

Trigger at GCRT

TRG/DAQ workshop@NTU

20170823

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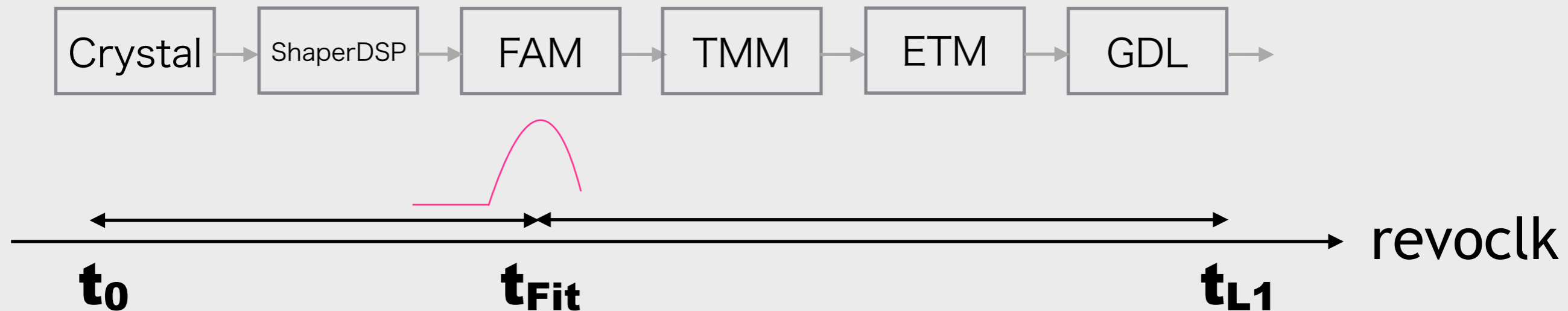
GDL Setup for GCRT

	Logic	Timing
July (3 - 25)	TSF2b2b && ecl_timing	ecl_timing
August (18 -)	TSF2Single && ecl timing	ecl_timing

Rates

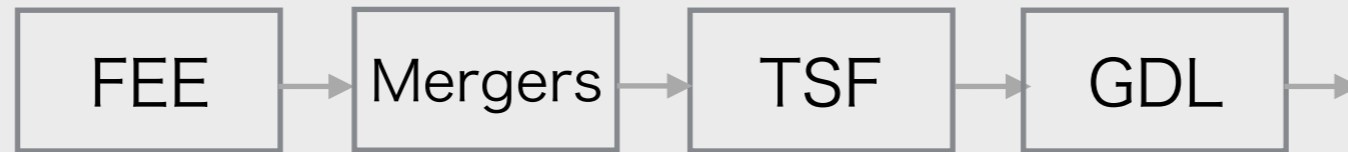
ecl_timing	~1 kHz
TSF2 b2b	20 - 30 Hz
TSF2 Single	400 - 500 Hz
ecl_timing && TSF2b2b	7 - 10 Hz
ecl_timing && TSF2Single	70 - 80 Hz (50 - 60 Hz for KLM)

ecl_timing



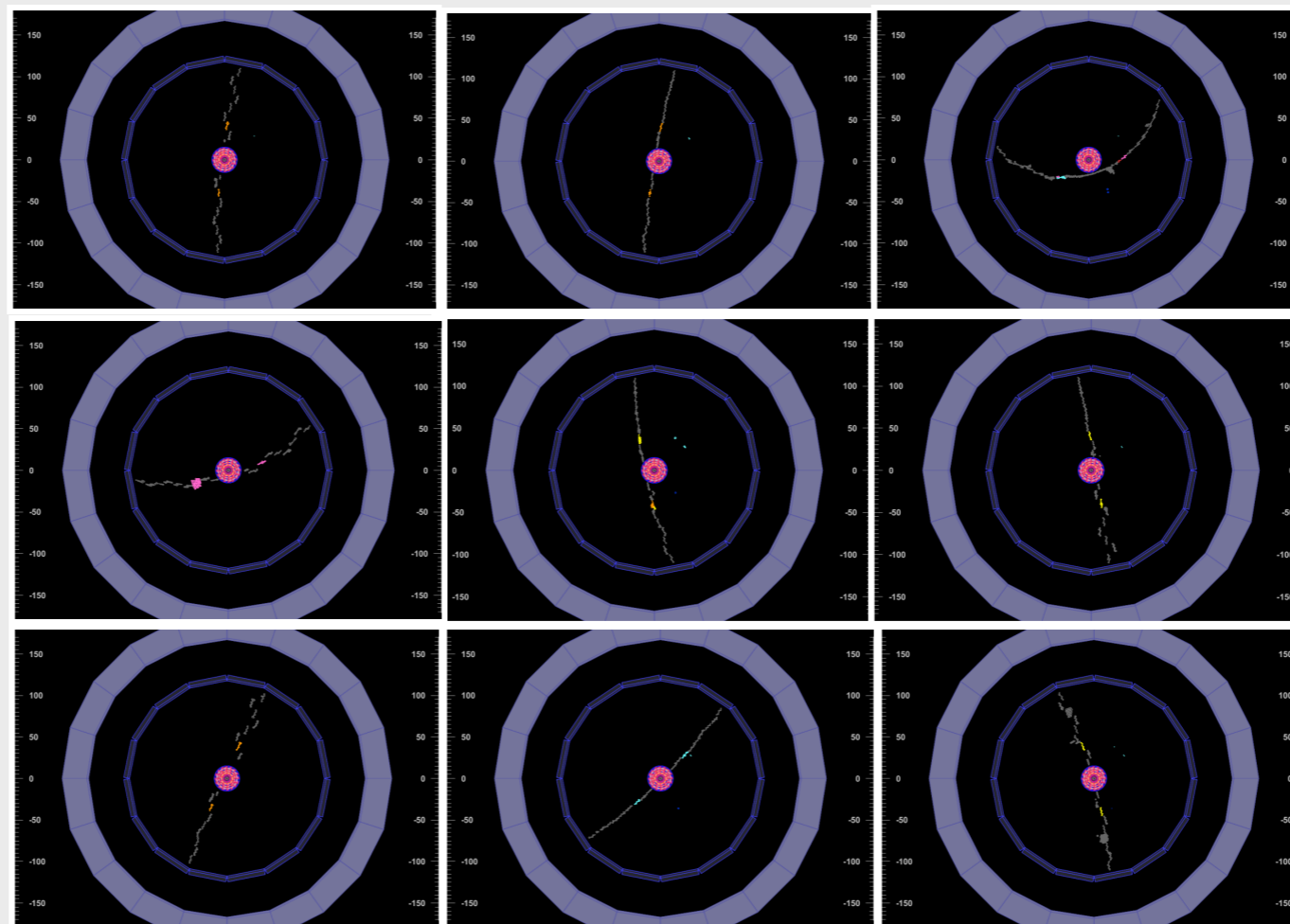
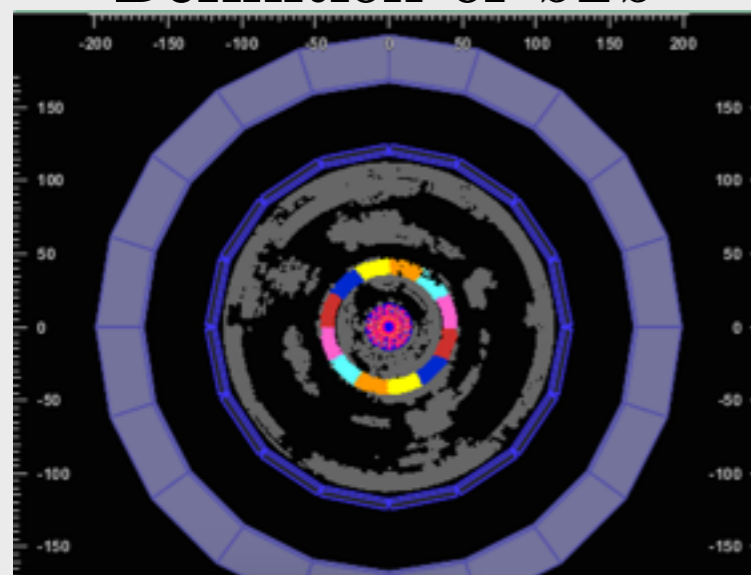
- Working well
- 8 MHz system clock
- $\Delta t = \sim 16$ nsec
- $t_{Fit} = 7\text{bit (LSB=127ns)} + 7\text{bit (LSB=1ns)}$ since July 21
 - $t_{Fit} = 7\text{bit (LSB=1ns)}$ until July 21

TSF2b2b



- Bug in TSF2b2b fixed at the beginning of July GCRT
- Debugging TSF and 2D ongoing

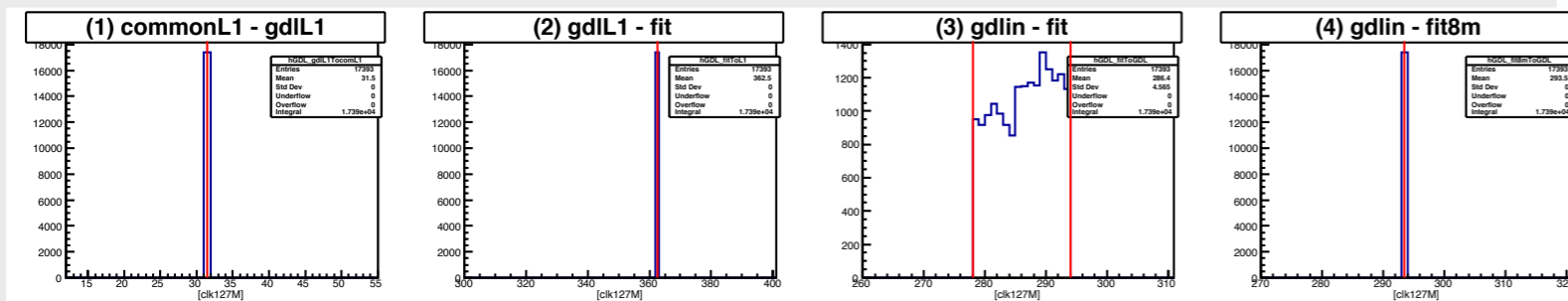
Definition of b2b



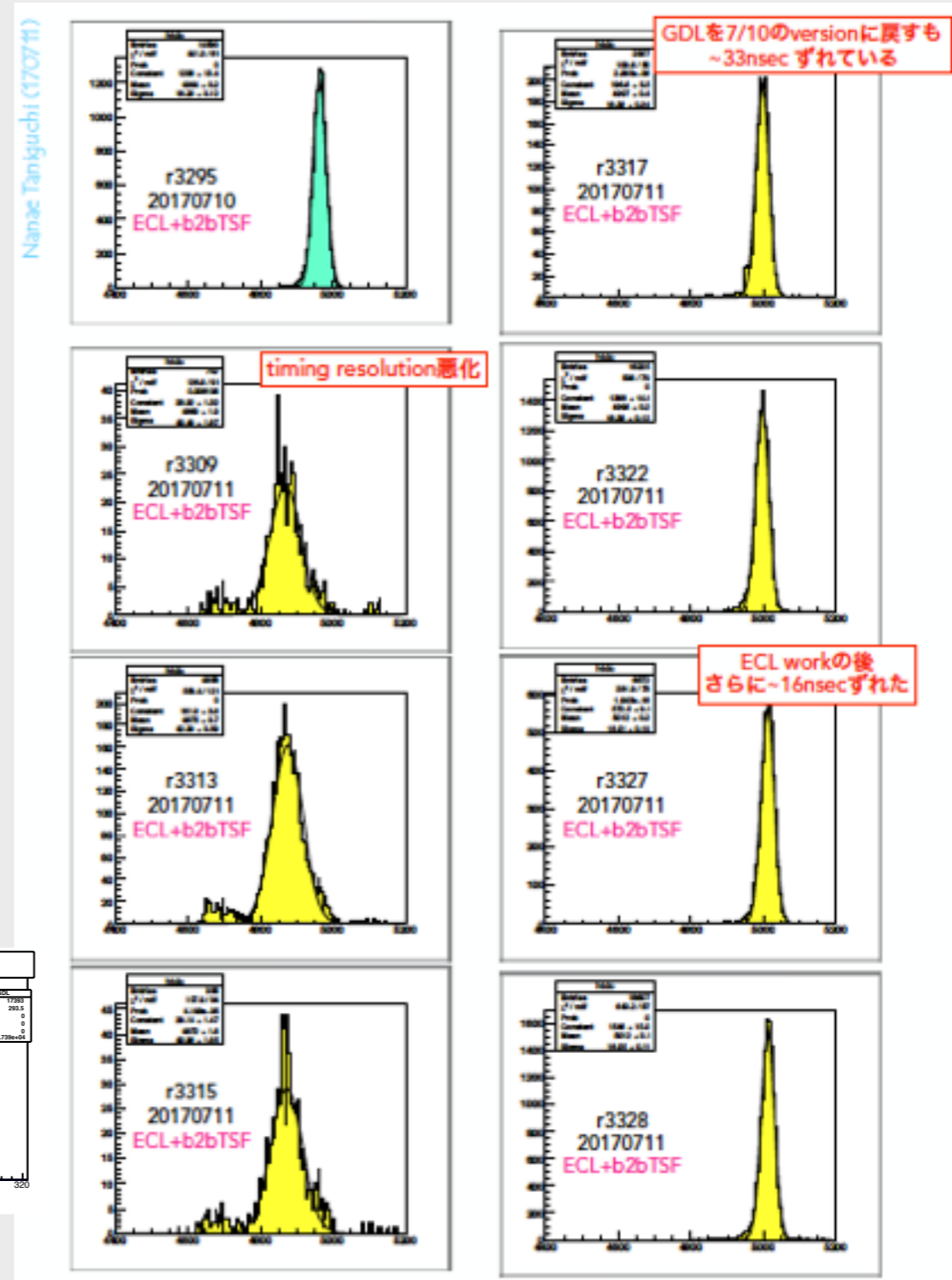
N. Taniguchi

Timing Shift Problem

- Timing Shift after
 - GDL firmware update
 - ECL work
 - Shutdown
- Checked with CDC fastest hit
- Timing Monitor Introduced
 - Off-line analysis of GDL b2l data
 - No shift in August GCRT



r3964 (Last night)
r3845 (early run in Aug. GCRT)



Summary and Near-Future Plan

- Bug in TSFb2b fixed
- ecl_timing working well
- Timing shift observed
 - Timing Monitor ready
- Plan
 - Introduce Random Trigger (GDL)
 - Prepared last week but did not work
 - Slow Control and DQM
 - Debug TSF (b2l data and B2 setup)
 - CDC2D trigger (b2l data)
 - TOP and KLM ?

Input bits from subtrigger

	nbits	name	
CDC	3	n_t3_full	#of 3D full tracks
	3	n_t3_short	#of 3D short tracks
	3	n_t2_full	#of 2D full tracks
	3	n_t2_shoft	#of 2D short tracks
	1	cdc_bb	back-to-back topology
	1	cdc_open45	45 deg opening angle
	3	cdc_timing	timing signal
ECL	1	e_high	1 GeV or more
	1	e_low	0.5 GeV or more
	1	e_lum	3 GeV or more
	1	ecl_bha	
	11	bha_type	Identified as Bhabha
	4	n_clus	# of cluster
	1	ecl_timing	timing signal
TOP	3	n_hits	# of top hits
	1	top_bb	back-to-back topology
	1	top_active	Top Timing active
	3	top_timing	Top Timing
KLM	3	n_klm	# of klm hits
Random	1	revo	
	2	rand	
	1	periodin	1 MHz
	3	bhabha_delay	
NIM	6		TSF/2D inputs