



R&D Status at LBNL

GDE: Damping Rings

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LCWS2010 – March 27th

Summary



LBL activities concentrate on electron cloud theory, simulations and measurements

- **Theory**

- M. Furman's presentation on EC build-up (Ecloud WG)

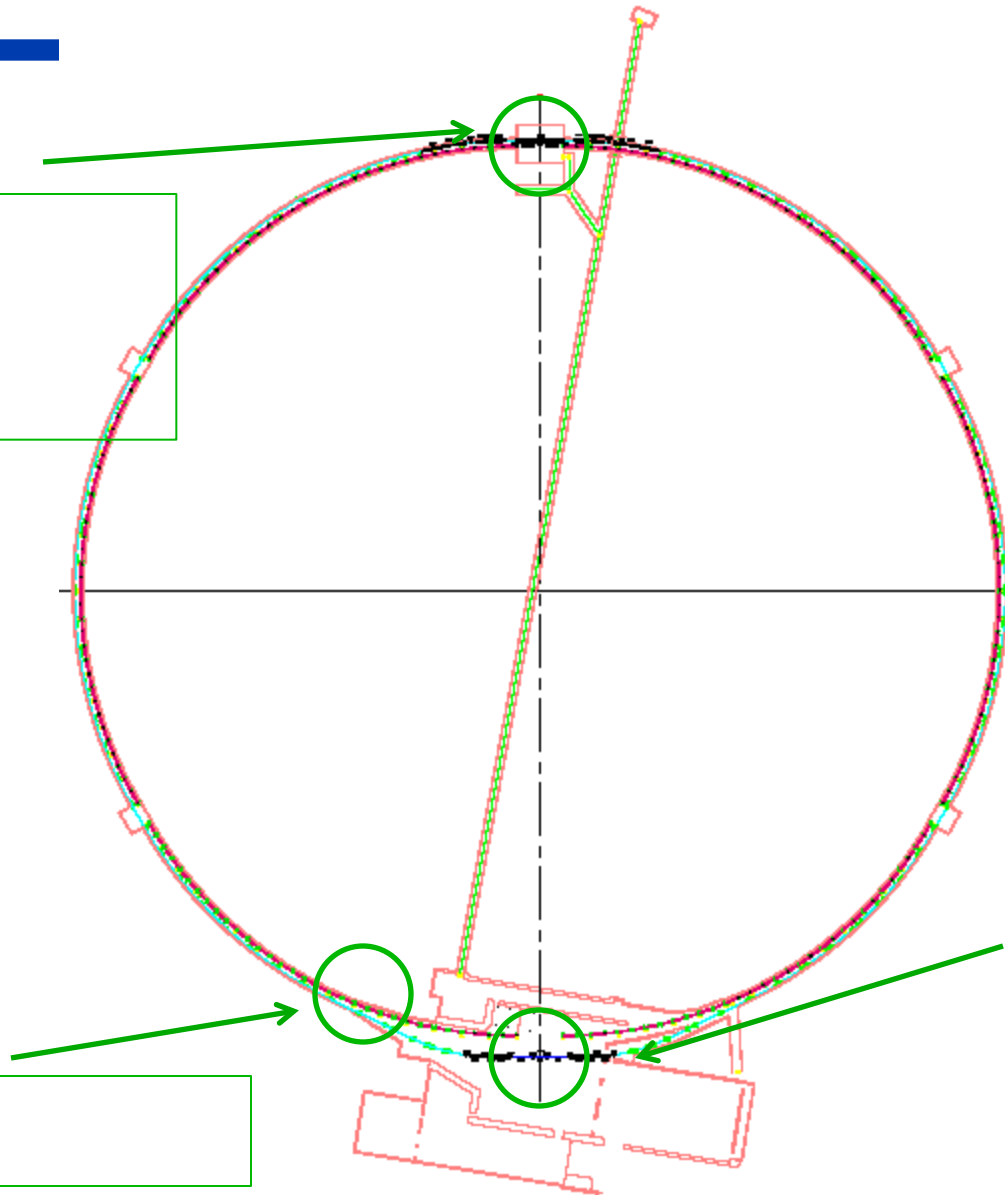
- **Measurements**

- Status of new shielded pickup design
- Plans for CesrTA Apr-May run

TE Wave/SPU Setup on CESR



L3 Chicane
TE wave transmission
Resonant BPM
NEG chamber
New Shielded Pickup



G-line
Shielded Pickup

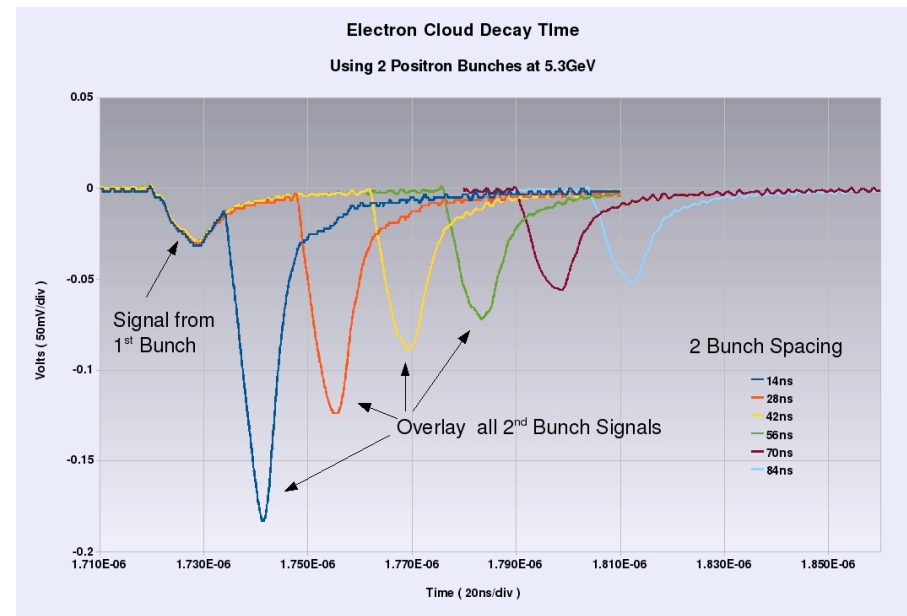
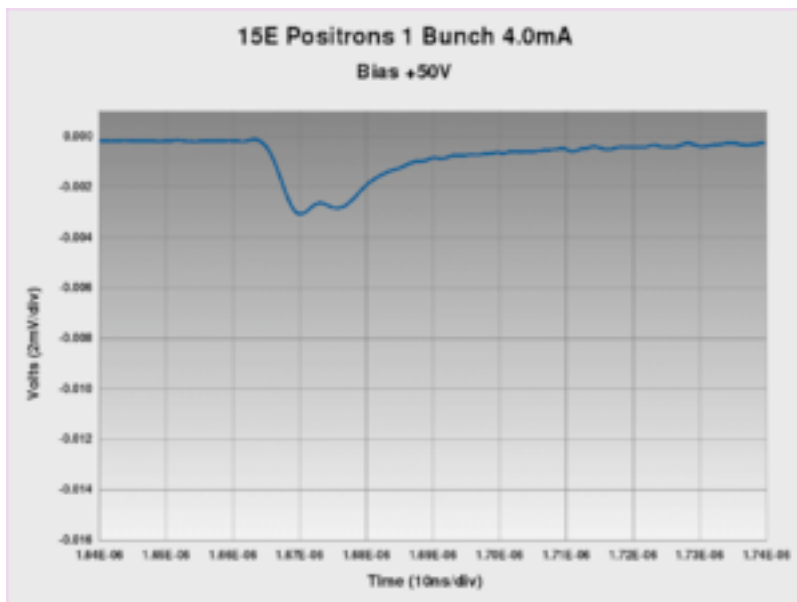
L0 Wigglers
TE wave transmission
Resonant BPM

Shielded Pickup Design Status

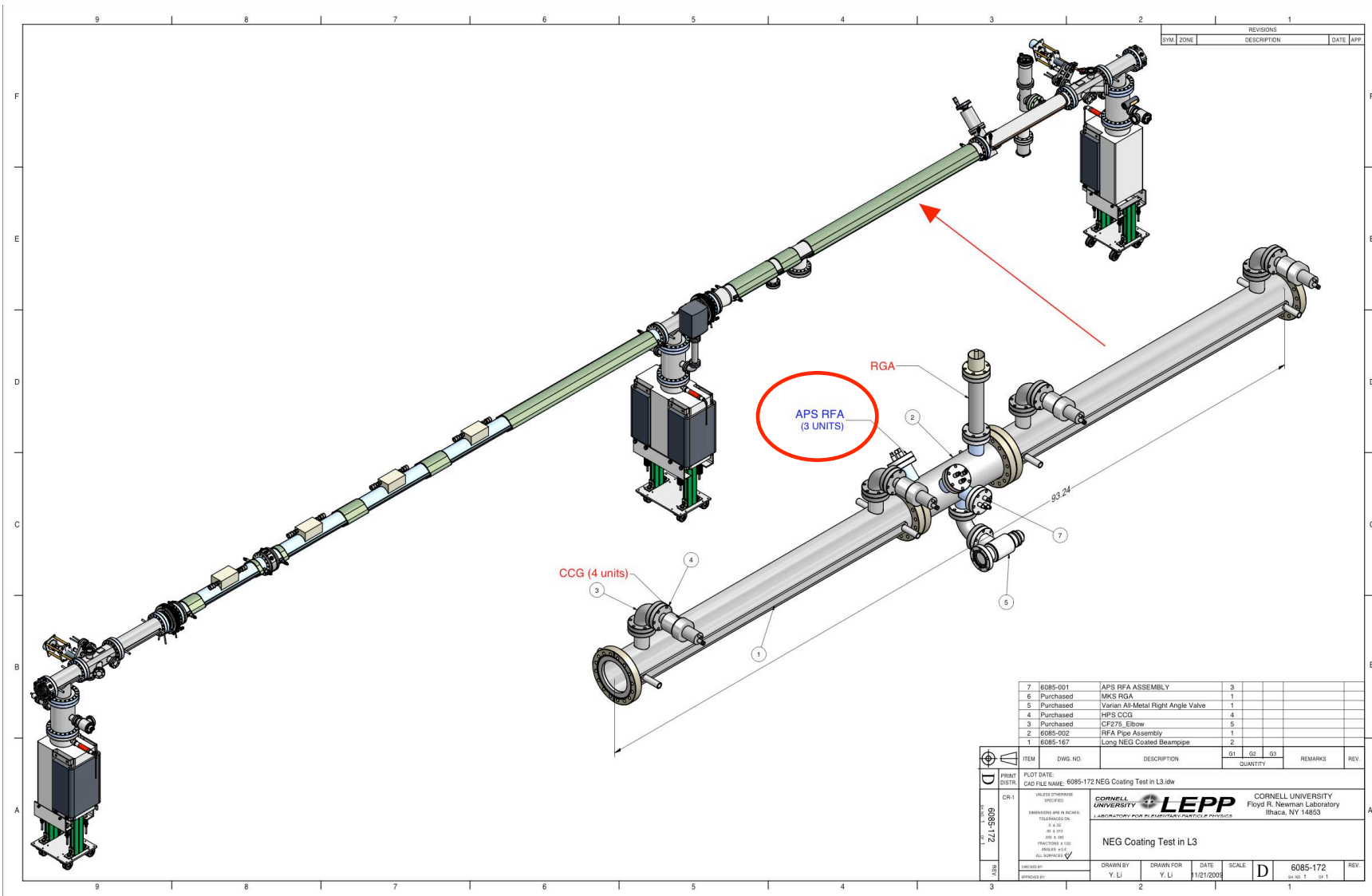


New measurements with shielded pickup (J. Sikora) evidenced a number of interesting results.

We decided to use one of the RFA ports in the NEG coated chamber being installed in L3 to house a new shielded pickup unit and compare with results on the aluminium chamber in sector 15.



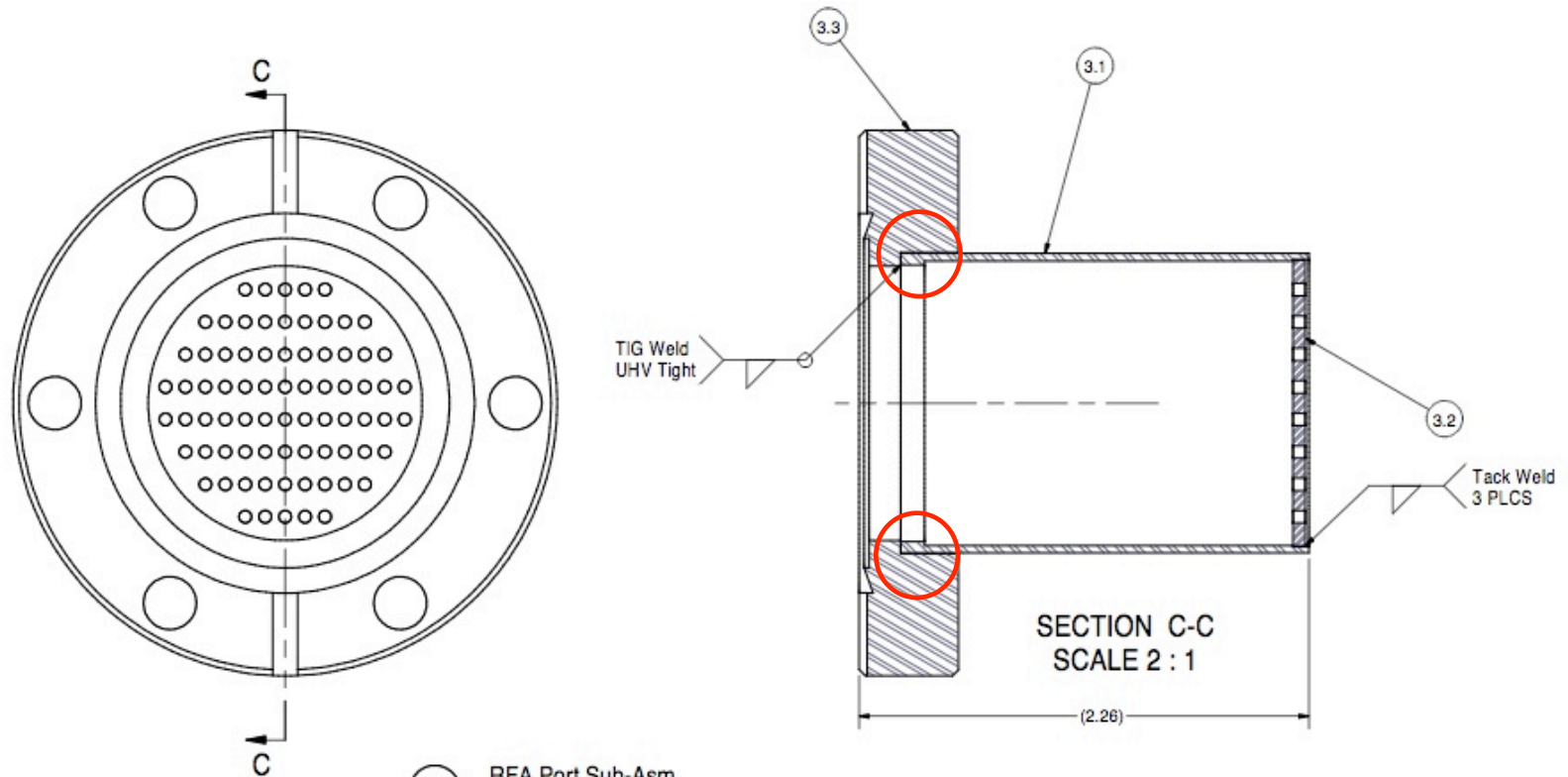
NEG Chamber at Cestr-TA



ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
7	6085-001	APS RFA ASSEMBLY	3				
6	Purchased	MKS RGA	1				
5	Purchased	Varian All-Metal Flight Angle Valve	1				
4	Purchased	HPS CCG	4				
3	Purchased	CF27's Elbow	5				
2	6085-002	RFA Pipe Assembly	1				
1	6085-167	Long NEG Coated Beampipe	2				

PRINT DISTR	PLOT DATE: CAD FILE NAME: 6085-172 NEG Coating Test in L3.jdw	
	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: - 0.001 - 0.005 FRACTIONS ± 1/16 DECIMALS ± 0.01 ALL DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED	CORNELL UNIVERSITY LEPP LABORATORY FOR PARTICLES AT CESTR-TA
CORNELL UNIVERSITY Floyd R. Newman Laboratory ITHACA, NY 14853		NEG Coating Test in L3
DRAWN BY: Y. LI	DRAWN FOR: Y. LI	DATE: 11/21/2008
SCALE: D		6085-172 SHEET 1 OF 1

SPU Housing Details



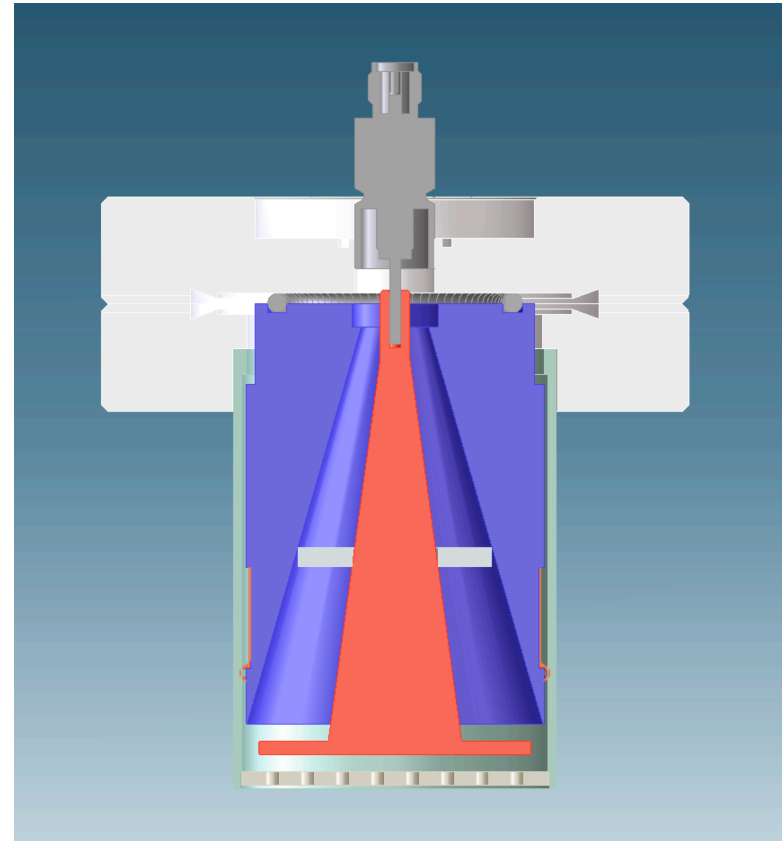
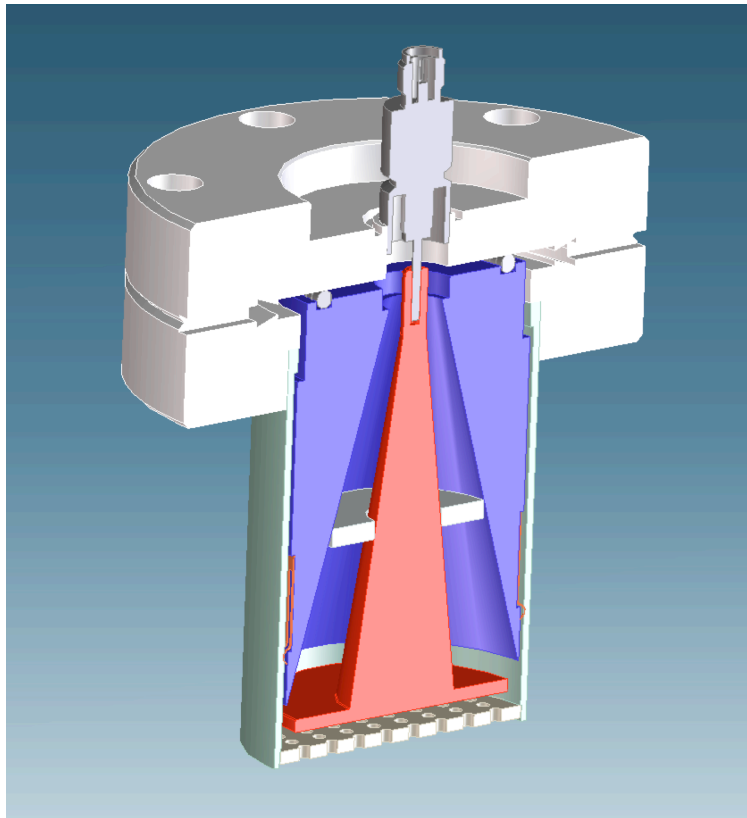
3.0 RFA Port Sub-Asm
FILE NAME: 6085-002
SHEET NO.: 4
DFT. SCALE: 2 : 1
MATERIAL: 304L SST
QTY: 5
NOTES:

Design Phylosophy

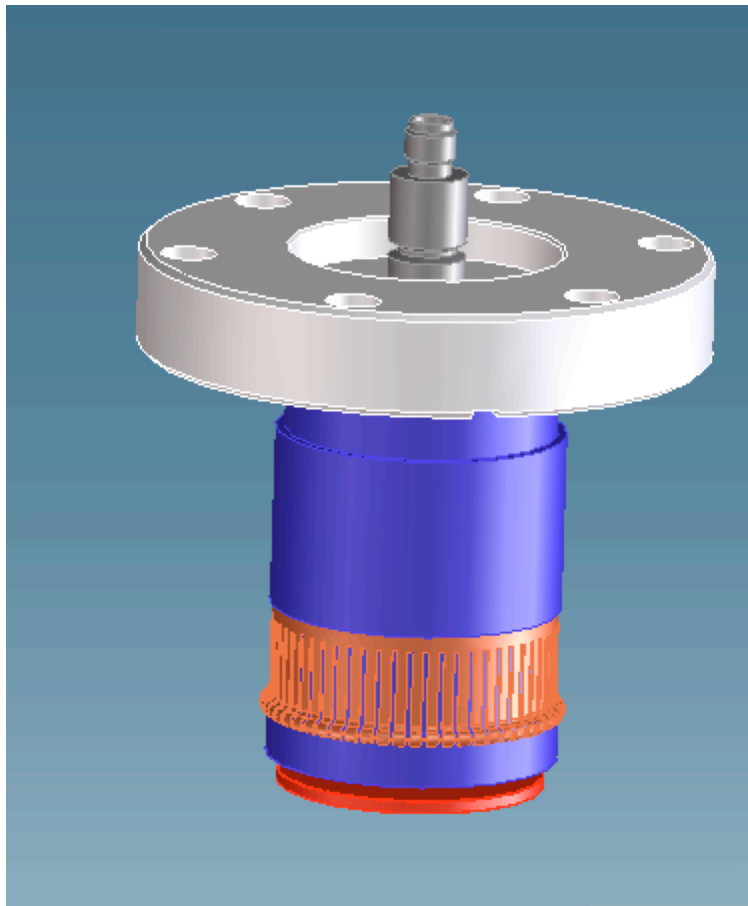


- **Increase gaps around electrode to allow higher bias voltage.**
- **Button dimensions as large as possible to increase system gain (3.5 X).**
- **Long linear taper for 50 Ohm match.**
- **Availability deadline April 7th.**

New Shielded Pickup Design



Insertable Assembly



- SMA connectors
- RF fingers
- 80 mils minimum gaps

Ready to start construction on Monday

Plans for CEsr-TA Run



- TE Wave

- BPM available on NEG chamber for transmission and resonant BPM measurements
- Will try again TE resonance experiment on chicane, if time allows.

- Shielded Pickup

- NEG chamber measurements
- Characterization of EC rise/fall times
- Primary/Secondary electrons discrimination measurements
- Bench measurements for full characterization of device gain and ECD calculation.