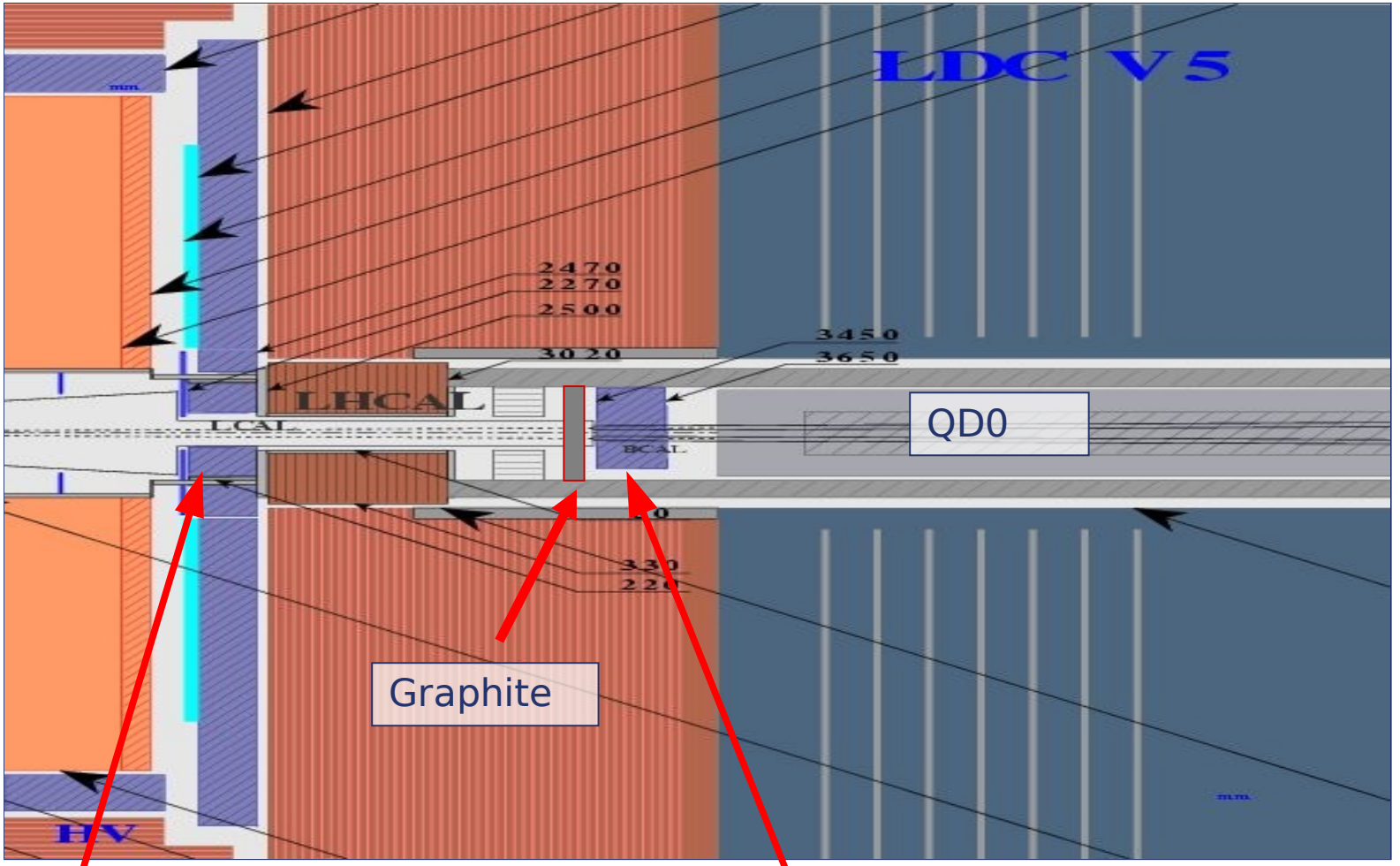
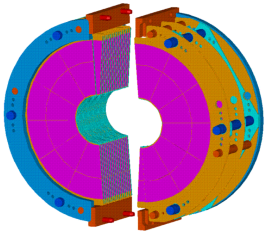
ILC and CLIC baseline design

	ILC	**CLIC**
Energy	0.5-1 TeV	0.5-6 TeV
Pulse length	950us	207ns
Bunch spacing	300ns	667ps
Bunch length	1ps	0.1ps
Charges/bunch	$2 \cdot 10^{10}$	$4 \cdot 10^{9}$
Nb. of bunches	2820	310
I_{average}	9.5mA	1.5A

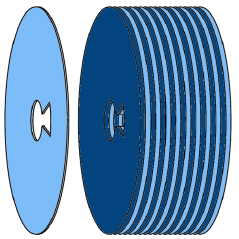
ILC forward region:



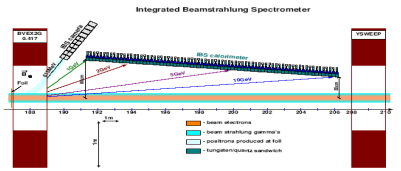
· LumiCal:
2.3 m from IP,
80mm<R<190mm,
35.3<app<83.9 mrad
dZ = 30cm,
tungsten-silicon



· BeamCal:
3.5 m from IP,
20mm<R<150mm,
dZ = 12cm,
tungsten-diamond
(GaAs, Si)

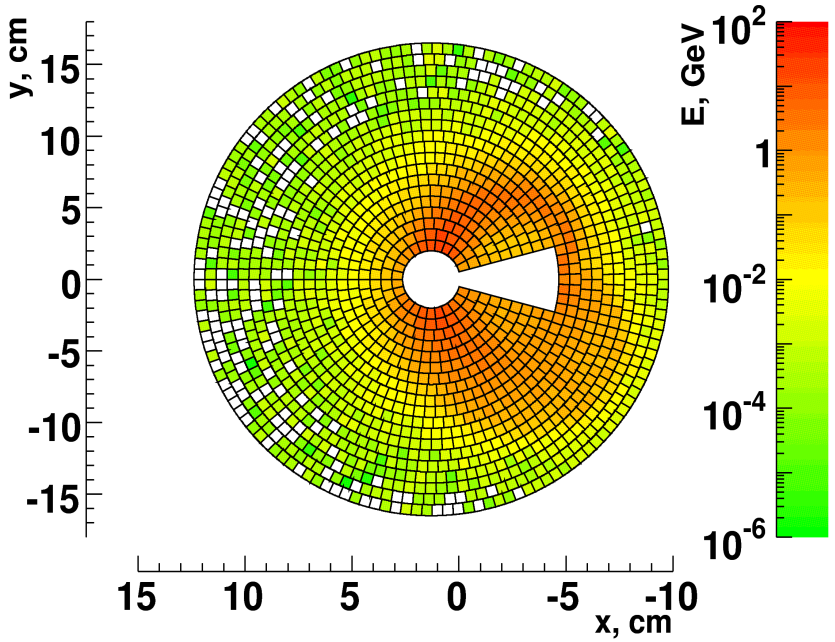


· GamCal:
180 m from IP,
aperture ~1mrad,



Forward region simulation: BeamCal stand-alone Geant4 model

- detector model + surroundings (beam pipe, dummies, QD0 magnet)
- realistic magnetic field
- neutron background estimation (E.Teodorescu)
- ~ 6 hr/GHz CPU time for one bunch crossing simulation (no neutrons)



simulation of the CLIC detector forward region: instrumentation

1) detectors (either complete models or dummies) + passive structures (beam pipe, support tube, mask, etc).
2) magnetic field option: CMS or ILC (also simple solenoid, or quad) – code available
3) crossing angle option: head-on, 14 mrad, ..
4) visualization (!)

simulation of the CLIC detector forward region: modes

1) simple tracking : no showering, just see the hits/energy deposition in xy at some z position
2) full showering, energy deposition calculation

What will be needed (later) :

- geometry (sizes, segmentation etc.)
- materials
- magnetic field map that suits the geometry

Anti-DiD (developments of SLAC ILC Beam Delivery Group)