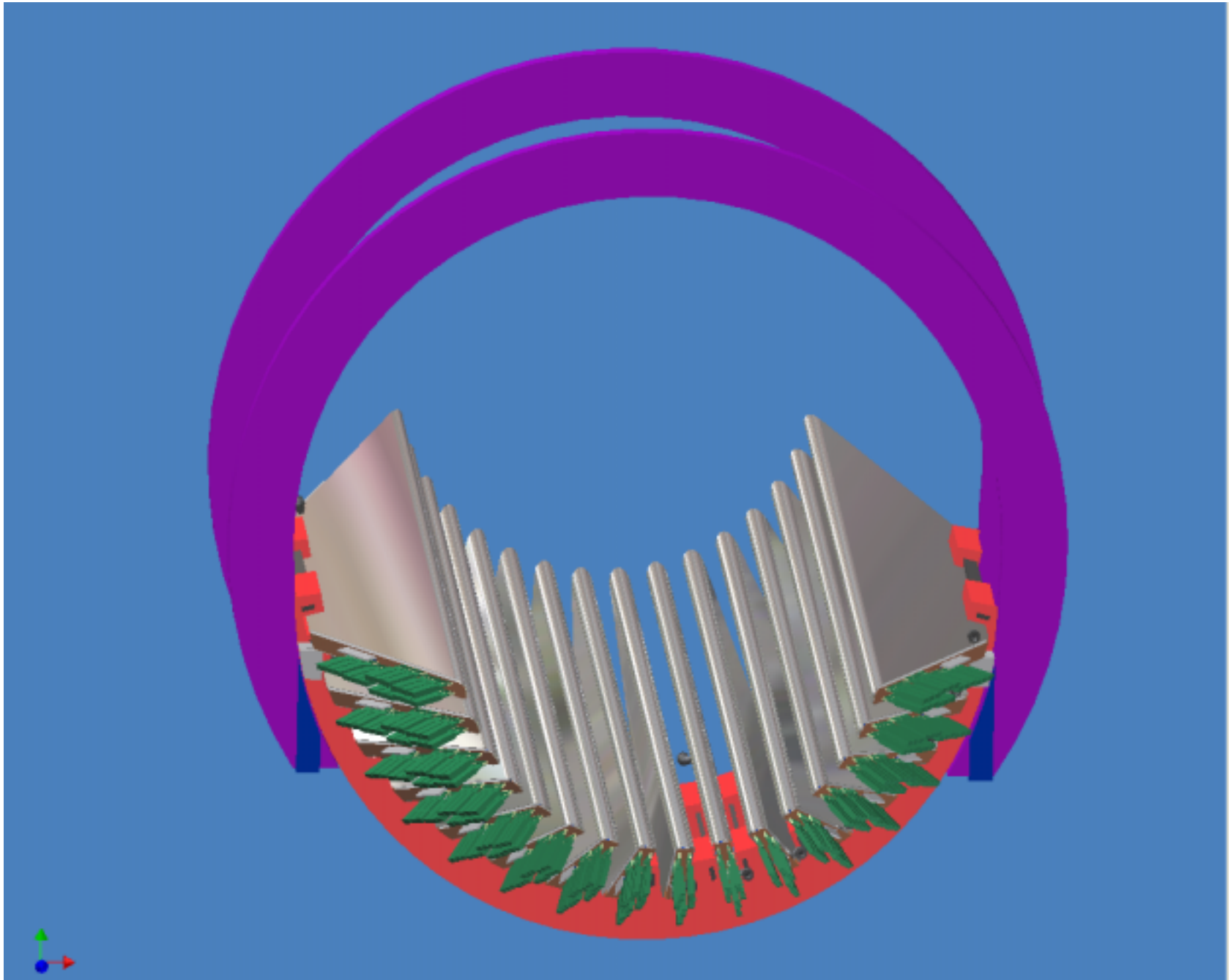
Cathode foil Tension : $\Delta l / l = 1.0 \%$, $\Delta w / w = 0.5 \%$

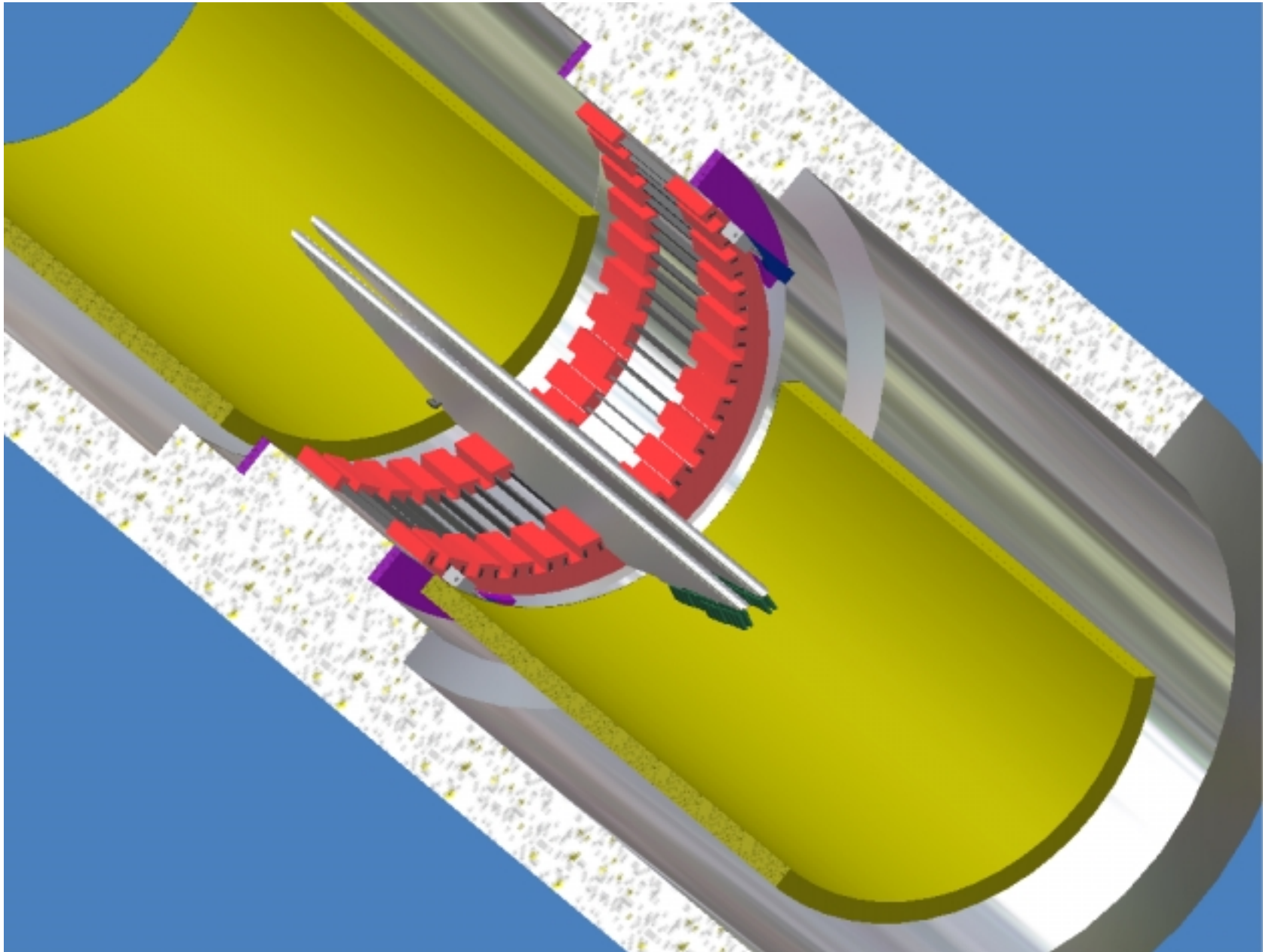


Gas tightness









Je 15/07/2002

Chamber support

- Complete chambers system with cables and supplies as one block in and out
- Chamber always returns at the same position in the support

Alignement and calibration

- Chambers block measured outside COBRA
 - cosmic muons or beam particles (each anode and cathode relative to the others)
 - position cathode reference point to the support reference:
„Vermessungsgruppe“
 - Position target
- Edge of Michel spectrum
 - Calibration run with small targets
 - Al , S
 - Different z positions ,vary $\cos(\theta)$

Software development

- No calculations done in „DC group“
- Wait for Results from R%D
 - Charge clusters in pulse shape and pileup
 - Experimental tails
 - Behaviour in magnetic field
 - Cross talk
- Manpower

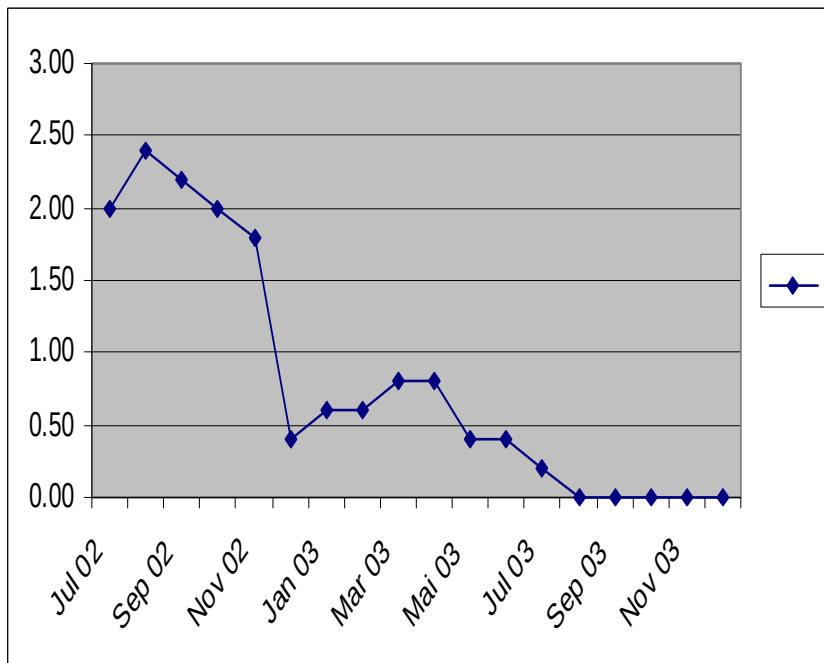
Table 4: schedule

Apr-Sep.02	Design prototype 1:1
Jul.02 Small	cathode chamber with prints 1m charge division chamber with prints 60 preamps ⇒Gas tightness test with "Threebond 1530"
Jul-Aug.02	Design and order second stage amplifier
Jul-Sep.02	Cosmic and source test ⇒Optimisation of cathode shape ⇒Tails in position and time resolution without Field optimisation of prints and wires
Sep.02	Order of prints prototype 1:1
Jul.02	Order of 1 set cathode
Jul-Aug.02	frames Construction of cathode mounting tool
aug-Oct.02	Test of cathode mounting ⇒Design of corrected cathode shape ⇒Test of open frame design
Oct.02	Delivery second stage amplifier
Sep-Oct.02	Order of cathode foils Order of prototype 1:1 frames
Oct.02 -Aug.03	Software development for Pattern recognition algorithm ⇒Trajectory fit in non-uniform magnetic field Effect of accidental hits on reconstruction efficiency ⇒Determination of exact geometrical acceptance
Oct.02 -Jan.03	Delivery prototype 1:1 frames Delivery cathode foils Construction prototype 1:1
Oct.02 -Mar.03	Test of small prototype in 1 Tesla and beam ⇒Gas optimisation
Dec.02 -Feb.03	Test prototype with preamp, amplifier and FADC prototypes ⇒Final design
Jan-Mar.03	Order of frames and prints, order of preamps and amplifiers
Feb-Apr.03	Delivery of frames and prints Delivery of preamps and amplifiers
Feb-Aug.03	Construction of chambers

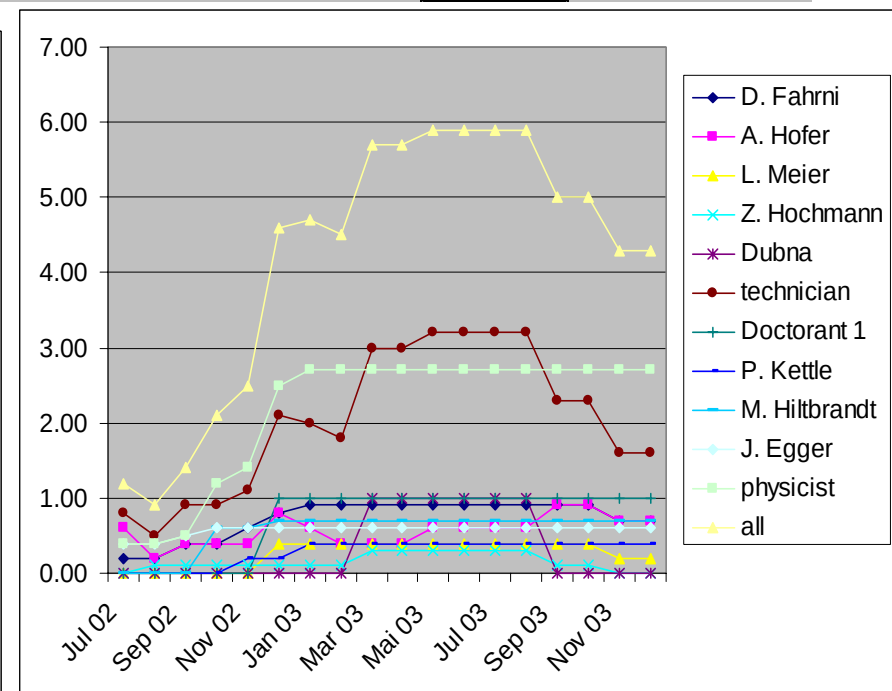
schedule

	j	a	s	o	n	d	j	f	m	a	m	j	j	a	s	o	n	d
prints	o			0		d	d											
Cath.				0			d	d										
Amp.	o		0		d	d												
frame		o		0	d	0	0	d	d									
tests		t	t	t	t	t	t	t	t									
P 1:1					c	c	c											
DC										c	c	c	c	c	c			

			Jul 02	to	Dec 03			Jan 02	to	Dec 02
		Tracker	muca	Poldi	Other	%		Tracker	muca	Poldi
D. Fahrni		13.00	2.60	0.00	1.70	0.72		3.60	6.00	0.00
A. Hofer		10.20	0.00	1.20	4.60	0.56		1.80	0.00	9.60
L. Meier		4.80	1.40		5.60	0.44		0.00	4.30	2.00
Z. Hochmann		2.70								
Dubna		6.00								
technician		36.70								
Doctorant 1		13.00								
P. Kettle		5.20				0.29		6.00		
M. Hiltbrandt		10.30				0.69		0.00		
J. Egger		10.30	1.20	1.00	4.70	0.57		4.00	2.50	2.50



Je 15/07/2002



	Jul 02	Aug 02	Sep 02	Oct 02	Nov 02	Dec 02	Jan 03	Feb 03	Mar 03	Apr 03	Mai 03	Jun 03	Jul 03	Aug 03	Sep 03	Oct 03	Nov 03	Dec 02
D. Fahrni	0	00	00	00	000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	000	0000
	MMMM	MMM	MMM	MSS	MS	M	A	A	S	S	S	S	A	A	A	A	AA	AA
	0.20	0.20	0.40	0.40	0.60	0.80	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.70	0.70
A. Hofer	000	0	00	00	000	0000	000	000	00	00	000	000	000	000	0000	0000	000	000
	AP	APSS	SSS	SSS	SA	A	PP	PP	ASS	ASS	AS	AS	AS	AS	A	A	AA	AA
	0.60	0.20	0.40	0.40	0.40	0.80	0.60	0.40	0.40	0.40	0.60	0.60	0.60	0.60	0.90	0.90	0.70	0.70
L. Meier						00	00	00	00	00	00	00	00	00	00	00	0	0
	MMM	MMM	MKK	KKL	LLL	A	A	A	A	A	A	A	A	A	A	A	AA	AA
	0.00	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.20	0.20
Z. Hochmann		0	0	0	0	0	0	0	00	00	00	00	00	00	0	0		
	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.30	0.30	0.30	0.30	0.30	0.30	0.10	0.10	0.00	0.00
Dubna									00000	00000	00000	00000	00000	00000				
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00
Doctorant						00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P. Kettle					0	0	00	00	00	00	00	00	00	00	00	00	00	00
	BBBBB	BBBBB	BBBBB	BBBBB	BBBB	BBBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB
	0.00	0.00	0.00	0.00	0.20	0.20	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
M. Hiltbrandt				000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
				A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	0.00	0.00	0.00	0.60	0.60	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
J. Egger	00	00	00	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
	APM	SPM	SM	AM	AM	AM	AP	AP	SA	SA	AA	AA	AA	AA	AA	AA	AA	AA
	0.40	0.40	0.50	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
	O: Tracker	BB: Beam	M: mucapt	S: Kam5	K: Kottma	L: Lin	P: Poldi	A: Other										

