

Towards the detector configurations for the Oct 2022 simulation campaign

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(for the GD/I WG)

INTRODUCTORY NOTES




- 2 major detector configurations for physics production according to the requests from the PWGs (next slide)
- A limited number of sub-configurations with smaller production in particle gun mode produced by DWGs themselves
 - Does this strategy matches the needs of the DWG ?
- as much as possible a diagonalization strategy:
 - alternatives in the 3 CD regions (barrel, BW, FW) can be combined arbitrarily in the 2 main configurations
- **IMPORTANT:** the configurations as resulted from the 9/26 GD/I meeting will be frozen during next GD/I meeting on 10/3

REQUESTED PRODUCTIONS



- From J.Osborn's slides at GD/I meeting, 9/26,2022

Simulation samples

- Already collected simulation samples for campaign 0 are still relevant
 - We will plan to run the same samples in October unless we explicitly hear otherwise from the WGs
- Available as a google sheet here 

<https://docs.google.com/spreadsheets/d/1UNKtaVQ6oVSR7kthJ-2XwbQ27fh6-Ca-CdiWjJ2aMgl/edit?usp=sharing>
- Requests from:
 - Exclusive/Diffractive
 - Variety of generators/requests, too many to list
 - Inclusive
 - Djangoh ep and ed, variety of energies
 - Jets/HF
 - Pythia8, variety of Q^2 and energies
 - SIDIS
 - Pythia6, variety of Q^2 and energies

Defining the configurations 1/2



detector region	option A	option B	notes
all	"standard" Si tracker system (layers: 5 in barrel; 5 disks in FW; 5 disks in BW)		if possible, converge towards 1 single configuration with 1 single envelop
barrel	2 MPGD layers (1 behind DIRC; first layer at 55 cm)	1 MPGD layer (in front of the DIRC)	option B more consistent with imaging Ecal
FW	no MPGD behind the RICH		
barrel	"standard" DIRC		
FW	"standard" dRICH		not realistic to elaborate two different optics by mid October
BW	mRICH	pfRICH	pfRICH shorter than in ATHENA: ~45 cm in total
FW/BW	standard Ecal and Hcal	standard & insert in the FW Ecal	status of implementation in gloal simulation: advanced; about inseret, to be used in October simulation if a preliminary mechanical support will be designed

Defining the configurations 2/2



detector region	option A	option B	notes
barrel	SciGlass Ecal	imaging Ecal (same inner radius, 21 X0)	thicker imaging Ecal if supported by preliminary studies
barrel	HCAL outside	HCAL outside	implementation in progress
BW	ToF layer (10 cm; 8% X0; pixel 0.5*0.5 mm^2)	no	BW ToF layer simulated if intregation in the the detector layout possible (second priority)
FW	ToF layer (15 cm; 8% X0; pixel 0.5*0.5 mm^2)		X0 correlated to resolution
barrel	ToF layer (1 % X0; strips)		X0 correlated to resolution
FFW/FBW	"standard"		implementation advanced; some open points in B0; ZDC is the "ATHENA" one;
field map	1.7 T scaled from BaBar magnet		