

SuperKEKB 衝突運転に向けて

Machine Status

- Collision optics for both of HER and HER
 - Phase 2.1 : $(\beta^*_x, \beta^*_y)=(200 \text{ mm}, 8 \text{ mm})$
 - Collision tuning ongoing
 - RF phase tuning to adjust longitudinal beam position etc.
 - QCS quench problem cured by closing collimators
 - Beam-beam effect not yet observed as of April 23 night
- Bake out status
 - LER $\sim 25 \text{ Ah}$ / HER $\sim 30 \text{ Ah}$ (April 22)
 - Requested 100Ahour for both rings before collision
 - Short lifetime at LER
 - Max. currents allowed: 230 mA for HER, 280 mA for LER

Lorentz factor

ビーム電流

ビーム・ビームパラメータ

$$L = \frac{\gamma_{e^\pm}}{2er_e} \begin{pmatrix} 1 + \frac{\sigma_y^*}{\sigma_x^*} \\ \sigma_x^* \end{pmatrix} \begin{pmatrix} \frac{I_{e^\pm} \xi_{e^\pm}}{\beta_y^*} \\ \xi_{e^\pm} \end{pmatrix} \begin{pmatrix} R_L \\ R_{\xi_y} \end{pmatrix}$$

correction coefficient

σ : ビームサイズ

β 関数: aperture of beam

	KEKB (2006)		Phase 2.1		Phase 2.2		Phase 2.3		Phase 2.4	
	LER	HER	LER	HER	LER	HER	LER	HER	LER	HER
β_x [mm]	590	560	200	200	256	200	128	100	128	100
β_y [mm]	6.5	5.9	8	8	2.16	2.40	2.16	2.40	1.08	1.2
ε_x [nm]	18	24	2.1	4.6	2.1	4.6	2.1	4.6	2.1	4.6
$\varepsilon_y/\varepsilon_x$ [%]	3	2.5	10		5.0		1.4		0.7	
σ_x^* [μm]	103	116	20	30	23.2	30.3	16.4	21.4	16.4	21.4
σ_y^* [nm]	1900	1900	1296	1918	476	743	252	393	126	197
σ_z [mm]	7	7	6	6	6	5	6	5	6	5
ϕ_x [mrad]	11		41.5		41.5		41.5		41.5	
Φ	0.75	0.66	12.5	8.3	10.7	8.2	15.2	9.7	15.2	9.7
Remark	1.72x10 ³⁴ cm ⁻² s ⁻¹		10 ³³ cm ⁻² s ⁻¹		10 ³⁴ cm ⁻² s ⁻¹		2x10 ³⁴ cm ⁻² s ⁻¹		4x10 ³⁴ cm ⁻² s ⁻¹	

No crab-crossing

Large Piwinski Angle

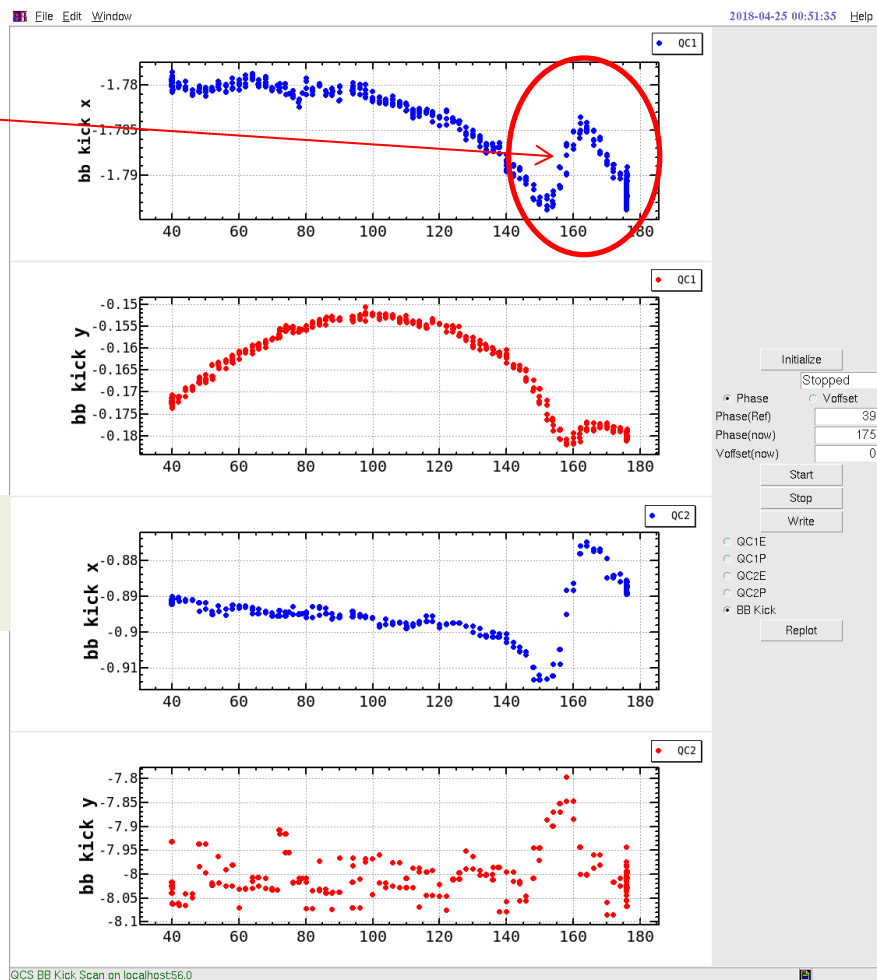
→ e- → HER
→ e+ → LER BT: tuning of the beam transport lines

M	Jan.	February	March	April	May	June	July
Q	3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2
linac	→ e-			e-			
DR		e+ →					
BT			→ →				
2.0			→ →				
2.1				→ →			
2.2							
2.3					→ →		
2.4				First collision (beam-beam deflection)		beta squeezing down to the final	→ →
remark					collision tuning		

本日(4/25)早朝シフト報告

- LER room phase scan
 - 55bucket160° 付近でBeam-Beam kickを確認

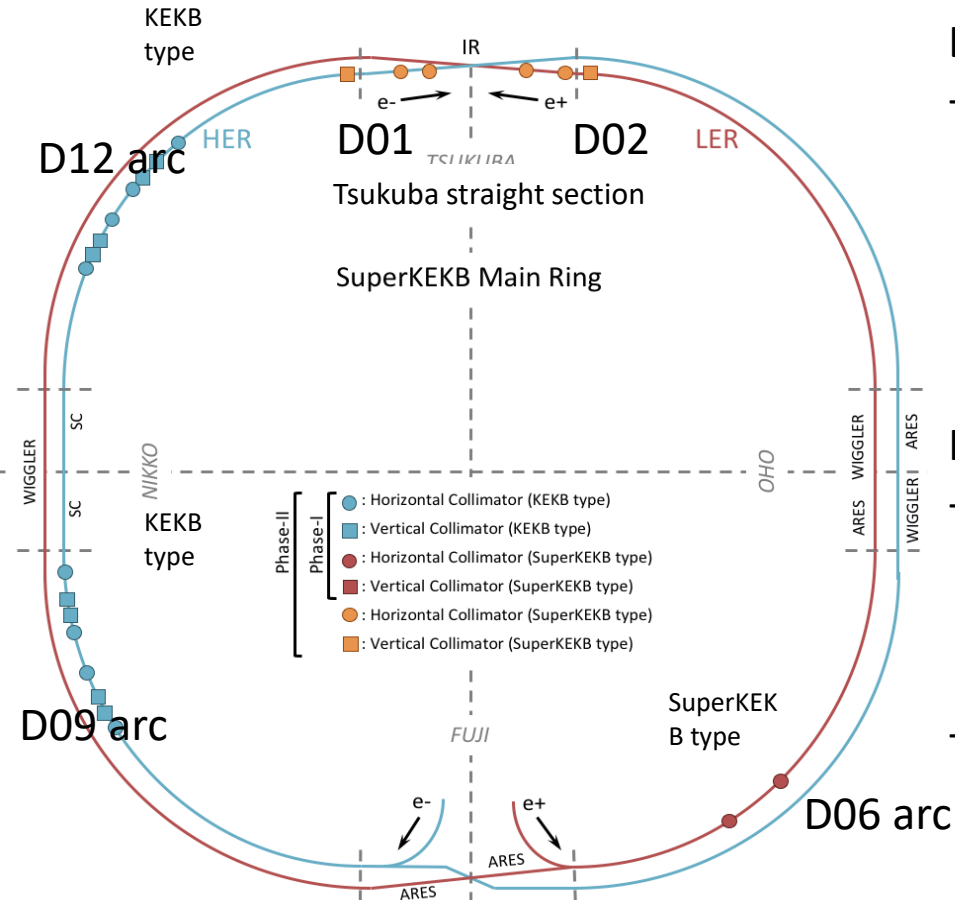
相手のビームによってキック



本日Vertical もスキャンして
できれば夜から衝突を目指す

Collimators location (phase2)

SuperKEKB type



LER:

- 4 horizontal, 1 vertical “SuperKEKB type” collimators
 - horizontal: D02H3, D02H4, D06H3, D06H4
 - vertical: D02V1

HER:

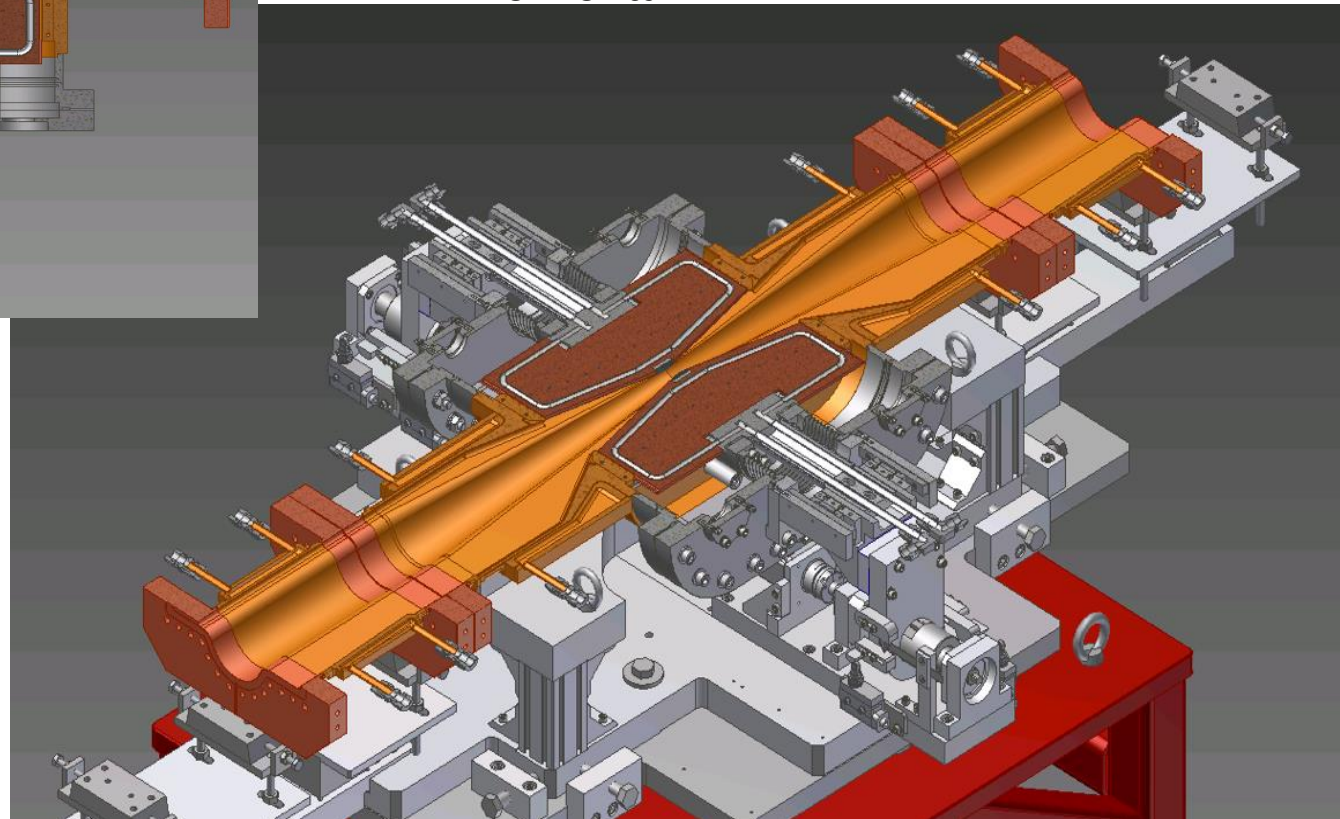
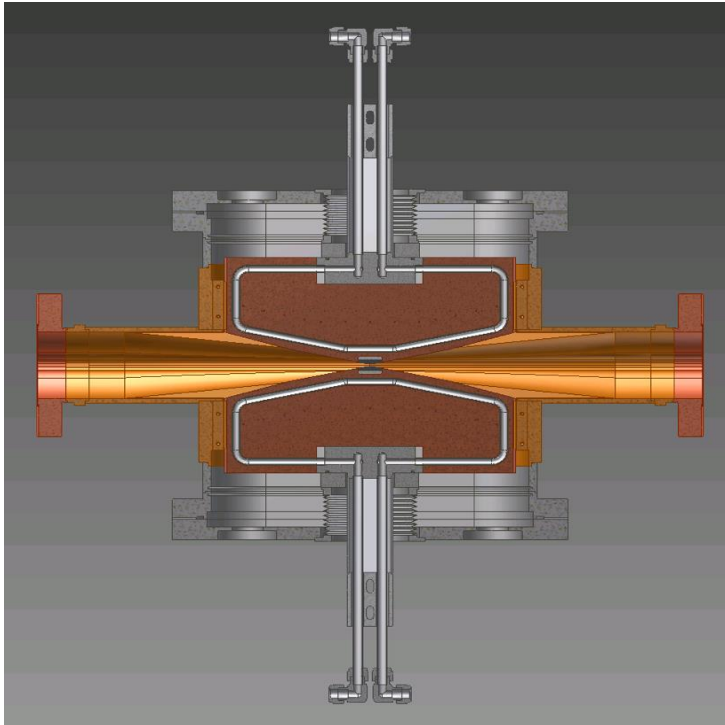
- 2 horizontal, 1 vertical “SuperKEKB type” collimators
 - horizontal: D01H4, D1H5
 - vertical: D02V1
- 8 horizontal, 8 vertical “KEKB type” collimators
 - horizontal: D12{H1,H2,H3,H4}, D09{H1,H2,H3,H4}
 - vertical: D12{V1, V2, V3, V4}, D09{V1,V2,V3,V4}

Collimator

vertical

- Each collimator has two jaws.
- No backlash system
- Positioning accuracy: $\pm 25 \mu\text{m}$
- Mechanical stroke (i.e. max stroke)
 - horizontal: 2 mm ~ 30 mm
 - vertical: 0.2 mm ~ 20 mm

horizontal



Horizontal beam size $\sigma_x * 30$ [mm]

GUIDELINE

LER	p2.0	p2.2	p2.3	p3.0
PMD06H1	---	---	---	8.4
PMD06H3	6.8	6.8	6.8	8.4
PMD06H4	6.8	6.8	6.8	8.4
PMD03H1	---	---	---	9.1
PMD03H2	---	---	---	9.1
PMD02H1	---	---	---	9.8
PMD02H2	---	---	---	15.4
PMD02H3	17.6	17.1	12.2	9.5
PMD02H4	4.2	4.3	5.1	11.7

GUIDELINE

HER	p2.0	p2.2	p2.3	p3.0
PMD09H1	12.8	12.8	12.8	12.8
PMD09H2	12.8	12.8	12.8	12.8
PMD09H3	12.8	12.8	12.8	12.8
PMD09H4	12.8	12.8	12.8	12.8
PMD12H1	12.8	12.8	12.8	12.8
PMD12H2	12.8	12.8	12.8	12.8
PMD12H3	12.8	12.8	12.8	12.8
PMD12H4	12.8	12.8	12.8	12.8
PMD01H1	---	---	---	16.6
PMD01H2	---	---	---	23.7
PMD01H3	---	---	---	7.8
PMD01H4	18.5	15.1	10.7	5.6
PMD01H5	6.1	6.9	8.9	17.4

QC2(r=35mm)	16.4	22.8	32.1	64.2
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“30 σ width” given in these table are guideline for collimator adjustment.

Note that 30 σ is not the limit, just showing reference. The real limit is determined by physical aperture (beam pipe radius) or dynamic aperture (beam life time).

Vertical collimators

LER	p2.0	p2.2	p2.3	p3.0
β_y _QC1[m]	16.14	362.28	362.28	2897.96
β_y _D2V1[m]	44.77	23.19	19.51	111.75
Nsigma	619.82	130.81	184.99	85.32
v_y _QC1	46.34	46.32	46.32	46.32
v_y _D2V1	45.04	44.88	44.88	44.83

GUIDELINE

d[mm]	22.49	3.42	3.13	2.65
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HER	p2.0	p2.2	p2.3	p3.0
β_y _QC1[m]	21.89	737.14	737.14	5897.07
β_y _D1V1[m]	9.47	19.35	19.35	153.19
Nsigma	359.52	61.96	87.63	49.88
v_y _QC1	0.24	0.25	0.25	0.25
v_y _D1V1	1.41	1.27	1.27	1.25

GUIDELINE

d[mm]	8.88	2.19	2.19	2.18
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- Even at detuned optics(phase2.2~), D02V1/D01V1 should be closed to 2~3 mm.
- If they are only slightly wider than they should be, we expect huge IR loss even in phase2.3
- HER arc collimators (D12V1-4,D9V1-4) have $\beta_y \sim 16m$ (similar to D1V1). It is effective to close D12/D9 vertical collimators down to 2~3m for suppressing QC1 loss (result in QCS quenches). However, we cannot reach full current due to beam instability if we close ≥ 2 vertical collimators.
- LER vertical collimator is D02V1 only. Need another vertical at the beginning of phase3?

HER

- /nfs/sadnas/proj/cont/cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosHER_20180418_terui.list

 Load
 Save
 Open
 Diff
- /cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosHER_20180419_ohnishi.list

 Load
 Save
 Open
 Diff
- /cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosHER_20180412.list

 Load
 Save
 Open
 Diff
- /cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosHER_20180417adachi.list

 Load
 Save
 Open
 Diff

Current: -0.012 mA Life: 0.000 min

AllGo

ID	HeadPos	TargetPos	Go	BeamPosX	BeamPosY	HomePos	I	O	H	E	GH	Stop	Err	Clr	LossMonitor
D01-V1-TOP	4	4.00	<input checked="" type="checkbox"/>	-0.36	0.76	16.22	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0 0 V
D01-V1-BTM	-4	-4.00	<input checked="" type="checkbox"/>	-0.36	0.76	-15.84	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0 0 V
D01-H4-OUT	23.02	23.00	<input checked="" type="checkbox"/>	0.3	0.52	26.87	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0 0 V
D01-H4-IN	-23.04	-23.00	<input checked="" type="checkbox"/>	0.3	0.52	-28.01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0 0 V
D01-H5-OUT	13.01	13.00	<input checked="" type="checkbox"/>	1.34	-0.33	24.63	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0 0 V
D01-H5-IN	-13.01	-13.00	<input checked="" type="checkbox"/>	1.34	-0.33	-27.12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0 0 V
D12-V4-BTM	-12.02	-12.00	<input type="checkbox"/>	-0.76	0.44	-18.89	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0 V
D12-H4-IN	-17.02	-17.00	<input type="checkbox"/>	0.01	-0.6	-20.06	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0.08 V
D12-V3-TOP	12.06	12.00	<input type="checkbox"/>	-1.3	1.1	19.28	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0.09 V
D12-H3-IN	-13.09	-13.00	<input type="checkbox"/>	-1.13	0.03	-20.08	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0.02 V
D12-H2-IN	-14.05	-14.00	<input type="checkbox"/>	-0.15	-0.37	-19.77	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0.02 V
D12-V2-BTM	-3.66	-3.60	<input type="checkbox"/>	-1.36	0.19	-20.23	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0.26 V
D12-H1-IN	-13.04	-13.00	<input type="checkbox"/>	-1.17	0.05	-20.09	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0.03 V
D12-V1-TOP	12	12.00	<input type="checkbox"/>	0.09	0.28	19.83	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0.05 V
D09-V4-BTM	-12.04	-12.00	<input type="checkbox"/>	-0.35	0.53	-19.87	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0 V
D09-H4-IN	-12.97	-13.00	<input type="checkbox"/>	0.01	0.25	-19.58	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0 V
D09-V3-BTM	-3.62	-3.60	<input type="checkbox"/>	-0.19	0.22	-19.72	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0 V
D09-H3-IN	-12.96	-13.00	<input type="checkbox"/>	-0.27	-0.34	-19.12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0 V
D09-H2-IN	-13.05	-13.00	<input type="checkbox"/>	0.24	0.14	-19.67	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0 V
D09-H1-IN	-12.93	-13.00	<input type="checkbox"/>	0.65	0.37	-19.09	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0 V
D09-V2-BTM	-11.92	-12.00	<input type="checkbox"/>	-0.5	-0.25	-19.28	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 -0.01 V
D09-V1-BTM	-3.62	-3.60	<input type="checkbox"/>	0	0.48	-19.78	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x0 0 V

LER

2018/04/24 06:06:2

/nfs/sadnas/proj/cont/cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosLER_20180418terui.list		Load	Save	Open
/cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosLER_201804231422_ForStorage.list		Load	Save	Open
/cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosLER_201804231456_ForInjection.list		Load	Save	Open
/nfs/sadnas/proj/cont/cont/epics314/app/KEKB/VA_rp/OPERATION_mainring/CLMsavefile/TgtPosLER_201804240549_ForStorage		Load	Save	Open

Current: 182.215 mA Life: 66.881 min

AllGo

ID	HeadPos	TargetPos	Go	BeamPosX	BeamPosY	HomePos	I	O	H	E	GH	Stop	Err	Clr	LossMonitor
D02-V1-TOP	4.22	4.20	<input checked="" type="checkbox"/>	0.36	-0.05	30.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D02-V1-BTM	-5.02	-5.00	<input checked="" type="checkbox"/>	0.36	-0.05	-30.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D02-H3-OUT	18.01	18.00	<input checked="" type="checkbox"/>	0.57	-0.17	30.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D02-H3-IN	-18.5	-18.50	<input checked="" type="checkbox"/>	0.57	-0.17	-30.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D02-H4-OUT	8.01	8.00	<input checked="" type="checkbox"/>	-0.34	-0.39	30.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D02-H4-IN	-7.51	-7.50	<input checked="" type="checkbox"/>	-0.34	-0.39	-30.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D06-H3-OUT	9.51	9.50	<input checked="" type="checkbox"/>	0.08	0.14	26.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D06-H3-IN	-12.01	-12.00	<input checked="" type="checkbox"/>	0.08	0.14	-33.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D06-H4-OUT	9.51	9.50	<input checked="" type="checkbox"/>	-0.08	-0.06	33.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0
D06-H4-IN	-11.51	-11.50	<input checked="" type="checkbox"/>	-0.08	-0.06	-33.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0x0

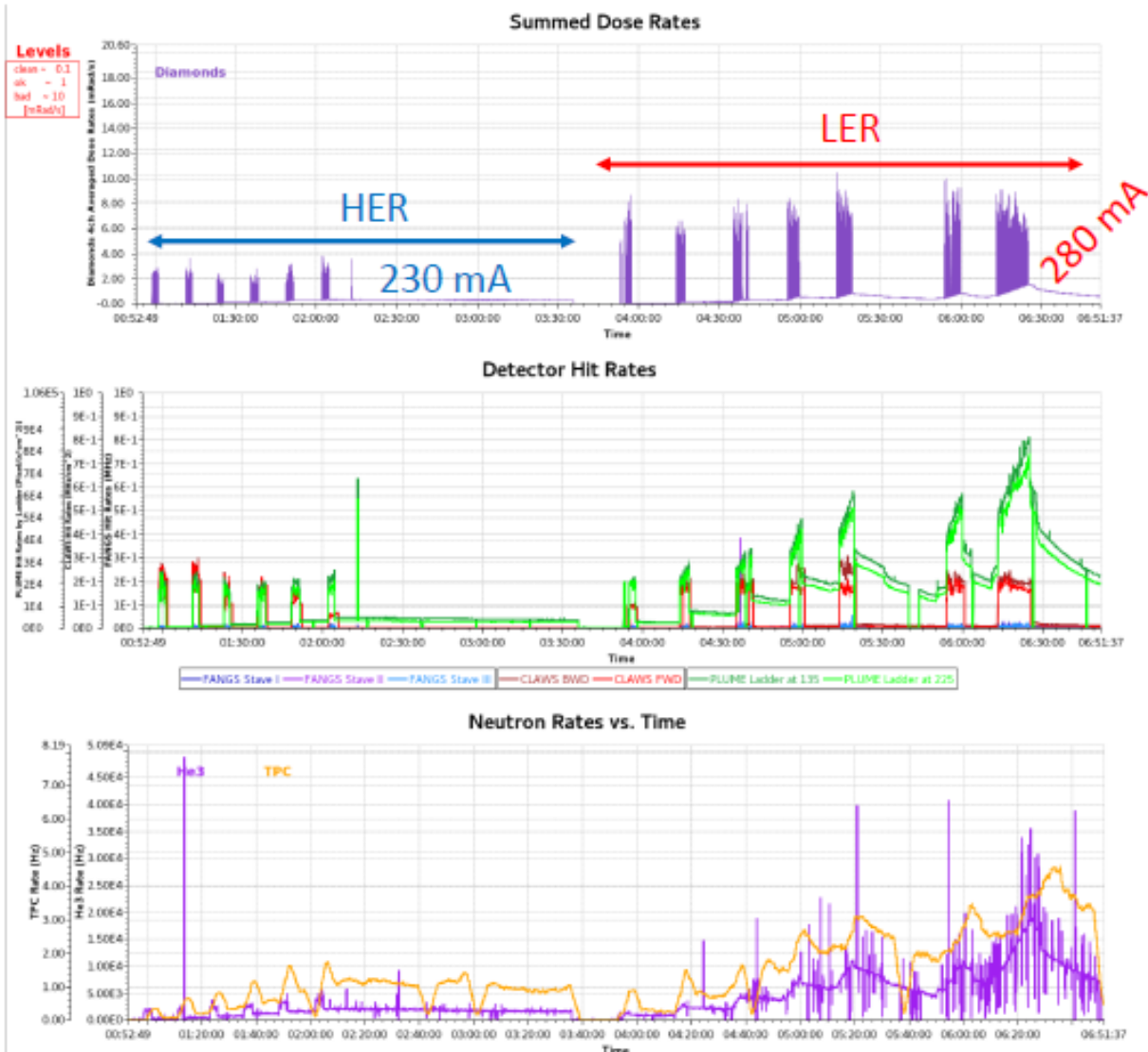
LossMonitor
 0 V
 -0 V
 0.01 V 0 V
 0.16 V
 0.2 V

LER	p2.0	p2.2	p2.3	p3.0
βy_{QC1} [m]	16.14	362.28	362.28	2897.96
βy_{D2V1} [m]	44.77	23.19	19.51	111.75
Nsigma	619.82	130.81	184.99	85.32
$v y_{QC1}$	46.34	46.32	46.32	46.32
$v y_{D2V1}$	45.04	44.88	44.88	44.83

GUIDELINE

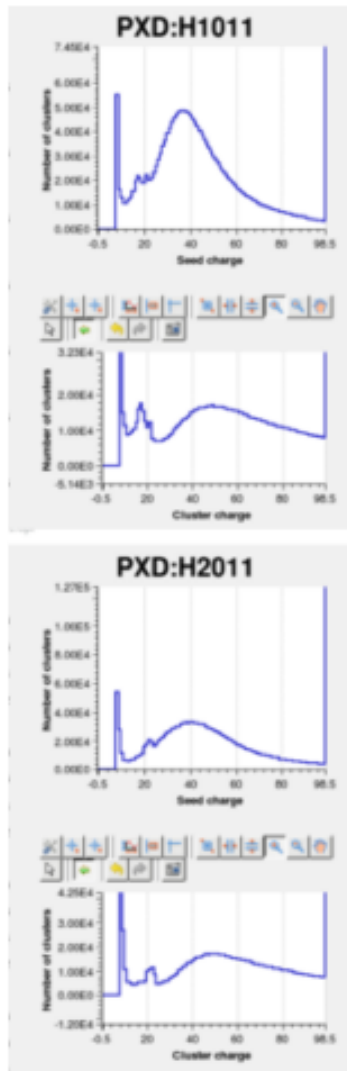
d[mm]	22.49	3.42	3.13	2.65
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LER/HER Phase 2.1 Optics Background Study

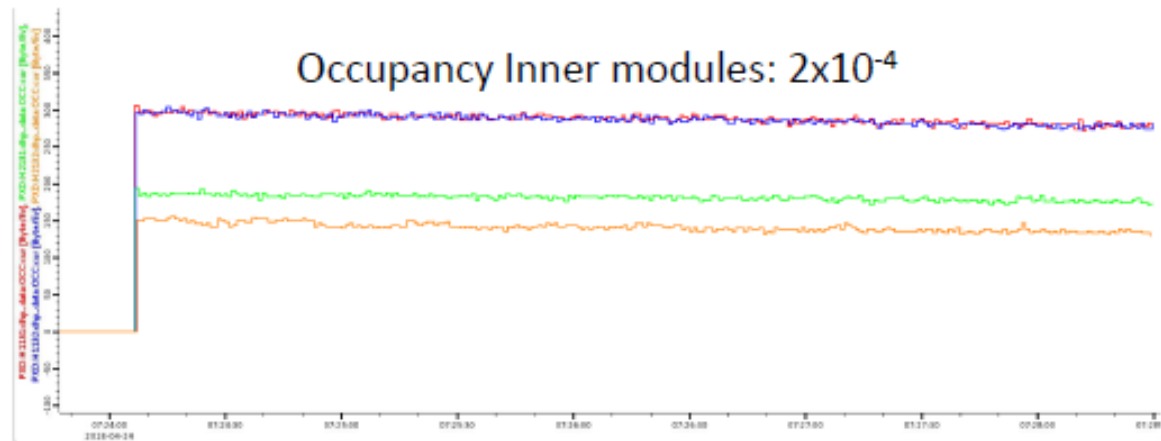


Several 40 mA steps until reaching final current

LER/HER Background Study



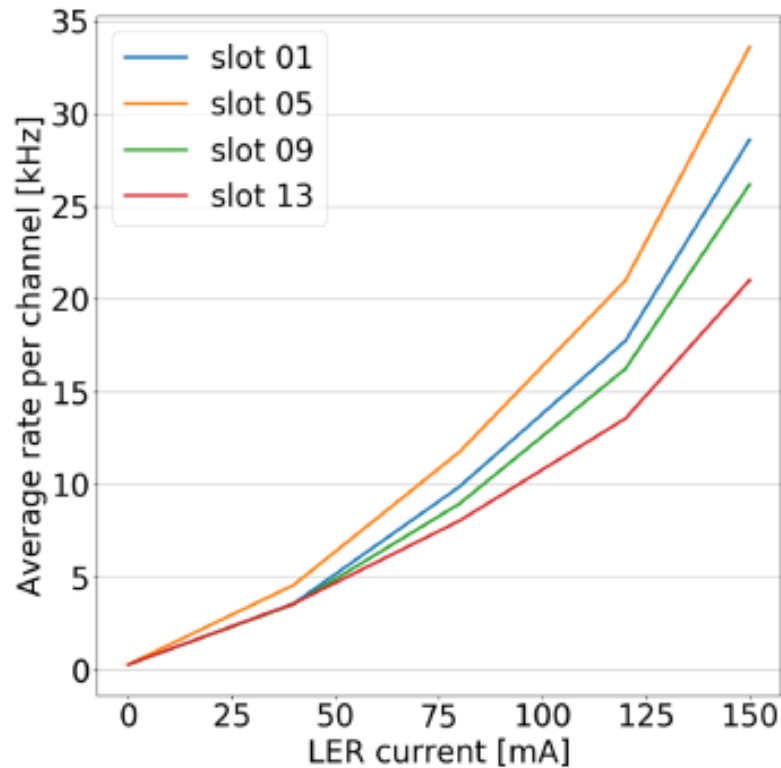
PXD with LER 100 mA \rightarrow SR (?) visible



Occupancy Inner modules: 2×10^{-4}

Threshold voltage shift:
800 mV in L1
400 mV in L2

LER/HER Background Study

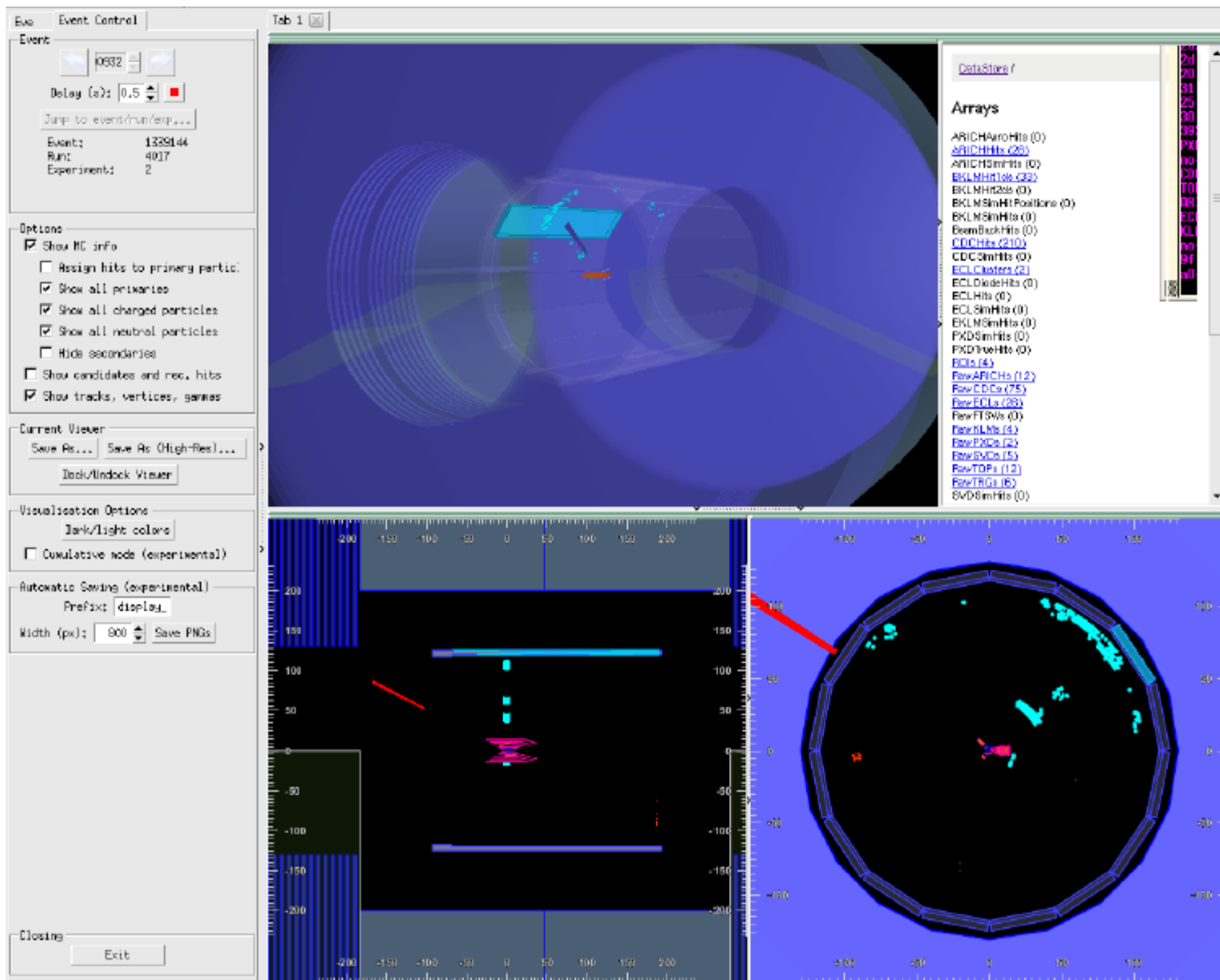


CDC nominal HV can be applied with:
HER = 230 mA (standalone)
LER <100 mA (standalone)

TOP rates:
HER = 230 mA is 250 kHz
LER = 120 mA is 200 kHz

Outer detectors: Probably dominated by beam-gas
Closing LER movable masks help

DAQ



HV control panel

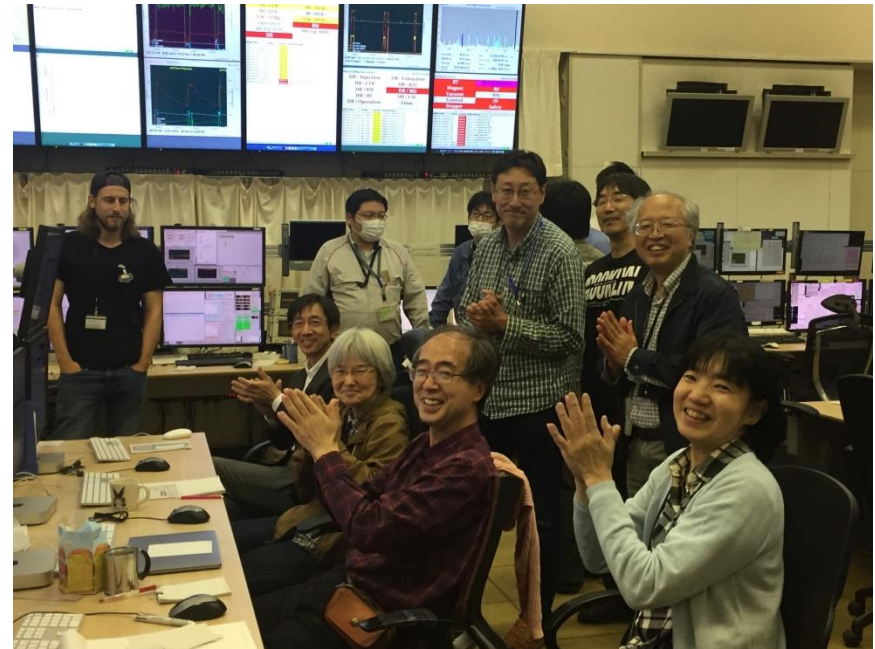
The screenshot shows the HV control panel interface with the following sections:

- Global HV control:** Contains two large buttons labeled "TURNON" and "TURNOFF".
- HV master status:** Displays "RC state" as "NOTREADY" and "HV state" as "OFF", both in red boxes.
- Bean Injection:** Shows "Physics Ready" as "disabled" (yellow box), "Normal injection" as "Allow" (cyan box), and "Continuous injection" as "Allow" (cyan box).
- Solenoid:** Shows "Resonance" as "ON" (cyan box), "Magnetic field" as "1522217.0", and "Solenoid current" as "4100.0".
- Detector states:** A grid of controls for detectors PXD, SVD, CDC, TOP, ARICH, and BKLM. Each detector has a "MASKED" status box and "TURNON" and "TURNOFF" buttons.

Section	Parameter / Label	Value / State		
Global HV control	TURNON	Button		
	TURNOFF	Button		
HV master status	RC state	NOTREADY		
	HV state	OFF		
Bean Injection	Physics Ready	disabled		
	Normal injection	Allow		
	Continuous injection	Allow		
Solenoid	Resonance	ON		
	Magnetic field	1522217.0		
	Solenoid current	4100.0		
Detector states	PXD	MASKED	TURNON	TURNOFF
	SVD	MASKED	TURNON	TURNOFF
	CDC	MASKED	TURNON	TURNOFF
	TOP	MASKED	TURNON	TURNOFF
	ARICH	MASKED	TURNON	TURNOFF
	BKLM	MASKED	TURNON	TURNOFF

- 加速器の現況

- Injection 調整
- Beam 軌道調整
- Feed back control
- Beam Optics tuning
- 衝突バンチの特定
- LER/HER周長の補正
- IRでの軌道調整(補正)
- Beam-beam kick の測定 (NOW)
- **ビーム衝突運転**
- 真空焼き(LERは新規製作なので特に必要)



運転に関する情報

- Daily KCG meeting
 - 9時から制御棟会議室
- Daily Run meeting
 - 10時からB1 control room
- コリメータについての資料
 - <https://kds.kek.jp/indico/event/27583/>
- ML
 - det-bcg@belle2.org
 - det-operation@belle2.org
- 加速器
 - <http://www-superkekb.kek.jp/operation.html>
(logなどはVPN接続が必要)
- BelleII (要DESYアカウント)
 - <https://elog.belle2.org/elog/>
 - <https://b2rc.kek.jp>