BPM

lundi 3 juin 2024 11:19

Ions cleaners (thèse Alexis Gamelin) :

"In ThomX, several different designs of clearing electrodes with multiple buttons are used, they are in fact similar to the button beam position monitors (BPM) designed by Soleil [67]. It is possible to use an electrode both for ion clearing and for position monitoring at the same time but it might degrade the monitoring performance. For this reason, ThomX BPMs were designed to have separate electrodes for clearing and for monitoring. The nominal case where only the electrodes designed for clearing are used is studied here. The different designs are shown in Fig. 8.14, the electrodes BPM6 and BPM8 are integrated in BPM blocks and the electrodes IP and IP bis are stand-alone. The map of ThomX storage ring with the positioning of the BPMs and clearing electrodes is shown in Fig. 8.13."

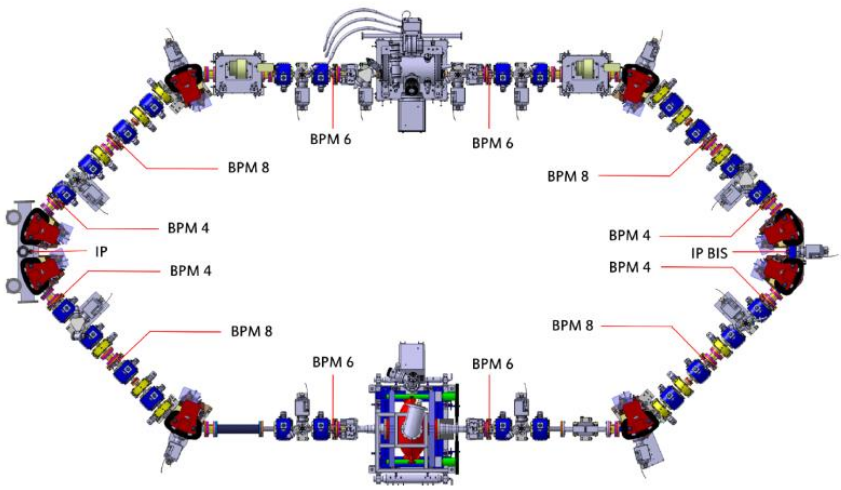


Figure 8.13: Electrodes and BPMs in ThomX ring. The *BPM6* and *BPM8* contain both a BPM and a clearing electrode in a single block. The *BPM4* are only a BPM and the *IP* and *IP bis* are only clearing electrodes.

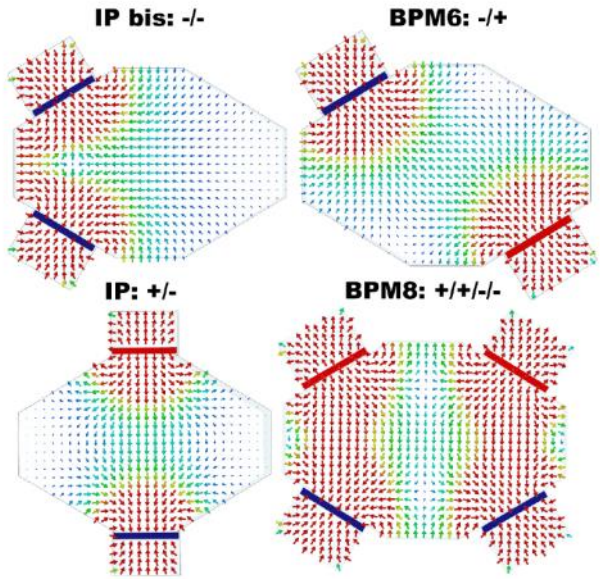
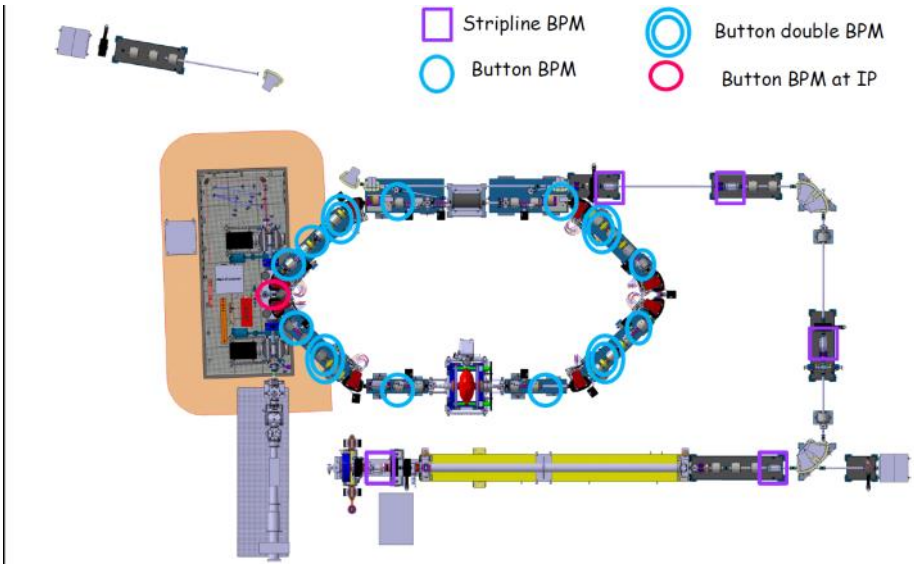


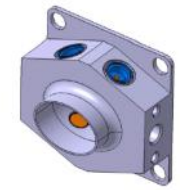
Figure 8.14: Transverse electric field created by different clearing electrodes. The colour scale for the arrows is linear from red, E = 20 kV m^{-1}, to blue, E = 0 kV m^{-1}. Electrode *IP bis*: configuration -/-, the two buttons are negatively polarised, U = −0.5 kV. Electrode *BPM6*: configuration -/+ the upper button is negatively polarised, U = −0.5 kV, and the lower button is positively polarised, U = 0.5 kV. Electrode *IP*: configuration +/- the upper button is positively polarised, U = 0.5 kV, and the lower button is negatively polarised, U = −0.5 kV. Electrode *BPM8*: configuration +/+/-/- the upper buttons are positively polarised, U = 0.5 kV, and the lower buttons are negatively polarised, U = −0.5 kV.

Document : "Test électrodes IOC sous tension sous vide"

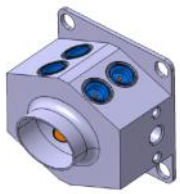
	poutre	n° BPM	Chambres ref	nb électrodes	vers Liberas	vers IOC	test HT	vers TFB	vers LLRF-FBL	remarque
					nb él.	nb		nb él.	nb él.	
RI-C1	A	BPM.01	779 kicker A	6	4	2	OK			
	C	BPM.02	780 kicker B	6	4	2	OK			
	D	BPM.03	786 BPM type C	8	4	4	OK			
	D	BPM.04		4	4		OK			
	E	BPM.05		4	4		OK			
	E	BPM.06	786 BPM type C	8	4	4	testé	4		nb 6, repère A court circuit
IP1		IOC		2		2	OK			
RI-C2	A	BPM.01	796 Elettra A	6	4	2	OK			
	C	BPM.02	797 Elettra B	6	4	2	OK			
	D	BPM.03	786 BPM type C	8	4	4	OK		2	
	D	BPM.04		4	4		OK			
	E	BPM.05		4	4		OK			
	E	BPM.06	786 BPM type C	8	4	4	OK	4		
IP2		IOC		2		2				
LI	A	BPM.01		4	4					
TL	A	BPM.01		4	4					
	E	BPM.02		4	4					
	H	BPM.03		4	4					
	I	BPM.04		4	4					

Document : "ThomX General Meeting (LAL, 17-18/12/2012)" M. Labat



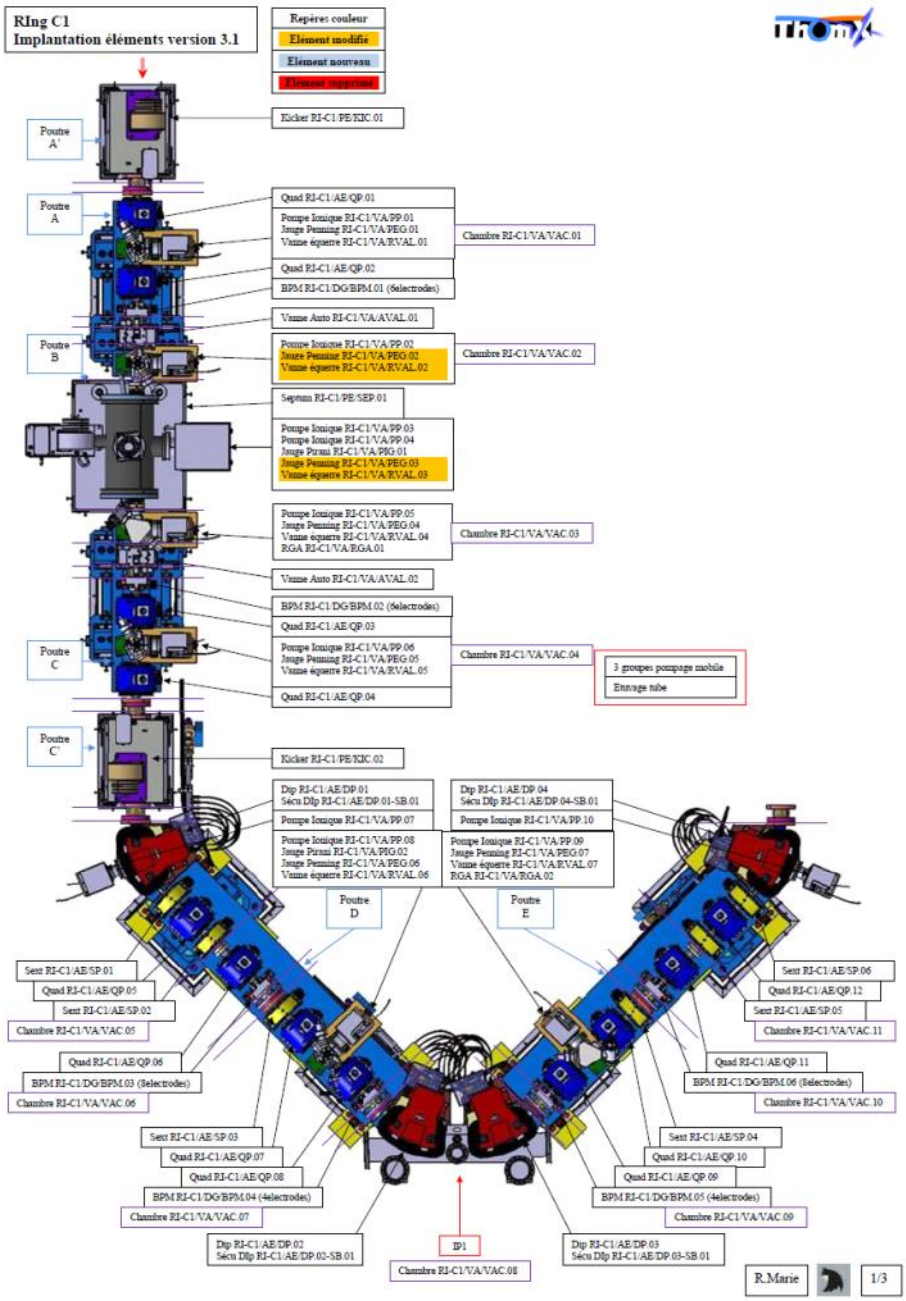


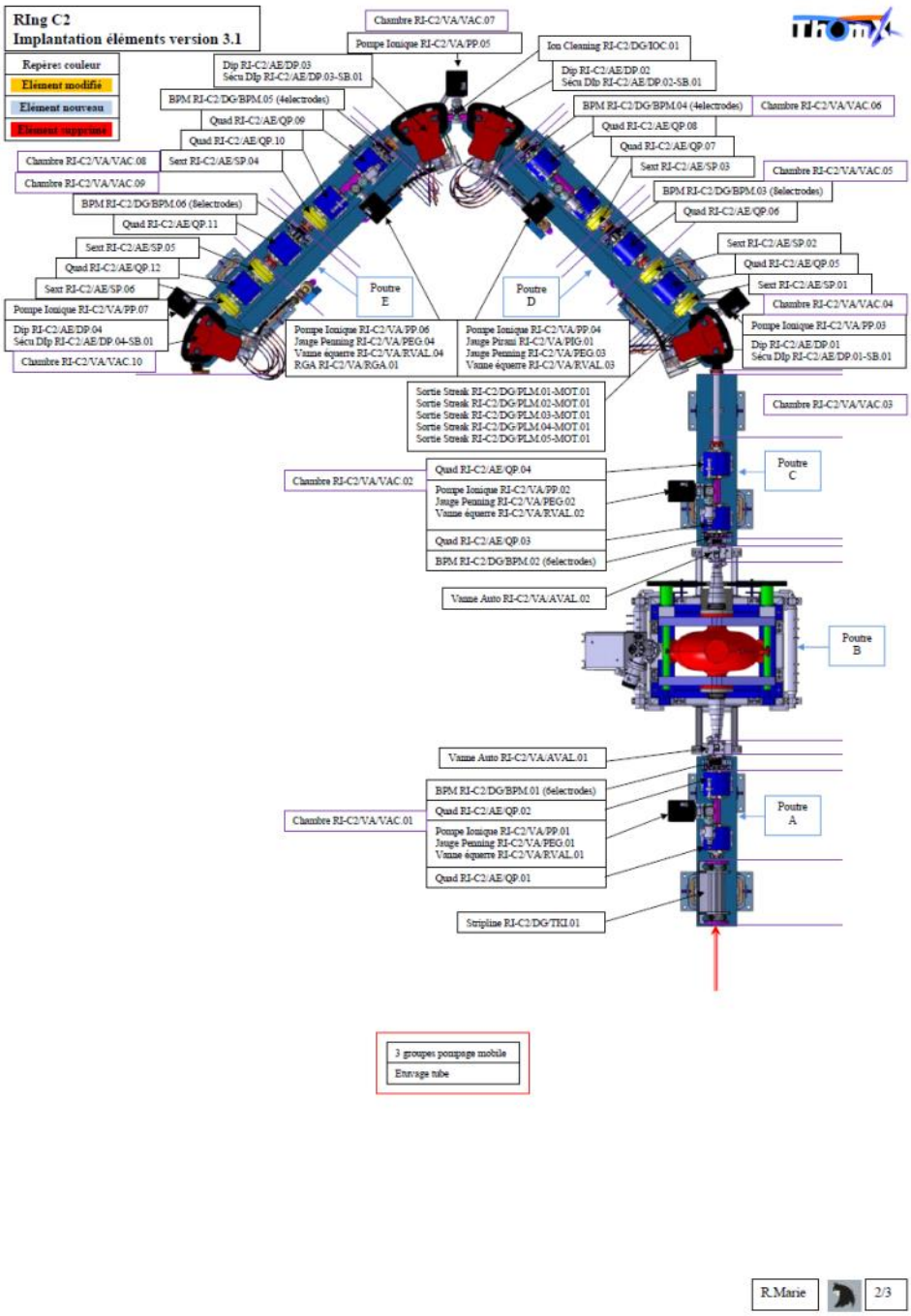
Single BPM (x8)



Double BPM (x4)

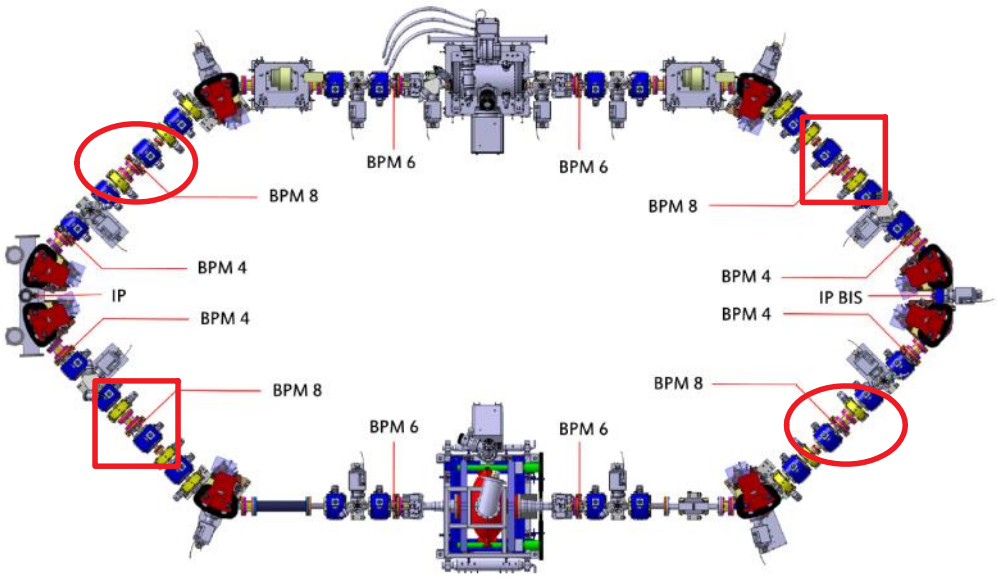
Document : "Nomenclature v.7.4" P. Cornebise


RIng C1
Implantation éléments version 3.1
Repères couleur
Elément modifié
Elément nouveau
Elément supprimé
Poutre A'
Kicker RI-C1/PE/KIC.01
Poutre A
Quad RI-C1/AE/QP.01
Pompe Ionique RI-C1/VA/PP.01
Jauge Penning RI-C1/VA/PEG.01
Vanne équerre RI-C1/VA/RVAL.01
Chambre RI-C1/VA/VAC.01
Quad RI-C1/AE/QP.02
BPM RI-C1/DG/BPM.01 (6électrodes)
Vanne Auto RI-C1/VA/AVAL.01
Poutre B
Pompe Ionique RI-C1/VA/PP.02
Jauge Penning RI-C1/VA/PEG.02
Vanne équerre RI-C1/VA/RVAL.02
Chambre RI-C1/VA/VAC.02
Septum RI-C1/PE/SEP.01
Pompe Ionique RI-C1/VA/PP.03
Pompe Ionique RI-C1/VA/PP.04
Jauge Pirani RI-C1/VA/PIG.01
Jauge Penning RI-C1/VA/PEG.03
Vanne équerre RI-C1/VA/RVAL.03
Pompe Ionique RI-C1/VA/PP.05
Jauge Penning RI-C1/VA/PEG.04
Vanne équerre RI-C1/VA/RVAL.04
RGA RI-C1/VA/RGA.01
Chambre RI-C1/VA/VAC.03
Vanne Auto RI-C1/VA/AVAL.02
BPM RI-C1/DG/BPM.02 (6électrodes)
Quad RI-C1/AE/QP.03
Poutre C
Pompe Ionique RI-C1/VA/PP.06
Jauge Penning RI-C1/VA/PEG.05
Vanne équerre RI-C1/VA/RVAL.05
Chambre RI-C1/VA/VAC.04
3 groupes pompage mobile
Ennuage tube
Quad RI-C1/AE/QP.04
Poutre C'
Kicker RI-C1/PE/KIC.02
Dip RI-C1/AE/DP.01
Sécu Dip RI-C1/AE/DP.01-SB.01
Pompe Ionique RI-C1/VA/PP.07
Pompe Ionique RI-C1/VA/PP.08
Jauge Pirani RI-C1/VA/PIG.02
Jauge Penning RI-C1/VA/PEG.06
Vanne équerre RI-C1/VA/RVAL.06
Dip RI-C1/AE/DP.04
Sécu Dip RI-C1/AE/DP.04-SB.01
Pompe Ionique RI-C1/VA/PP.10
Pompe Ionique RI-C1/VA/PP.09
Jauge Penning RI-C1/VA/PEG.07
Vanne équerre RI-C1/VA/RVAL.07
RGA RI-C1/VA/RGA.02
Poutre D
Poutre E
Sext RI-C1/AE/SP.01
Quad RI-C1/AE/QP.05
Sext RI-C1/AE/SP.02
Chambre RI-C1/VA/VAC.05
Quad RI-C1/AE/QP.06
BPM RI-C1/DG/BPM.03 (3électrodes)
Chambre RI-C1/VA/VAC.06
Sext RI-C1/AE/SP.03
Quad RI-C1/AE/QP.07
Quad RI-C1/AE/QP.08
BPM RI-C1/DG/BPM.04 (4électrodes)
Chambre RI-C1/VA/VAC.07
Dip RI-C1/AE/DP.02
Sécu Dip RI-C1/AE/DP.02-SB.01
IP1
Chambre RI-C1/VA/VAC.08
Dip RI-C1/AE/DP.03
Sécu Dip RI-C1/AE/DP.03-SB.01
Sext RI-C1/AE/SP.06
Quad RI-C1/AE/QP.12
Sext RI-C1/AE/SP.05
Chambre RI-C1/VA/VAC.11
Quad RI-C1/AE/QP.11
BPM RI-C1/DG/BPM.06 (8électrodes)
Chambre RI-C1/VA/VAC.10
Sext RI-C1/AE/SP.04
Quad RI-C1/AE/QP.10
Quad RI-C1/AE/QP.09
BPM RI-C1/DG/BPM.05 (4électrodes)
Chambre RI-C1/VA/VAC.09
R.Marie
1/3



Feedbacks :

FBL : 4 ou 2 électrodes (BPM.03)
FBT : 4 électrodes BPM.06 (RI-C1 ou RI-C2)



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