Beam Delivery System design and EDR, Introduction

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BDS Kick-Off meeting, October 11-13, 2007

Plan of the talk

- Overall plan of the meeting
- Beam delivery – what is in RDR
- Brief summary of S4 recommendations
- EDR phase goals clarified
- Start of EDR work – IR Engineering
- Beam delivery structure for ED phase
- Expressions Of Interests process

today – briefly
in more details on Friday and Saturday

- Overall plan of the meeting
- Beam delivery – what is in RDR
- Brief summary of S4 recommendations
- EDR phase goals clarified
- Start of EDR work – IR Engineering
- Beam delivery structure for ED phase
- Expressions Of Interests process

Overall plan of the Kick-off meeting

- Thursday: RDR completeness discussions
  - **Assess technical maturity of RDR design and completeness of the value estimate. Evaluate performance acceptability. Examine each (Tech./Global) cost and check for inconsistencies, inaccuracies, cross check with existing machines. Explain what accelerator physics requirements were driving the design and how these requirements were obtained.**
- Friday: System optimization; options
  - **Quantify the worth/cost value, discuss cost drivers, evaluate performance/cost derivatives, review design decisions in terms of cost impact and discuss possibilities of further refinement.**
  - **Evaluate existing options and alternative designs and discuss their merits for the project, needed resources for development and possible timeline**
- Saturday: EDR planning
  - **Present and discuss the work packages that would cover the EDR goals of updating the ILC cost estimate, reducing the risk, reducing the cost, and preparation of the project execution plan. Discuss the WPs and their allocation process.**

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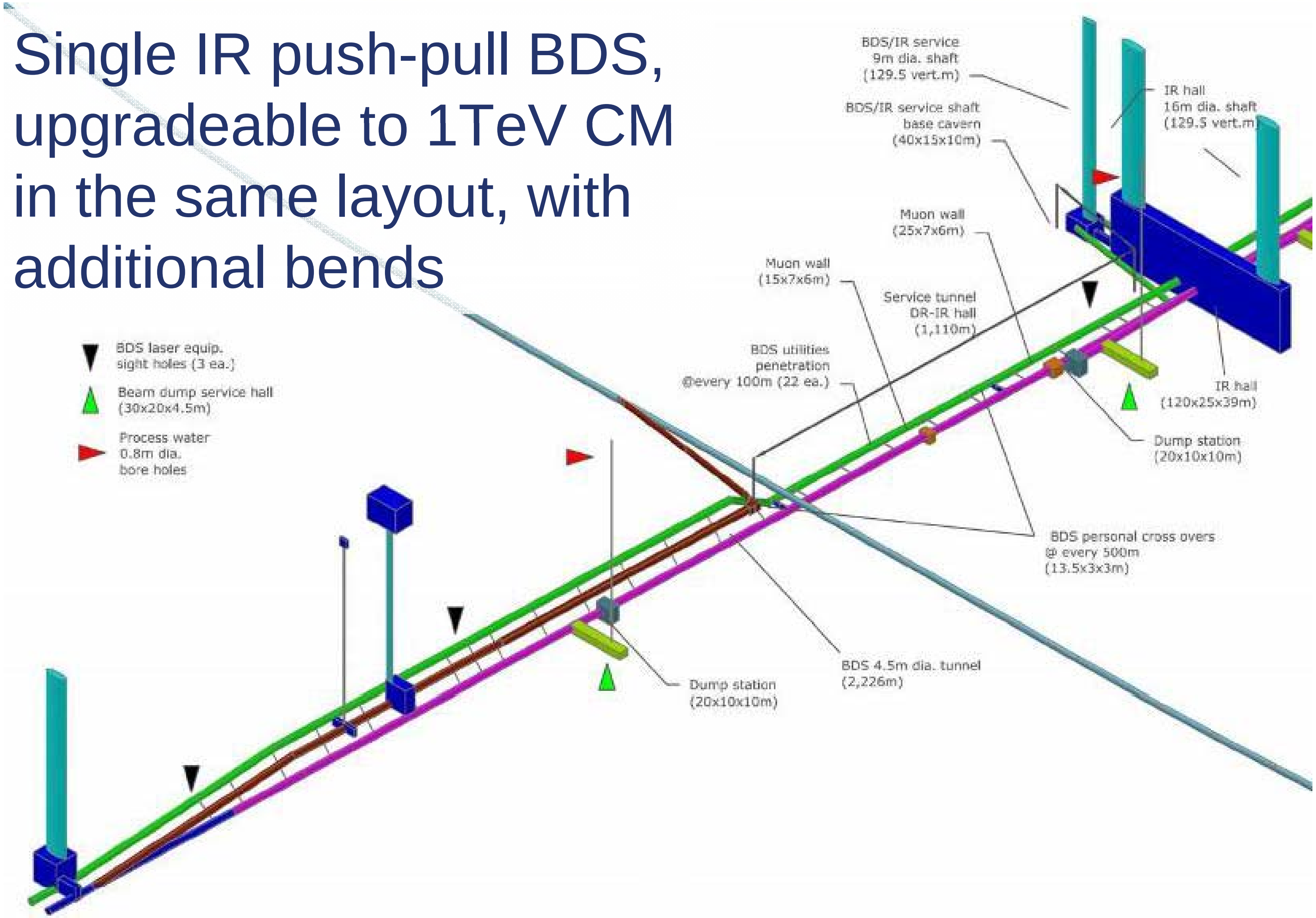
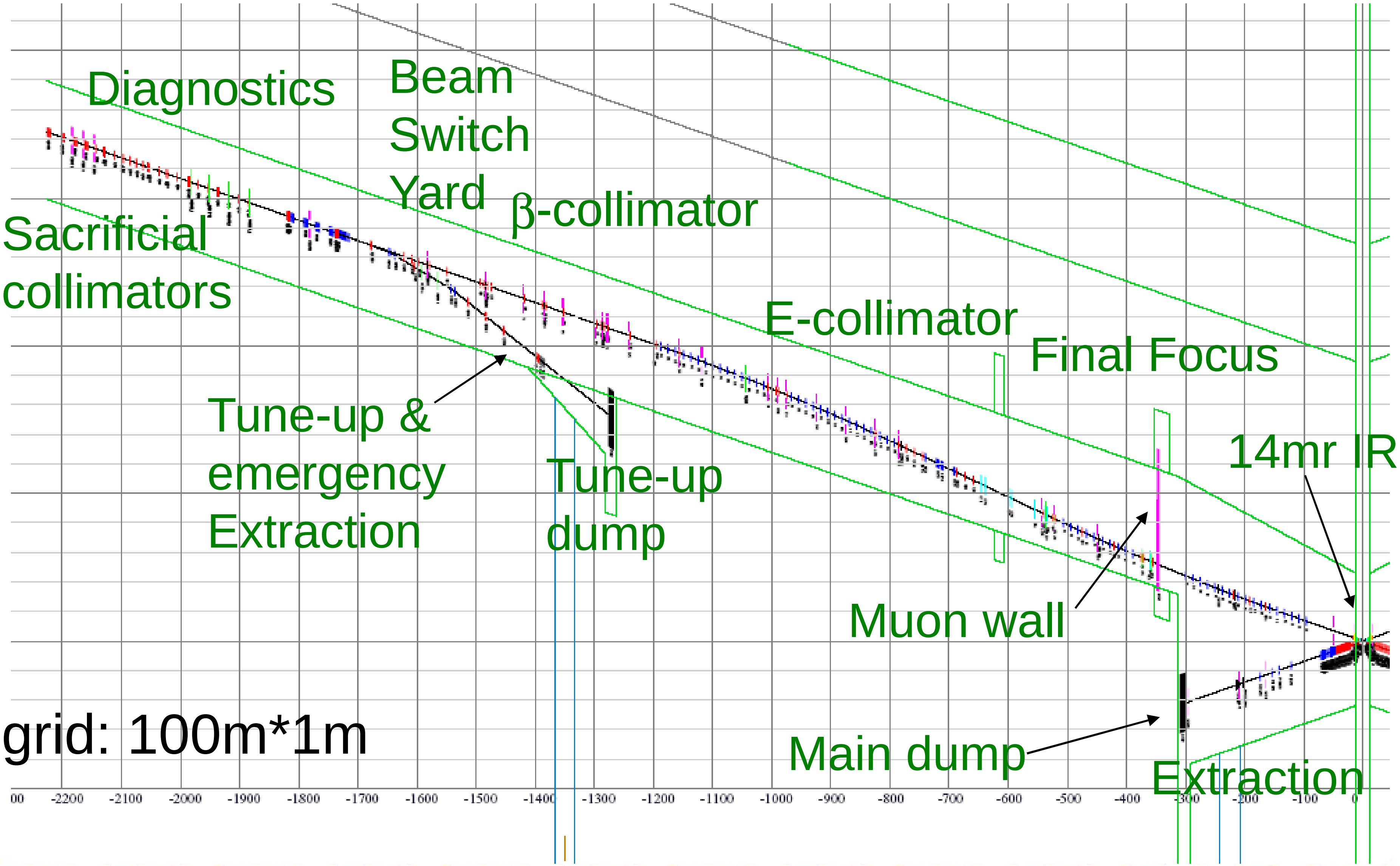
BDS layout

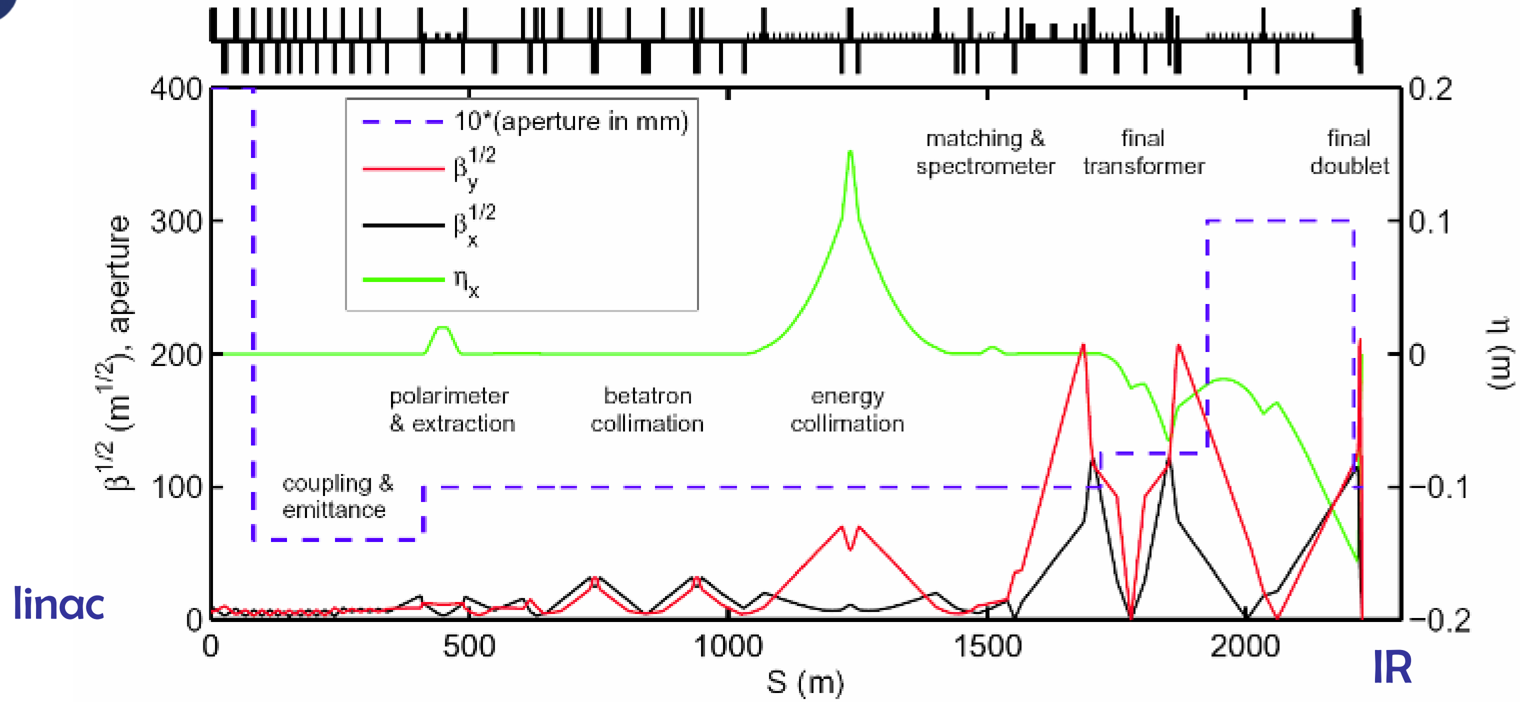
- Single IR push-pull BDS, upgradeable to 1TeV CM in the same layout, with additional bends



Beam Delivery subsystems



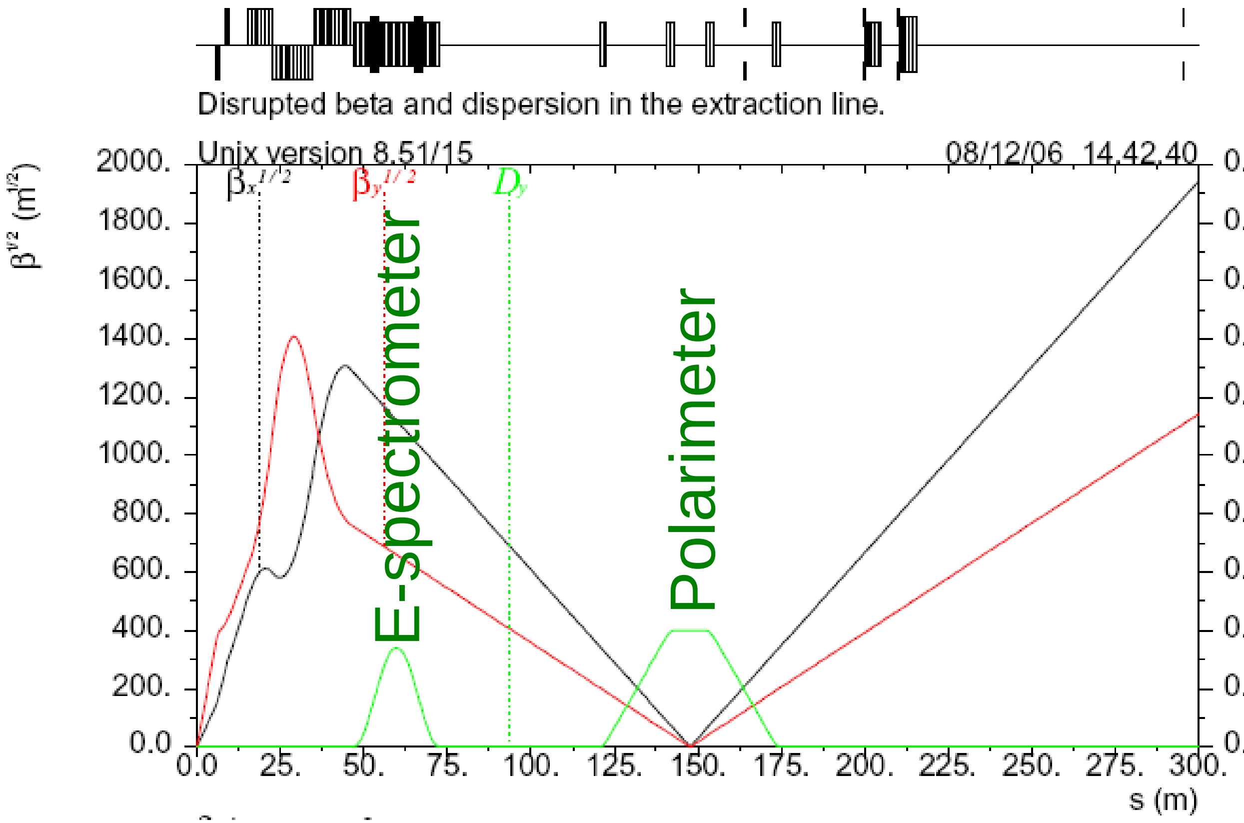
BDS optics

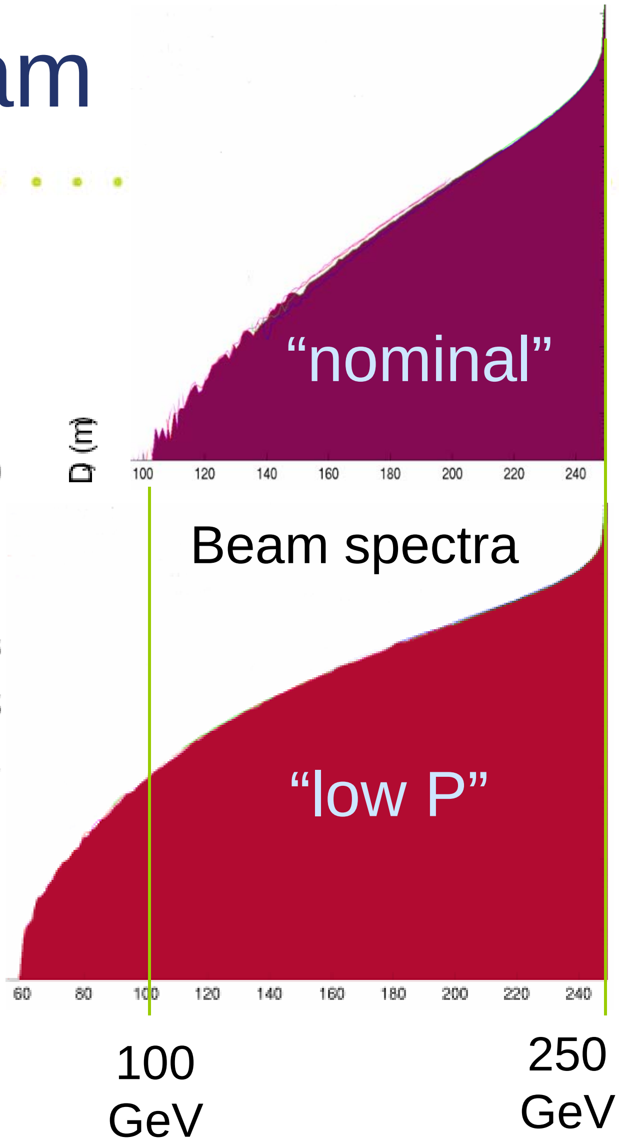


- Some design drivers:
  - **limit emittance growth in FF; length of L* drift**
  - **size of beam in spoilers to make them survivable**
  - **limit of emittance growth in chicanes**
  - **size of beam in diagnostics laser wires**

Parameter	Units	Value
Length (linac exit to IP distance)/side	m	2226
Length of main (tune-up) extraction line	m	300 (467)
Max Energy/beam (with more magnets)	GeV	250 (500)
Distance from IP to first quad, L*	m	3.5-(4.5)
Crossing angle at the IP	mrad	14
Nominal beam size at IP, σ^*, x/y	nm	639/5.7
Nominal beam divergence at IP, θ^*, x/y	μrad	32/14
Nominal beta-function at IP, β^*, x/y	mm	20/0.4
Nominal bunch length, σ_z	μm	300
Nominal disruption parameters, x/y		0.17/19.4
Nominal bunch population, N		2×10^{10}
Beam power in each beam	MW	10.8
Preferred entrance train to train jitter	σ_y	< 0.5
Preferred entrance bunch to bunch jitter	σ_y	< 0.1
Typical nominal collimation aperture, x/y		8–10/60
Vacuum pressure level, near/far from IP	nTorr	1/50

Optics for outgoing beam

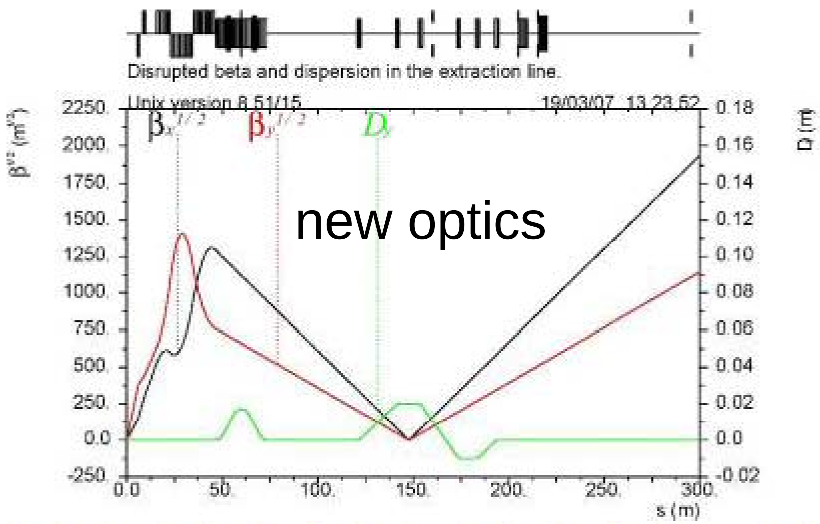


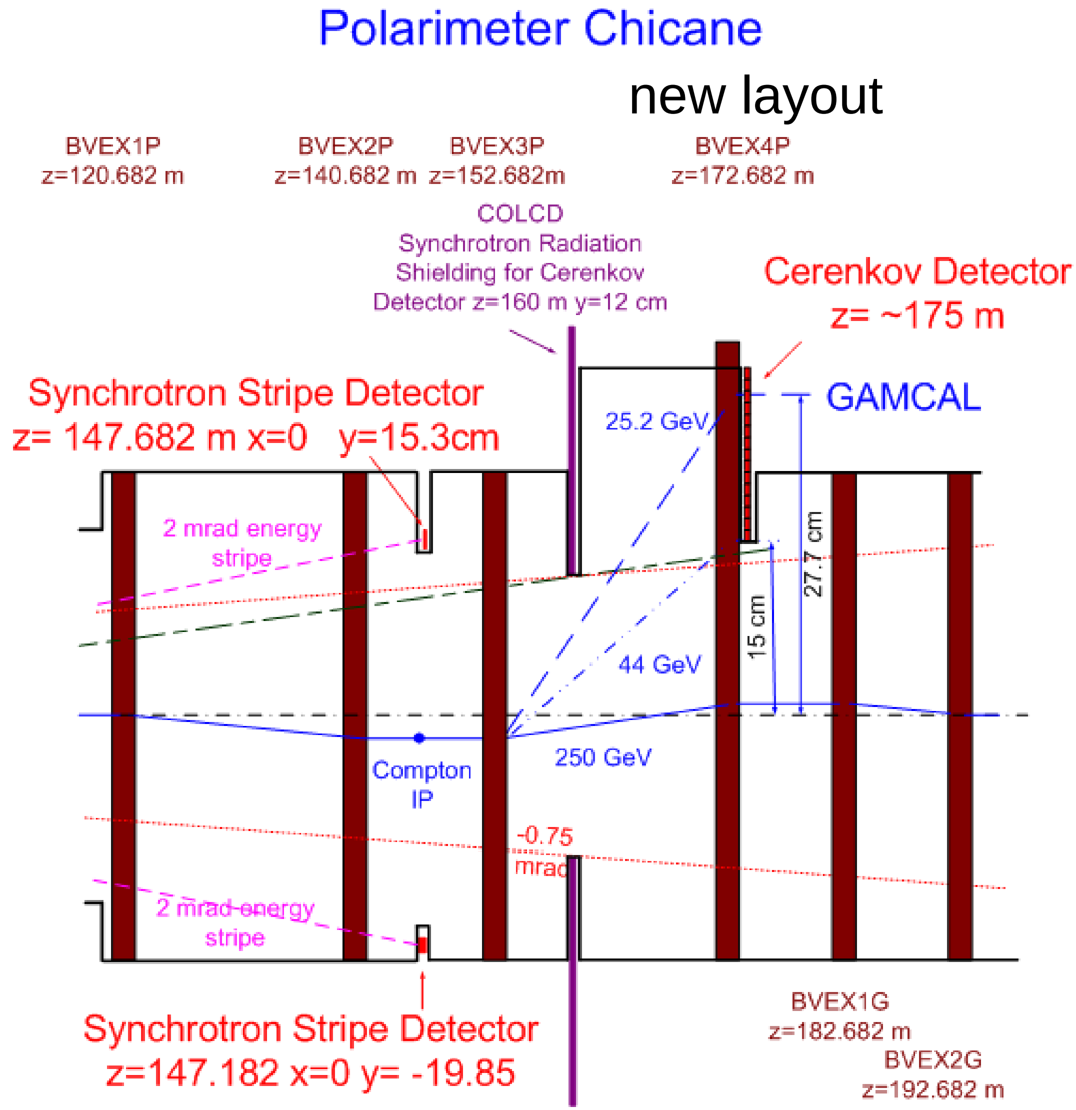


Extraction optics can handle the beam with ~60% energy spread, and provides energy and polarization diagnostics

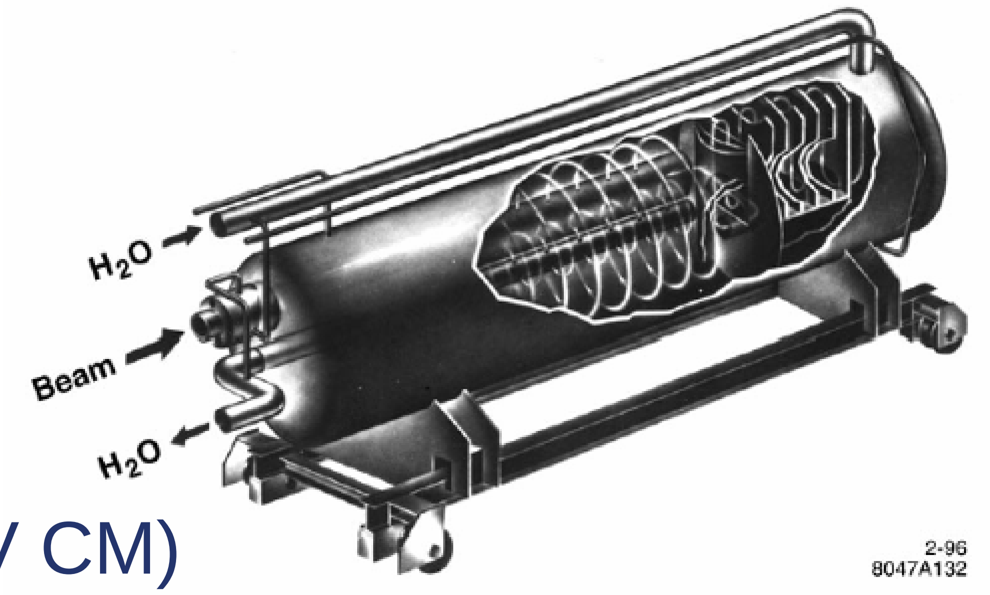
Modification of polarimeter chicane

- Some increase of cost, improved performance
- More suitable for GamCal
- Ratio of energy in Gammas/Pairs ~ Lumi signal





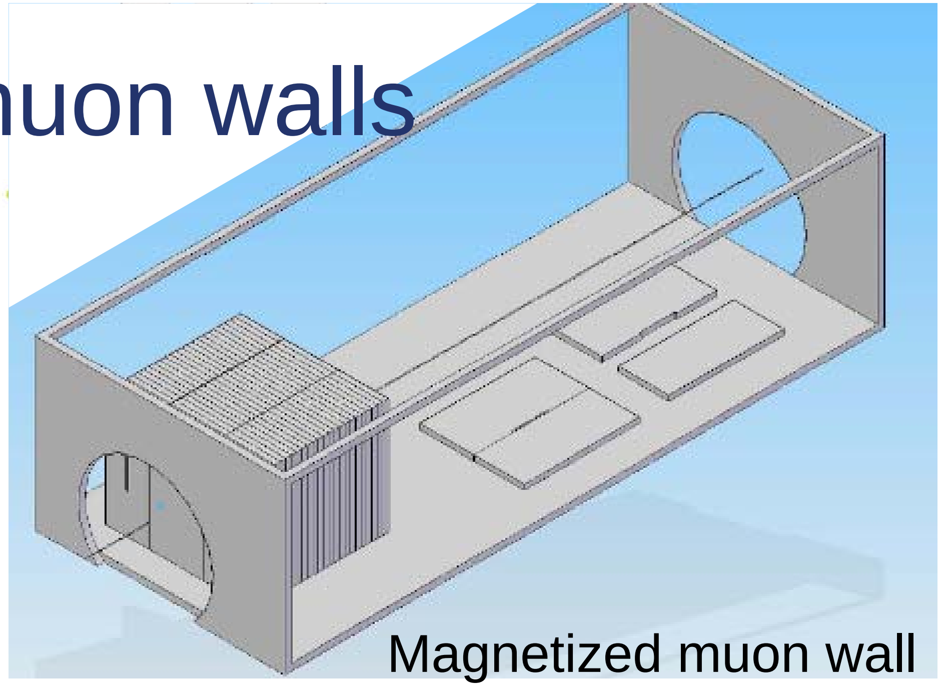
Beam dump

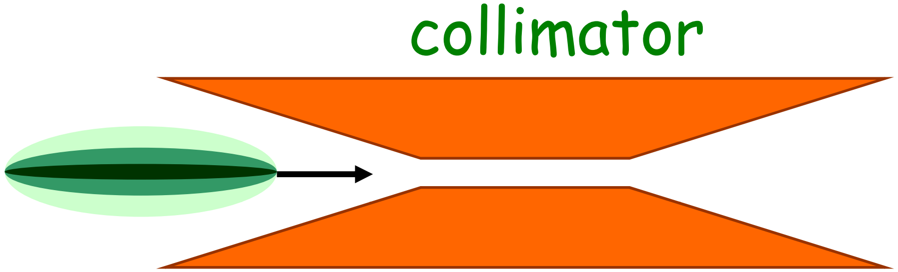


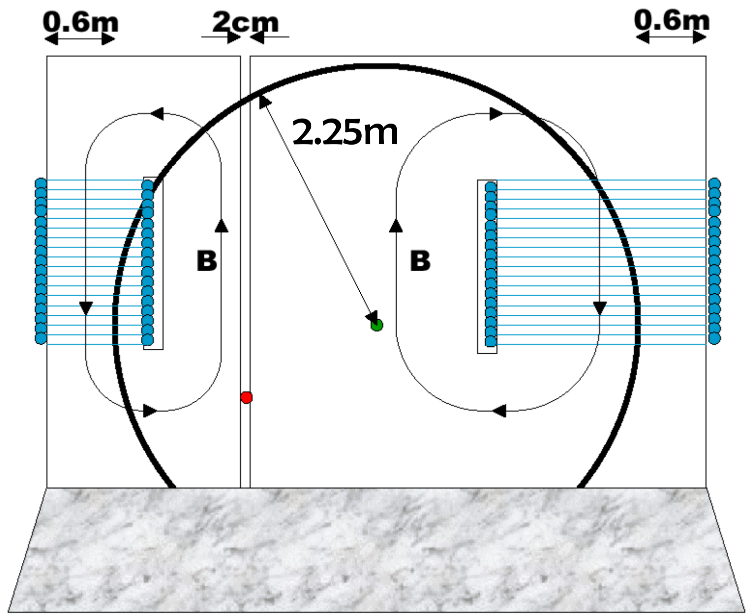
- 17MW power (for 1TeV CM)
- Rastering of the beam on 30cm double window
- 6.5m water vessel; ~1m/s flow
- 10atm pressure to prevent boiling
- Three loop water system
- Catalytic H_2-O_2 recombiner
- Filters for 7Be
- Shielding 0.5m Fe & 1.5m concrete

Collimators & muon walls

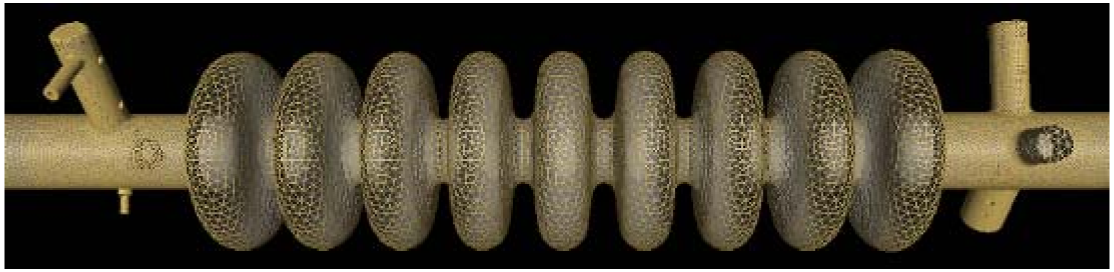
- Collimators: spoiler-absorber pairs
- In Final Doublet & IP phase
- Spoilers can survive direct hit of two bunches
- Can collimate 0.1% of the beam
- Muons are produced during collimation
- Muon walls reduce muon background in the detectors





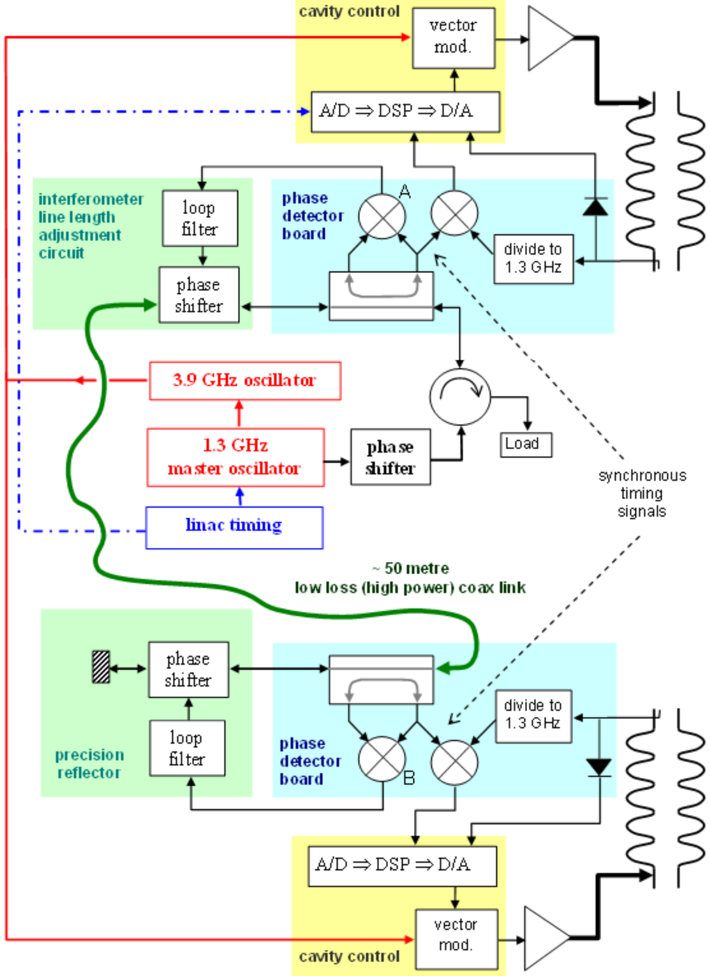


Crab cavity design



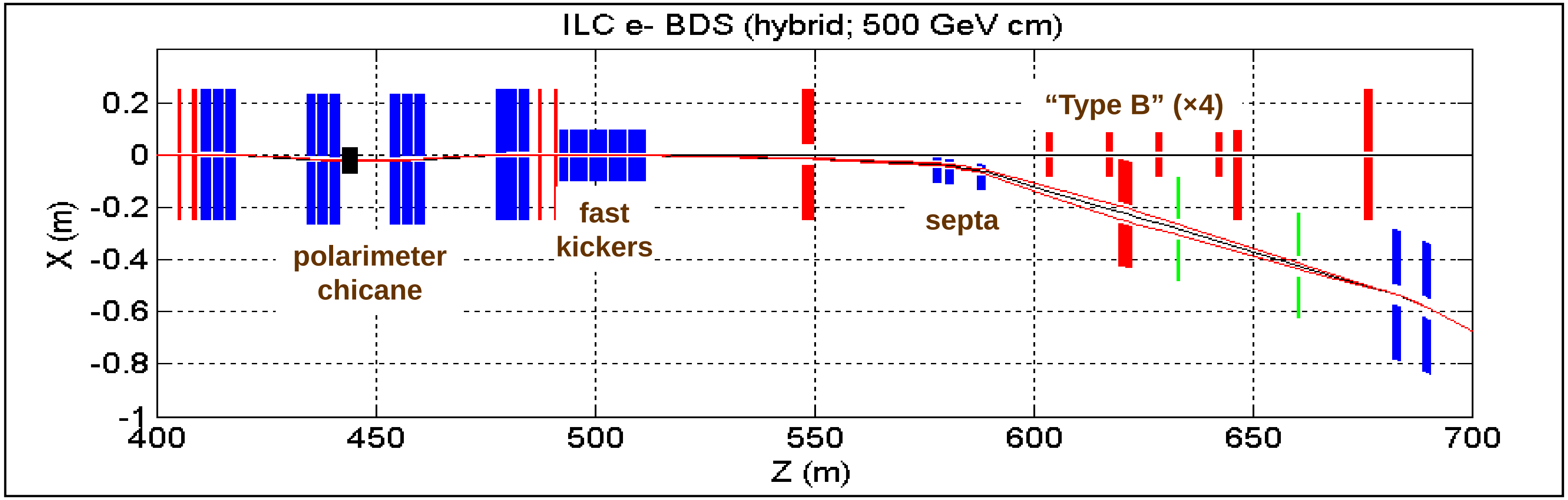
FNAL 3.9GHz 9-cell cavity in Opega3p. *K.Ko, et al*

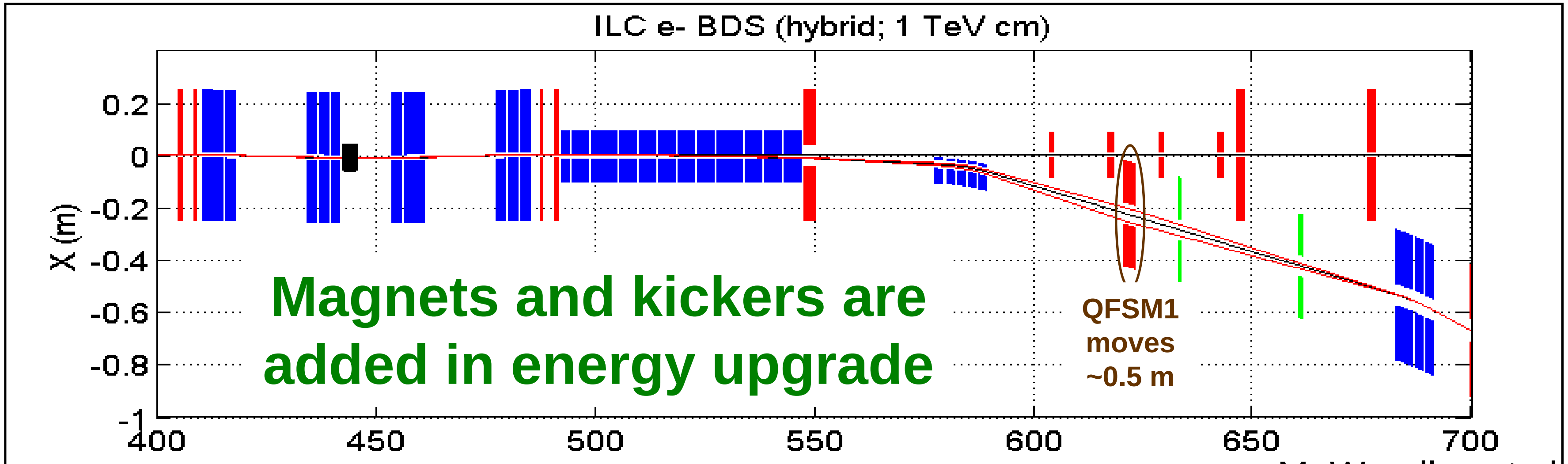
3.9GHz cavity achieved 7.5 MV/m (FNAL)



- Based on FNAL design of 3.9GHz CKM deflecting cavity
- Initial design been optimized now to match ILC requirements on damping of parasitic modes, and to improve manufacturability
- Design & prototypes been done by UK-FNAL-SLAC collaboration

500GeV => 1TeV CM upgrade
example for BSY

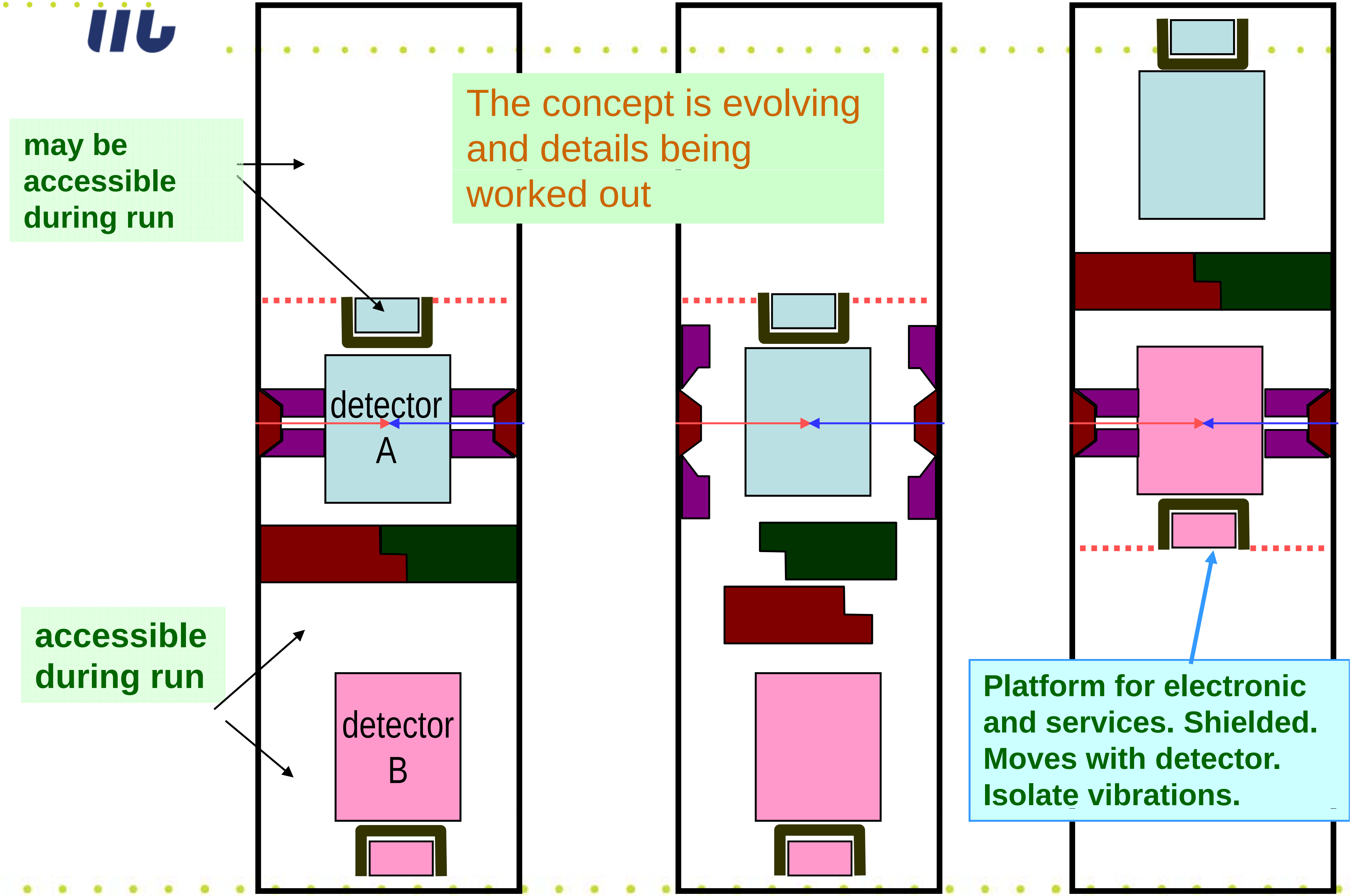




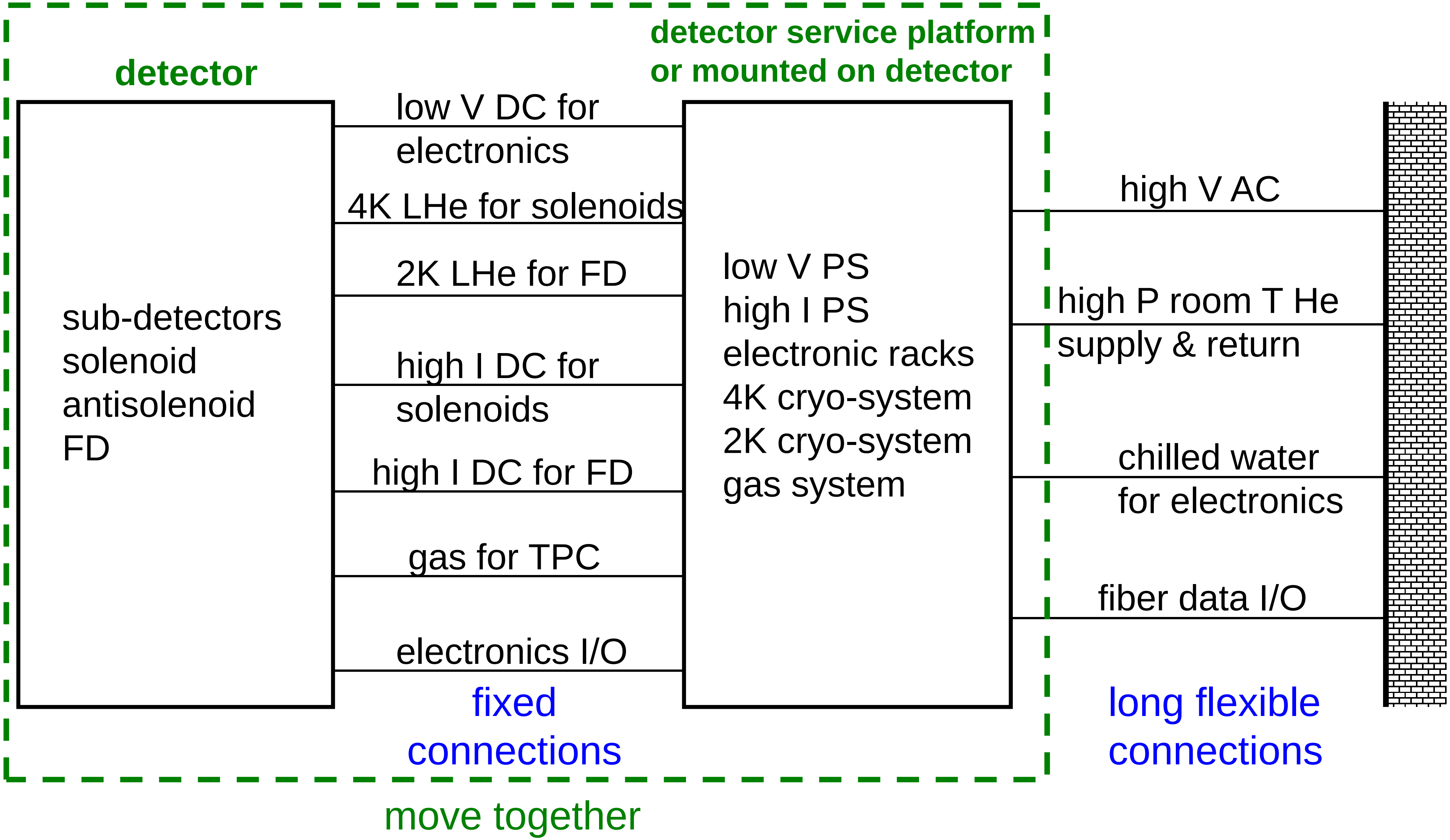
M. Woodley et al

Concept of single IR with two detectors

The concept is evolving and details being worked out

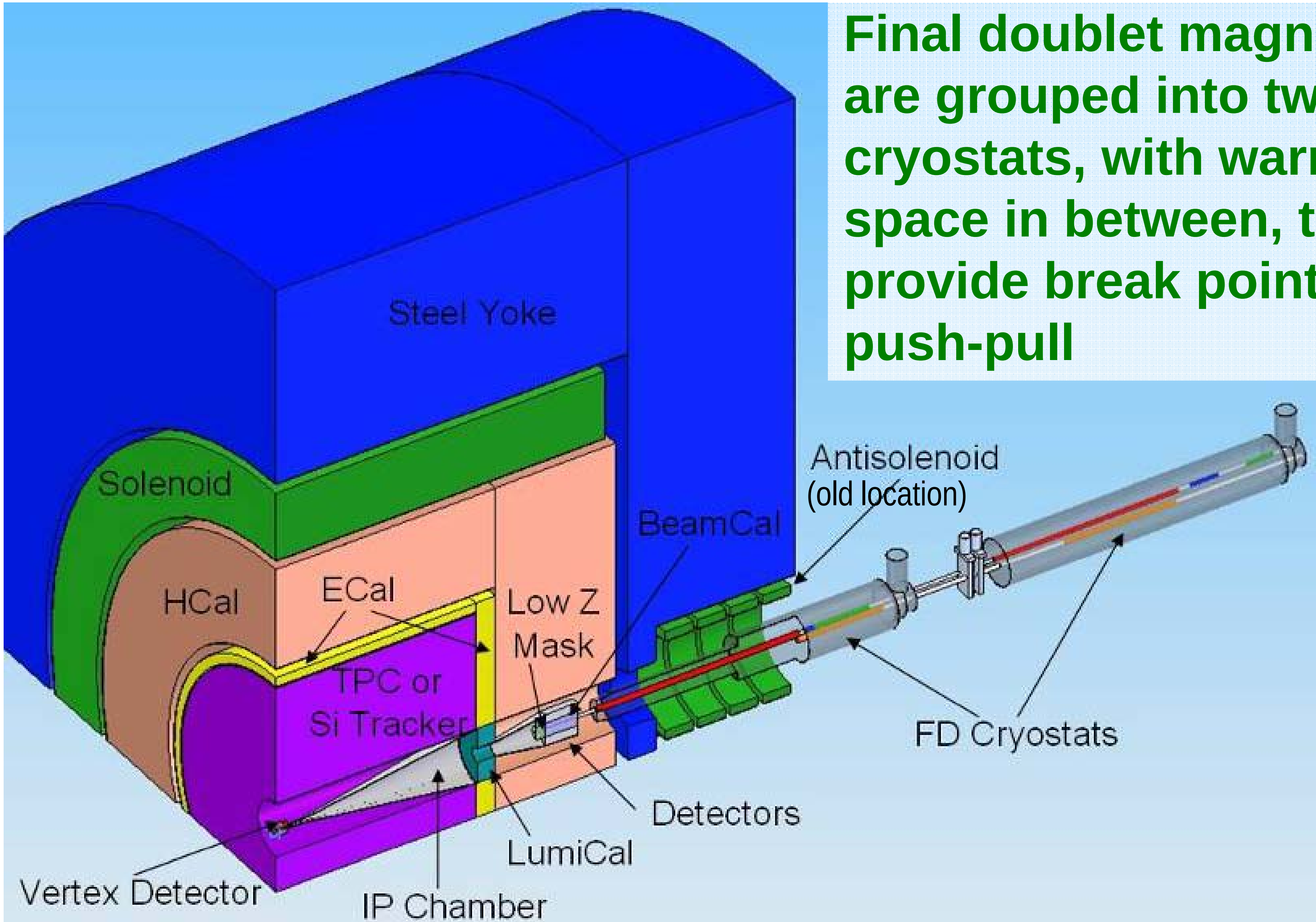


Concept of detector systems connections

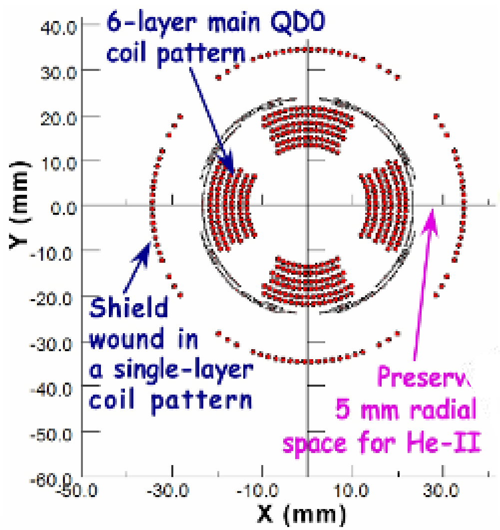


IR integration

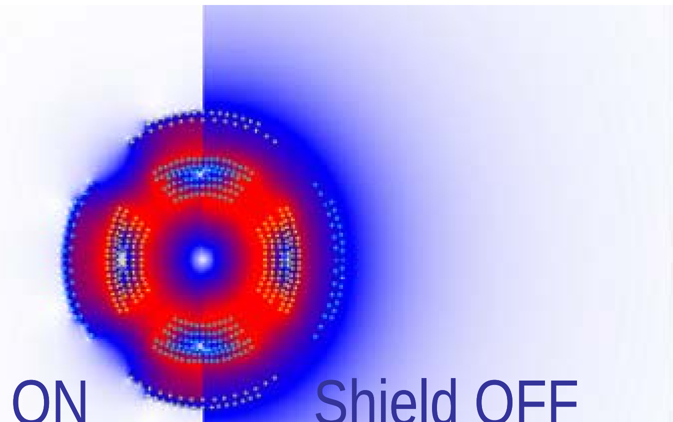
Final doublet magnets are grouped into two cryostats, with warm space in between, to provide break point for push-pull

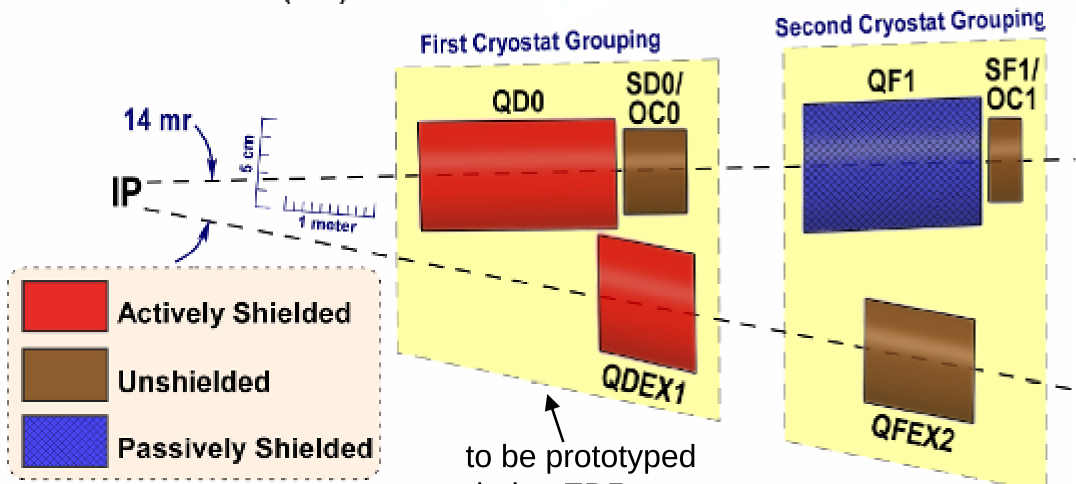


Actively shielded QD0

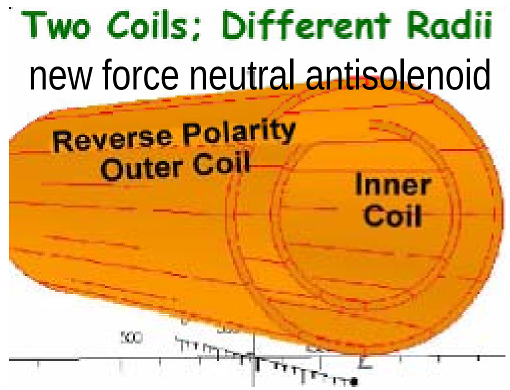


BNL



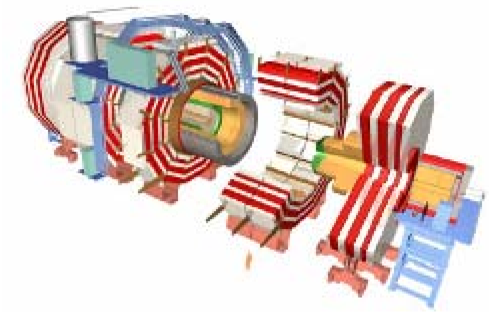


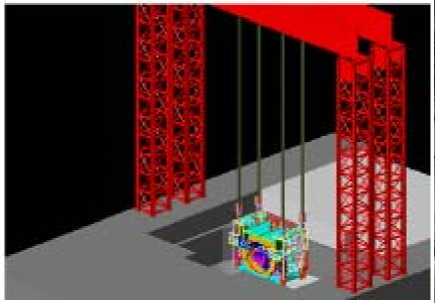
to be prototyped during EDR



- **Interaction region uses compact self-shielding SC magnets**
- **Independent adjustment of in- & out-going beamlines**
- **Force-neutral anti-solenoid for local coupling correction**

Detector assembly

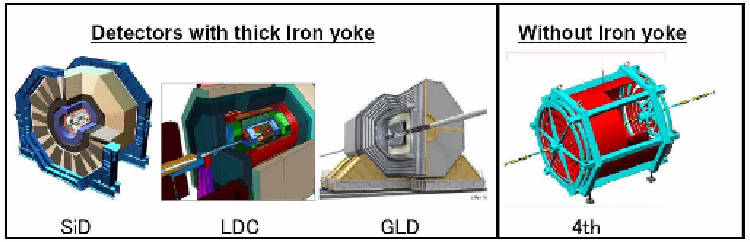




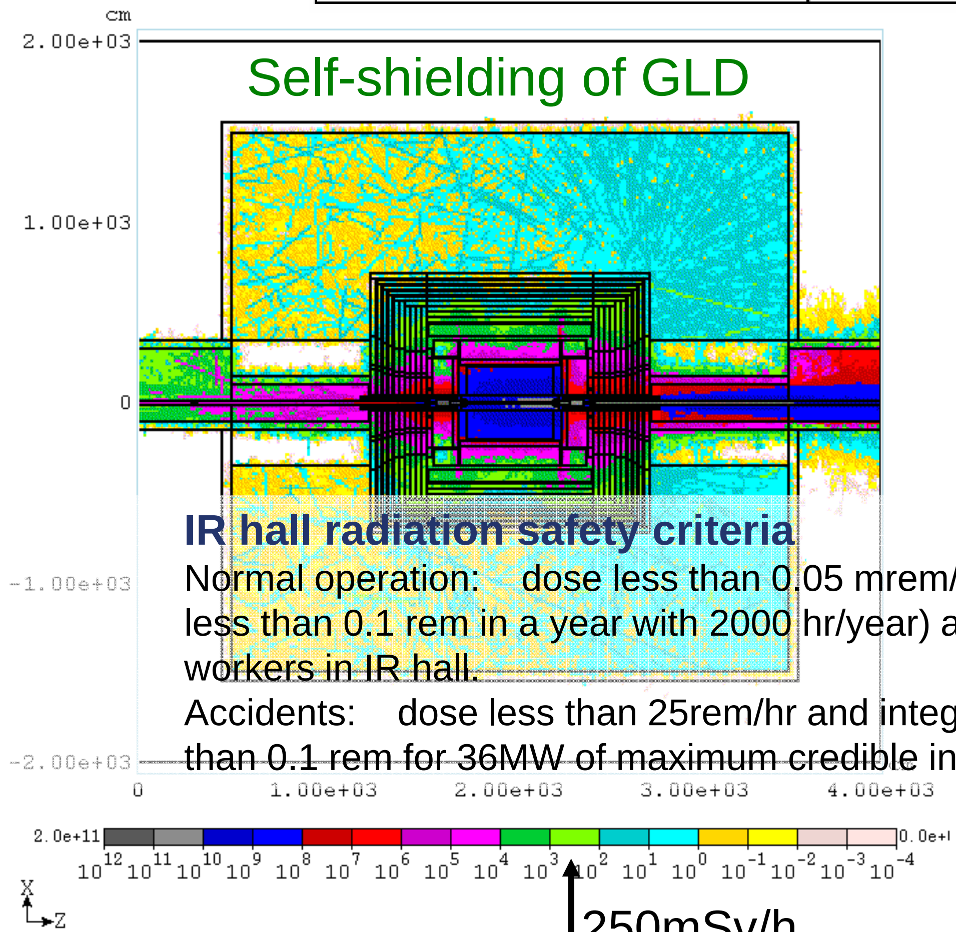
- CMS detector assembled on surface in parallel with underground work, lowered down with rented crane
- Adopted this method for ILC, to save 2-2.5 years that allows to fit into 7 years of construction

photos courtesy CERN colleagues

Shielding the IR hall



Self-shielding of GLD



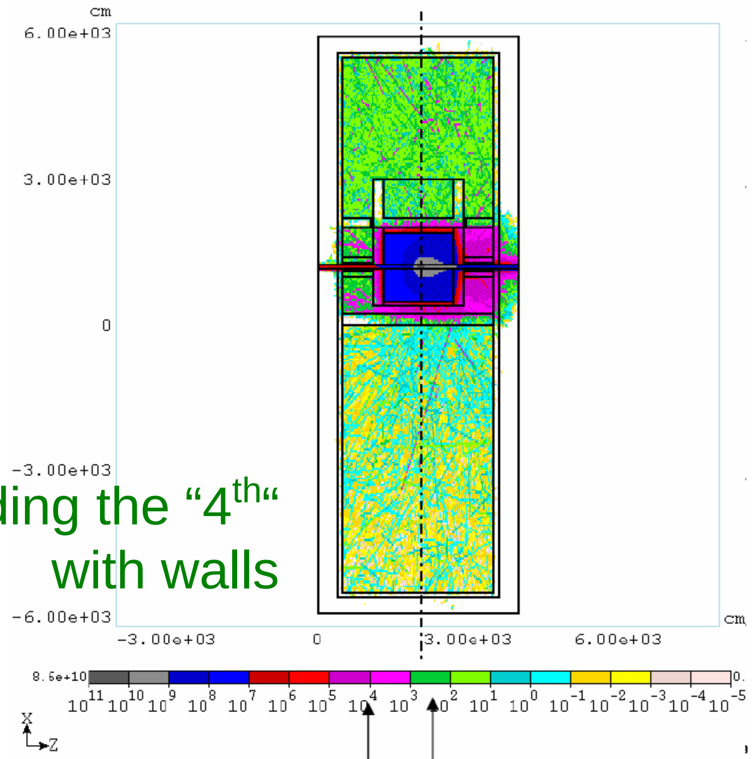
250mSv/h

IR hall radiation safety criteria

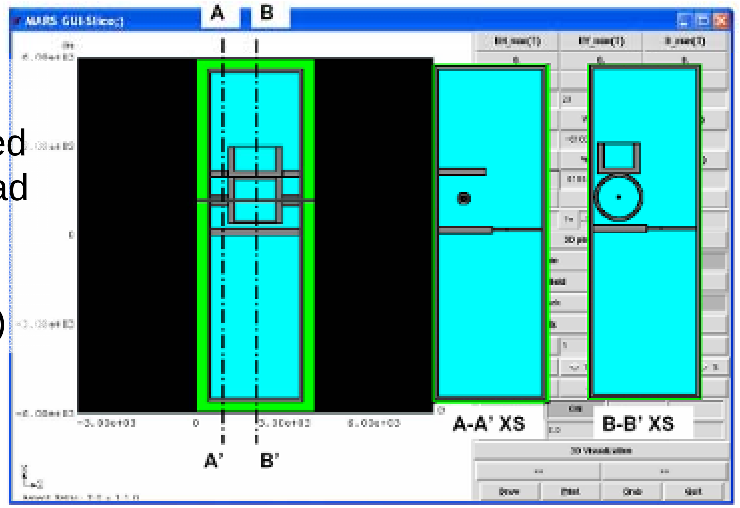
Normal operation: dose less than 0.05 mrem/hr (integrated less than 0.1 rem in a year with 2000 hr/year) allows non-rad workers in IR hall.

Accidents: dose less than 25rem/hr and integrated less than 0.1 rem for 36MW of maximum credible incident (MCI)

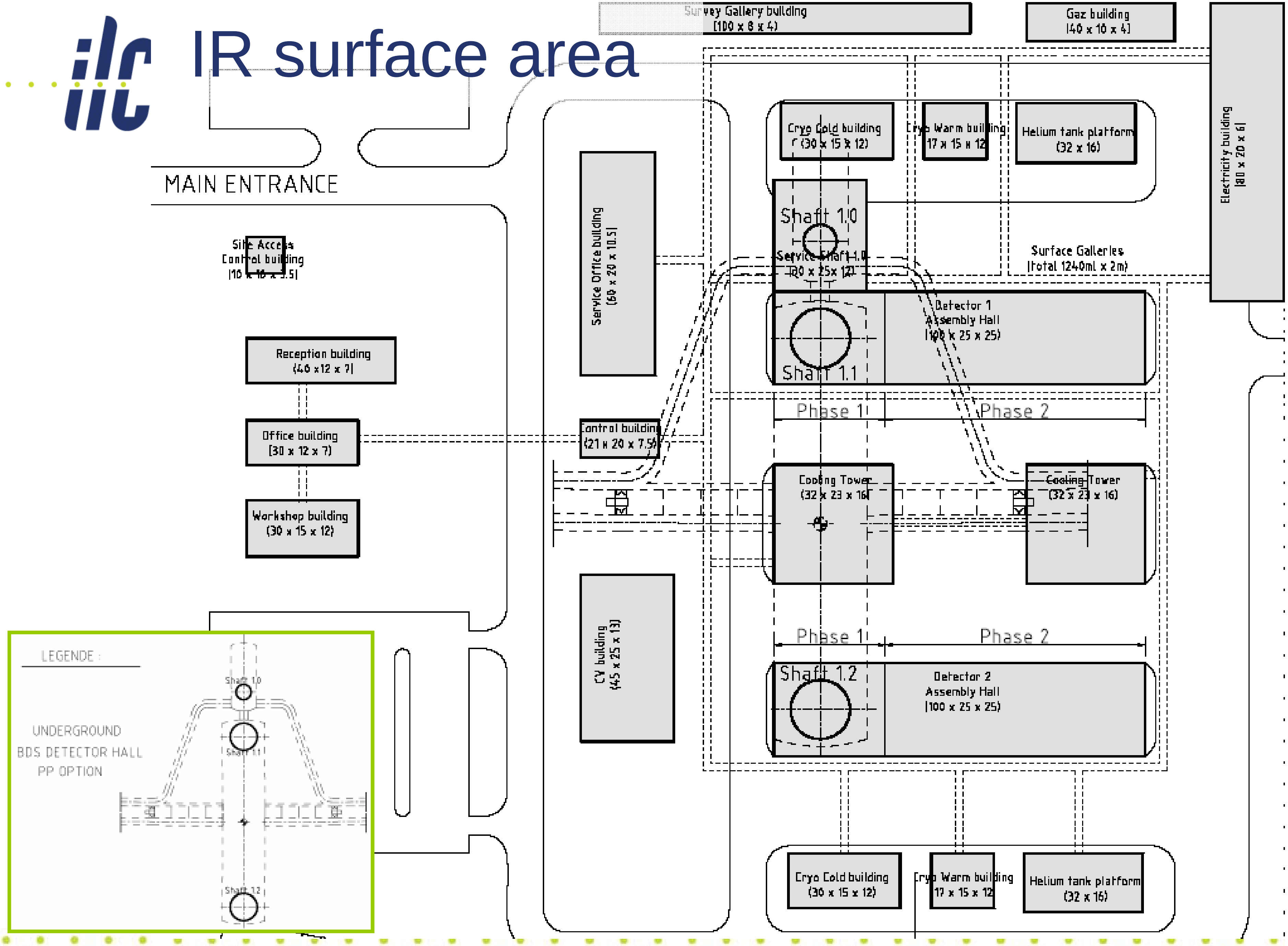
Shielding the "4th" with walls



25rem/h@18MW



IR surface area



Included in IR hall and surface buildings:

- IR halls:
  - **finished civil engineering works, plus**
  - **movable concrete intermediate shielding wall in two parts (on air pads)**
  - **steel platforms with staircases and all fittings**
  - **two 1.6t elevators between steel platforms plus two 2.8t in shafts,**
  - **steel plates on the floor of the Hall**
  - **one 400t and two 20t overhead cranes in Hall**
  - **etc…**
- Included in surface assembly building:
  - **400t and 20t overhead cranes**
- Requirements for detector assembly are different (table on the next slide). Since we cannot tell now which detectors will be used, assumed Configuration A
- This choice can suite some detectors better than other (one size does not fit all) and is the reason for concerns
- Further adjustments of IR hall and surface building are needed, and detector colleagues should be more deeply involved in this design and also cost optimization => and is ongoing now (IRENG07…)

Table of IR assumptions (RDR)

Item	SiD	LDC	GLD	4-th Concept	CMS	Vancouver WBS (for each hall)	For Valencia Config.A (for single common hall)	Config.B (for single common hall)	Determined by
Parameters that define the underground hall volume									
IR Hall Area(m) (W x L)	28x48 (18x48)	30x45	25x55	30x50	26.5x53 max	32x72	25x110	25x110	Detector concepts
Beam height above IR hall floor (m)	7.5	8	8.6	7.5	8.79m	8.6	8.6	8.6	Concepts, BDS
IR Hall Crane Maximum Hook Height Needed(m)	5m above top of detector	19	20.5	20	18m	30	20.5	20.5	Detector concepts
Largest Item to Lift in IR Hall (weight and dimensions)	100t PACMAN shielding	55t, 3m x 3m x 1,5m, E/HCAL end cap quadrant	Pieces of yoke 400t	Coil with cryostat -100t** Hadron Calorimeter-	20t instal tool 7x4m		400t	100t	Detector concepts
IR Hall Crane	100t/10t aux.	80t (2x40t)	400t	100t	20t	20t x 2	400t +2*20t	100t +2*20t	Detector concepts
IR Hall Crane Clearance Above Hook to the roof (m)	TBD by engineering staff	6	TBD	TBD by engineering staff	5 m	5	14.5 (includes arch)	12.5 (includes arch)	CF&S group
Resulted total size of the collider hall (W x L x H)	28x48x30 (18x48x30)	30x45x25	25x55x35	30x50x30	53x26x25	32x72x35	25x110x35	25x110x33	Concepts & CF&S group
Parameters that define dimensions of the IR hall shaft and the shaft crane									
Largest Item; Heaviest item to Lower Through IR Shaft (weight and dimensions)	Coil package 600t – size End-dors 2000t each/halfs	Central Part ~2000t; 12-14m x 7m;	270t coil 9*9m Iron-15m	Detector chassy-ϕ14.5x12.2mx17 ~40t Muon spectrometer coil-ϕ10x10m	1950t		9*9m 400t	4*16m 2000t	Detector concepts
IR Shaft Size(m)	9 may work	ϕ18,4 (16x9)	20 Surface 16 Hybrid	ϕ15	20.4m	15	16	20	Detector concepts
IR shaft fixed surface gantry crane. If rented, duration	1kt * 1.5years?	2kt * 1.5years?	2kt*1.5yr/ 400t	TBD by engineering staff	2kt * 1year	1kt * 1.5years?	None	2kt* 1.5years	Detector concepts

continued …

Surface hall crane should serve IR shaft		Yes		Yes			Yes	Yes	Detector concepts
Other shafts near IR hall for access	TBD	Yes		TBD	Yes 12m	9m in service cavern, one per two halls	No	No	Detector concepts & BDS area
Elevator and stares in collider hall shaft	Cost decision	?		Yes	no	No	Yes	Yes	Detector concepts & BDS area
Parameters that define dimensions of the surface assembly building and its crane									
Surface Assembly Building Area(m) (W x L)	TBD	30 x 60	TBD	30x50	23.5 x 93 inner, 23.5 x 140 outer	25 x 100	25x200	25x200	Detector concepts
Largest Item To Lift in SurfAsm. Bldg. (weight and dimensions)	100t	70t *;7,5x7 inner vac tank 60t one coil module 55t; 3m x 3m x 1,5m E/HCAL end cap quadrant		Detector chassy- ϕ14.5x12.2mx17 ~40t Muon spectrometer coil-ϕ10x10m	120t 13x7 inner vac tank 60t one coil module		400t	100t	Detector concepts
Surface Assembly Crane	100t/10t aux. (TBD)	2x80t* min 2x60t	400t	100t	80t x 2	80t x 2	400t + 2*20t	100t + 2*20t	Detector concepts
SurfAsm. Crane Maximum Hook Height Needed(m)	20m TBD	19 m *		20	18.3 m	18	18	18	Detector concepts
SurfAsm. Crane Clearance Above Hook to the roof (m)	ME/Civil to determine	5 m to ceiling*		5	5.7 m to outside	5	8	6	CF&S group
Resulted volume of surface assembly building (m) (W x L x H)		30 x 60 x 24		30x50x25	23.5 x 100 x 23.5 outer	25 x 100 x 23	25 x 200 x26	25 x 200 x24	Concepts & CF&S group
Parameters that define crane access area and clearance around detector									
SurfAsm. crane accessible area (needed) / available (m) (W x L)	CG of load on 150ton trailer	56 x 28		28x45	19 x 92 m		(20x102m?) 15 x 184 m	(20x102m?) 20.5 x 192 m	Detector concepts & CFS
IR hall crane accessible area (needed) / available (m) (W x L)	TBD	28 x 41 min 25 x 35*		28x45	17 x 42		(20x102m?) 19 x 96 m	(20x102m?) 22 x 98 m	Detector concepts & CFS

… continued

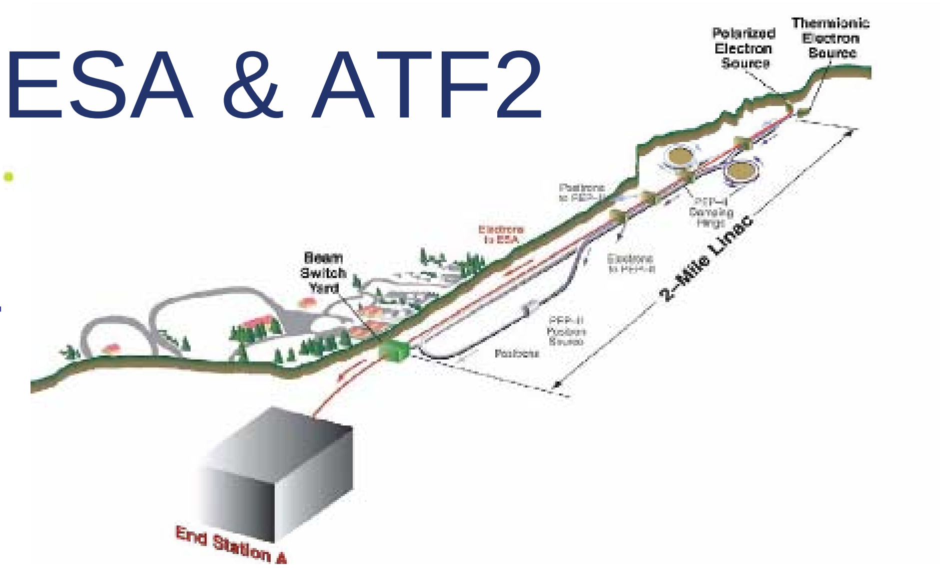
Options and alternatives in RDR

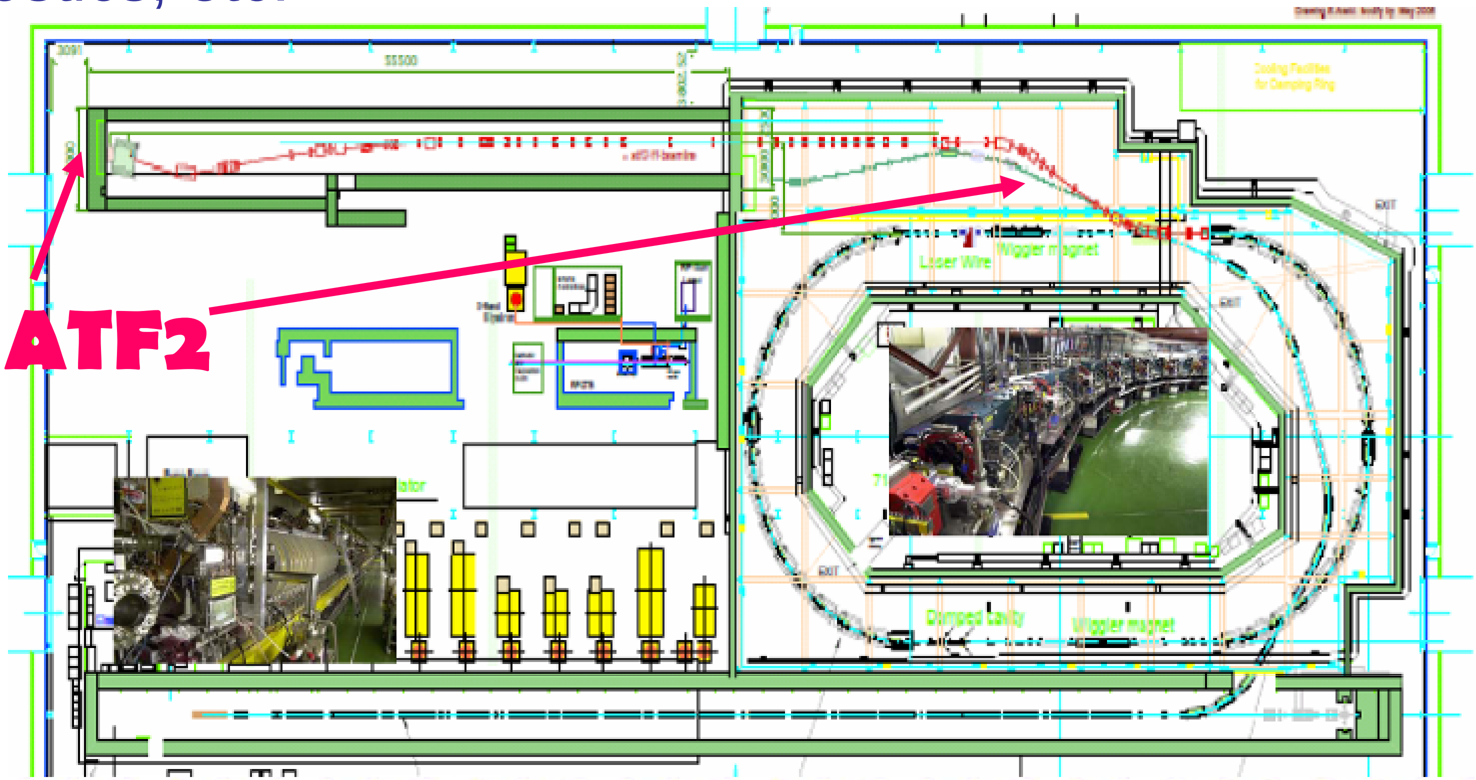
- The above describes the baseline design of the BDS. For several subsystems there are alternative designs which are being pursued, e.g.
  - design of head-on and 2mrad crossing angle configurations continues focusing on the most economical system (without downstream diagnostics, while alternative ideas of polarimetry at IP and spectrometry just after IP are being discussed)
  - Consumable instead of survivable spoilers
  - distributed muon collars instead of localized muon walls
  - normal conducting or lower frequency (1.3 or 2.6~GHz) SC crab cavity
  - additional intra-train feedback loop at the entrance to BDS
  - beam dump based on a km long pipe filled with noble gas
  - use of a Fabry-Perot cavity for the laser at the Compton IP at the polarimeter
  - use of adjustable permanent magnets for the final doublet
  - use of Compton backscattering for precise beam energy measurement
  - modification of downstream polarimetry chicane to increase spectral coverage of Compton electrons and ease use of a gamma calorimeter
  - use of bent crystals for measurements of halo or collimation
  - gamma gamma option
  - fixed target option

Test facilities: ESA & ATF2

ESA: machine-detector tests; energy spectrometer; collimator wake-fields, etc.

ATF2: prototype FF, develop tuning, diagnostics, etc.





Summary of RDR design

- Several configuration changes were implemented in RDR Beam Delivery design
- There are areas where requirements and design still need to be optimized
- Performance of several system is critical and depend on ongoing R&D
- Value engineering and detailed engineering design are to be carried out in the EDR phase

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S4 outcome: Focus of EDR work

As of April - May 2007

- Integrated design of IR, development of IR superconducting magnets, *build engineering prototype of FD magnets*, design study to ensure IR mechanical stability, design of push-pull arrangements
- development of crab cavity systems, *test phase control system with two single cell cavities, build single multi-cell cavity*
- design, *construction, commissioning and operation of ATF2 test facility*
- development of laser wires for beam diagnostics, *prototype laser wires at ATF2*
- development of intra-train feedback, *prototype at ATF2*
- development of beam dump design and *study of beam dump window survivability*
- development of collimator design, *verification of collimation wake-fields with measurements and verification of collimation beam damage*
- development and *tests of MDI type hardware such as energy spectrometers, IP feedback BPMs, beamcals, etc.*
- and the design work, which does not involve hardware development but use results of the above listed work

(*hardware in italic*)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	EDR			Approval		Construction							Commiss.
Constraints				LHC physics	total length frozen		tunnel & optics layout frozen		optics details frozen		tunnels ready for install-n		
Beam dumps	beam dump conceptual design and critical tests			pre approval		beam dump final engineering			b.dump design frozen	beam dump construction		beam dump installed	
crab cavity	design, build & test of conceptual phase control system; cavity fabrication; conceptual cryostat design; LLRF develop and test with single cells			design of cryostat; cavity integration; beam test of one cavity		beam tests of two cavities		final engineering		production		installed	
ATF2	ATF2 construction and installation. Start of commissioning		Commission ing	Beam size and optics results	Beam stability results	2nd phase, e.g. SC FD; smaller emittance & beam size		Instrumentation developments and tests at beamline					
Final Doublet	Engineering design; full length prototype; stability design study and initial stability tests			Stability tests & design optimization		final design		production		lab tests	installation and pre-commissioning		
Detectors	Conceptual design; selection of two concepts; continue design			Design optimization		final design and start of production		Construct, assemble and pre-commission on surface				Lower down & commiss.	
IR integrated	Conceptual eng. design of IR vaccum chambers; supports; pacman and moving shielding; cryogenic; service platform; detector moving system; cranes; etc.			Detailed eng. design of integrated IR with finalized choice of two detectors for final design		final design and start of production		production			installation and pre-commissioning		
Magnets	Optimization of number of styles; conceptual design of most magnets; definition of interfaces; Detailed design of low field and other special magnets; Vibration -wise design			Design and cost optimization; layouts with real space allocation, and detailed interfaces.		final design & needed prototypes		production			installation and pre-commissioning		
Collimation	Tests of collimation wakefields and beam damage tests; conceptual eng. design			Detailed eng. design; optimization & integration into beamline		final design & pre-production prototypes		production			installation and pre-commissioning		
Instrumentation	Develop laser wires; test feedback BPMs with secondary beam; conceptual eng. design			Detailed eng. design; optimization & integration into beamline		final design & pre-production prototypes		production			installation and pre-commissioning		
Vacuum systen	Physics and conceptual eng. design. Detailed design of IR vacuum chamber.			Detailed eng. design; optimization & integration of beamlines		final design		production			installation		

Overall tentative schedule

As of April - May 2007

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Beam Delivery in the ED phase…

- The Engineering Design Report will document
  - **the baseline design, including detailed engineering and justification of design criteria; …**
- The cost containment effort is critical, including performance/cost optimization, and an understanding of the performance/cost derivatives (value engineering)…
- Initial phase will be accelerator -physics (AP) driven in order to evaluate the performance / risk trade-off for cost reduction…
- The Value Engineering is the process whereby the total estimated cost of achieving an objective is compared with the lowest possible cost of achieving that objective…

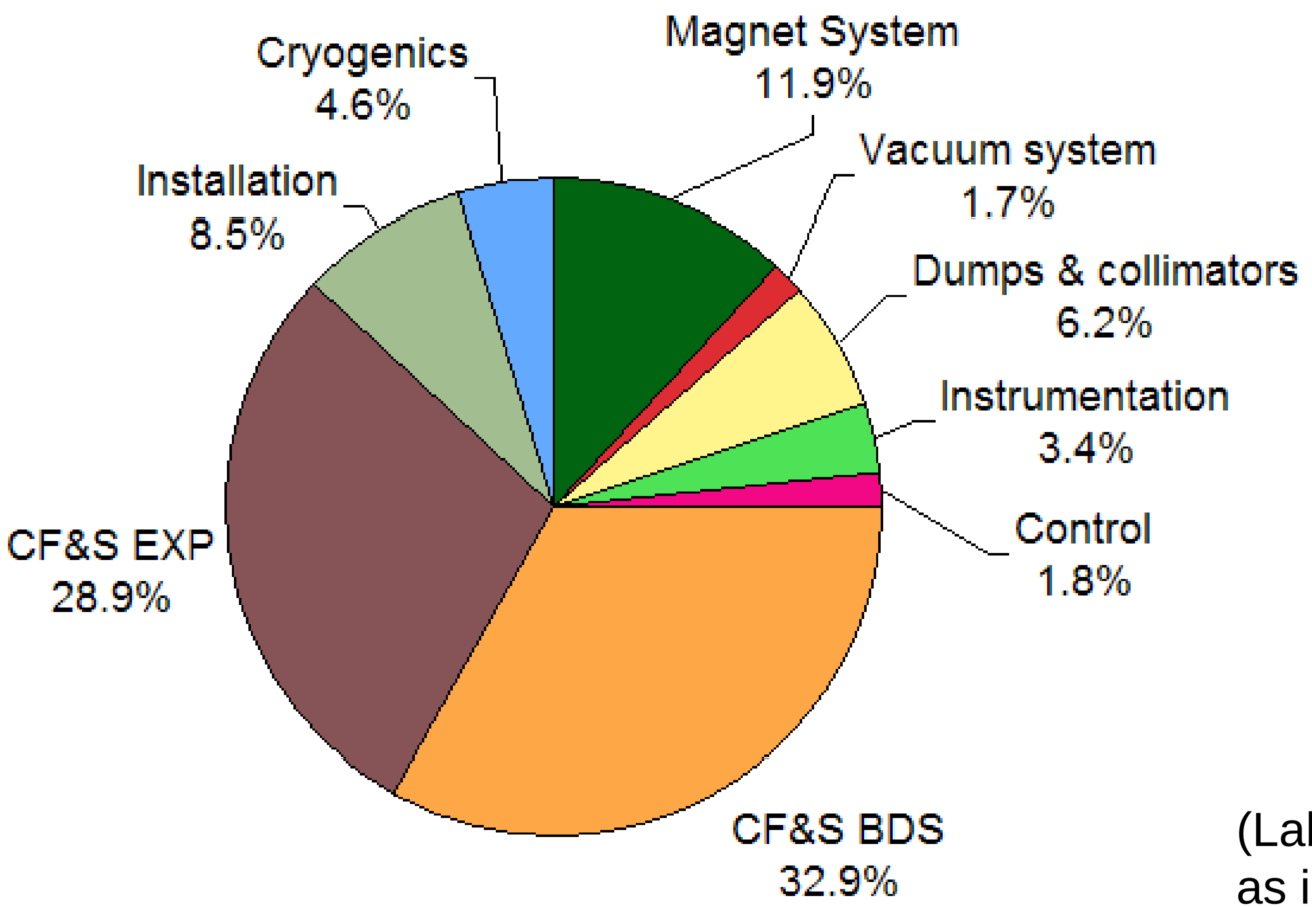
Quotes from Draft "ILC Project Management Plan for the Engineering Design (ED) Phase", by International Linear Collider Project Management Team, Marc Ross, Nicholas Walker, Akira Yamamoto (Project Managers)

ED phase… examples of goals

- Goals for CFS:
  - **iteration of <u>CFS requirements with accelerator designers</u> / engineers (value engineering);**
  - **Detailed <u>evaluation</u> of alternative solutions (e.g. <u>shallow site</u>);**
  - **Preparation of critical information for specific site selection / development;**
- Goals for Accelerator Systems goals
  - **<u>Define and clearly document performance-driven specifications</u> for the accelerator components and – <u>more critically – CFS</u>;**
  - **Iterate with the relevant engineering groups to <u>understand the cost/performance trade-offs</u>, with CFS as a focus;**
  - **<u>Demonstrate that the accelerator design fulfills the required performance goals</u> (in a cost-effective way), by demonstration via critical R&D or by simulation.**
  - **Maintain design-related risk register, and develop alternative fall-back (risk-mitigating) solutions.**

Quotes from Draft "ILC Project Management Plan for the Engineering Design (ED) Phase", by International Linear Collider Project Management Team, Marc Ross, Nicholas Walker, Akira Yamamoto (Project Managers)

Cost breakdown for BDS



(Labor person-hours, such as installation, was converted to dollars to produce this chart)

- Overall plan of the meeting
- Beam delivery – what is in RDR
- Brief summary of S4 recommendations
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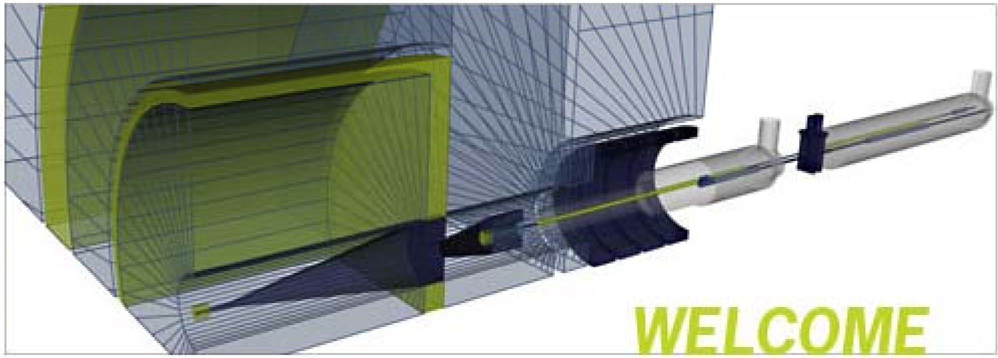
- Beam delivery structure for ED phase
- Expressions Of Interests process

IRENG07 Workshop

ILC INTERACTION REGION ENGINEERING DESIGN WORKSHOP — SLAC

- Home
- Goals
- Registration
- Payment Information
- Agenda
- Organizing Committees
- The Charge to the IPAC
- Accommodations
- Travel and Directions
- Visa Information
- Social Events
- Contact



ILC Interaction Region Engineering Design Workshop

September 17-21, 2007

Stanford Linear Accelerator Center

Menlo Park, California

Please join us to review and advance the design of the subsystem of the Interaction Region of ILC, focusing in particular on their integration, engineering design and arrangements for push-pull operation.

RECENT NEWS

- Agenda has been updated.

REGISTRATION

Registration is necessary to participate in the workshop.

Registration fee is $30 and reception fee is $20.

→ **Register**

ACCOMMODATIONS

A block of 40 rooms is reserved until July 15, 2007 at the **Stanford Guest House**. Please reserve your room early and mention that you are attending this workshop.

→ **More Information**

http://www-conf.slac.stanford.edu/ireng07/

Work in preparation for IRENG07

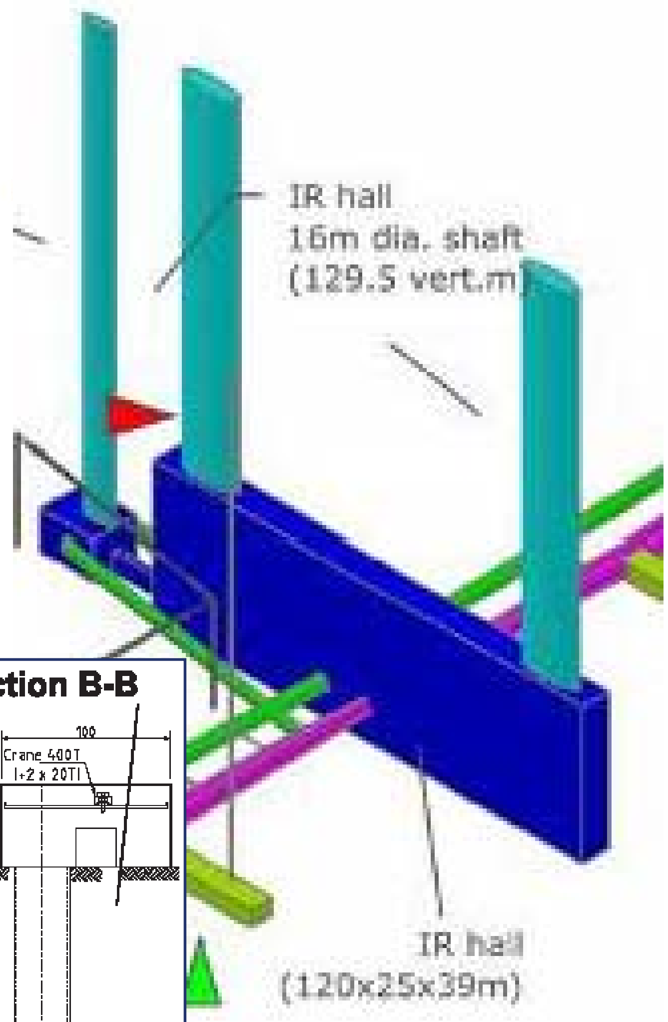
- **WG-A: Overall detector design, assembly, detector moving, shielding.**
  - Including detector design for on-surface assembly and underground assembly procedures. Beamline pacman & detector shielding…
    - Conveners: Alain Herve (CERN), Tom Markiewicz (SLAC), Tomoyuki Sanuki (Tohoku Univ.), Yasuhiro Sugimoto (KEK)
- **WG-B: IR magnets design and cryogenics system design.**
  - Including cryo system, IR magnet engineering design, support, integration with IR, masks, Lumi & Beamcals, IR vacuum chamber...
    - Conveners: Brett Parker (BNL), John Weisend (SLAC/NSF), Kiyosumi Tsuchiya (KEK)
- **WG-C: Conventional construction of IR hall and external systems.**
  - Including lifting equipment, electronics hut, cabling plant, services, shafts, caverns, movable shielding; solutions to meet alignment tolerances...
    - Conveners: Vic Kuchler (FNAL), Atsushi Enomoto (KEK), John Osborne (CERN)
- **WG-D: Accelerator and particle physics requirements.**
  - Including collimation, shielding, RF, background, vibration and stability and other accelerator & detector physics requirements…
    - Conveners: Deepa Angal-Kalinin (STFC), Nikolai Mokhov (FNAL), Mike Sullivan (SLAC), Hitoshi Yamamoto (Tohoku Univ.)

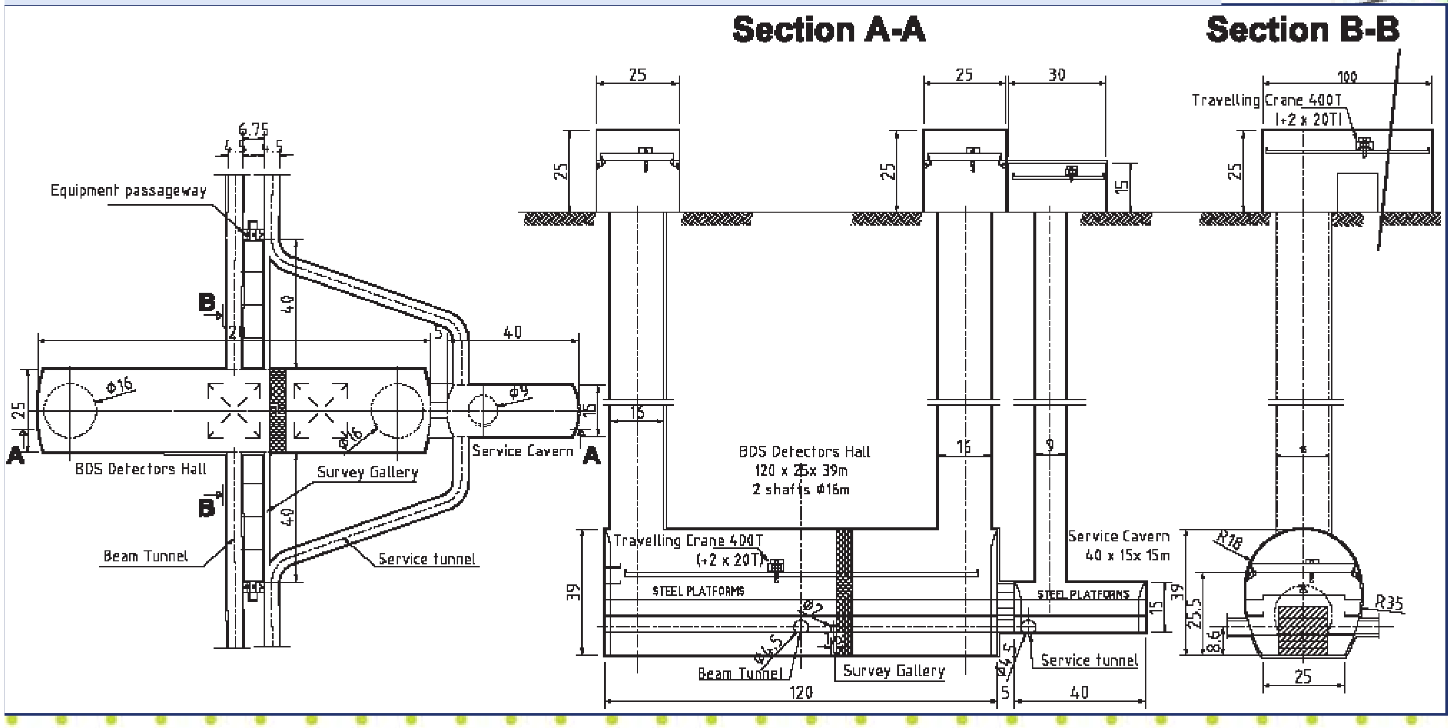
- WG-A, conveners meeting, July 5
- WG-D, conveners meeting, July 11
- WG-A, group meeting, July 12
- WG-B, conveners meeting, July 13
- WG-C, group meeting, July 17
- WG-B, group meeting, July 23
- WG-C, group meeting, July 24
- WG-A, group meeting, July 30
- WG-C, group meeting, July 31
- WG-D, group meeting, August 1
- WG-B, group meeting, August 2
- WG-A, group meeting, August 6
- WG-C, group meeting, August 7
- WG-A, group meeting, August 13
- WG-D, group meeting, August 15
- WG-B, group meeting, August 16
- WG-A, group meeting, August 20
- WG-C, group meeting, August 21
- WG-A, group meeting, August 27
- WG-C, group meeting, August 28
- Conveners and IPAC mtg, August 29
- WG-B, group meeting, August 30
- WG-B, group meeting, September 13

http://www-conf.slac.stanford.edu/ireng07/agenda.htm

IR hall in RDR

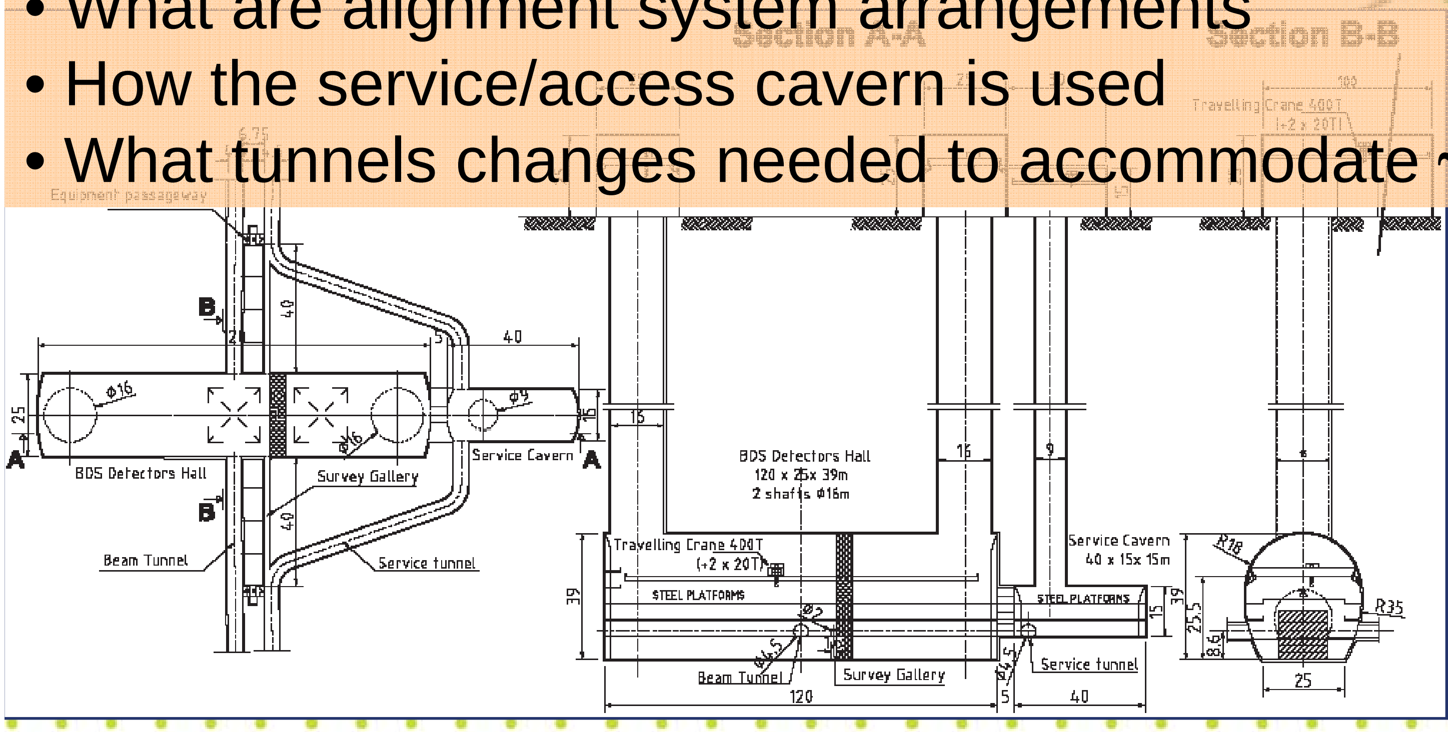
- Buildings for on-surface assembly
- Movable shielding wall to allow not-self shielded detector
- Hall size enlarged to accommodate detector support platforms and service platforms
- Cavern for services & beamline access

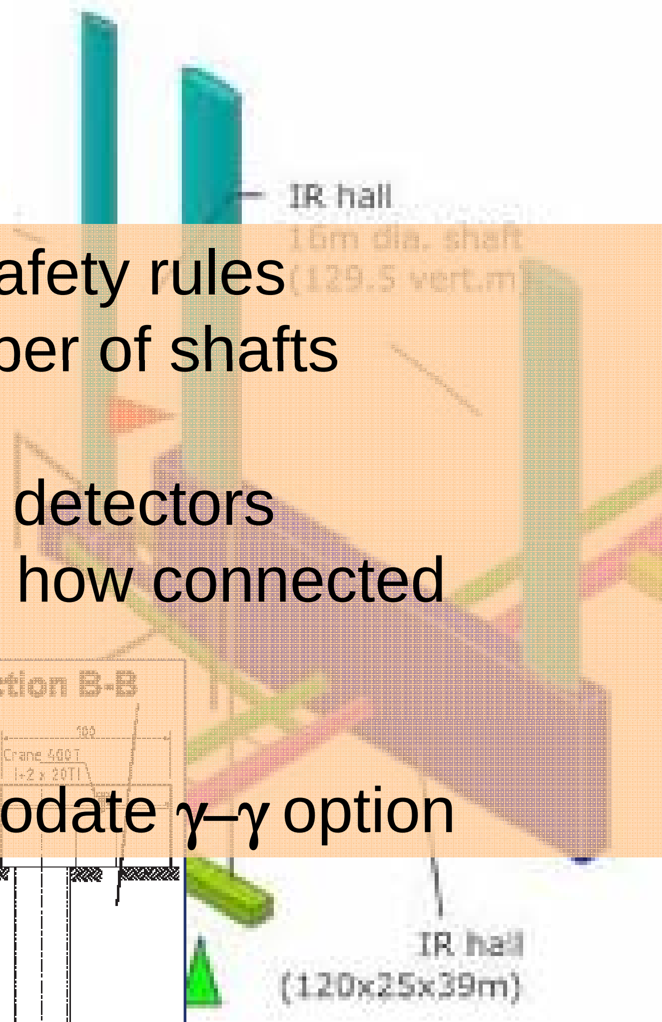




At IRENG07:

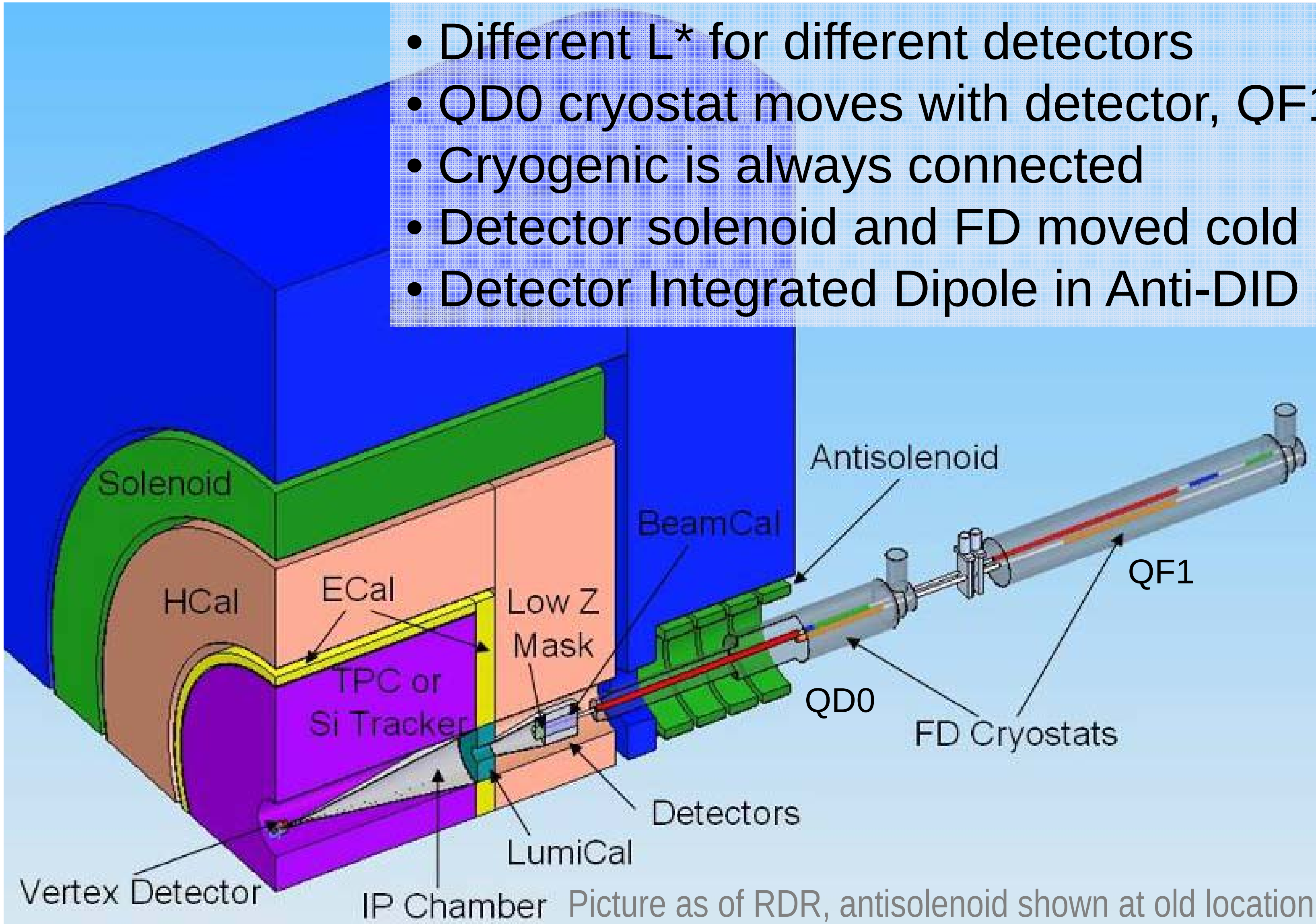
- Consider modifications of layout to meet safety rules
- Discuss optimization of sizes, layout, number of shafts
- Optimization of capacity of cranes
- What are power, water and other needs of detectors
- What are detector services, where placed, how connected
- What are alignment system arrangements
- How the service/access cavern is used
- What tunnels changes needed to accommodate γ–γ option





IR configuration in RDR

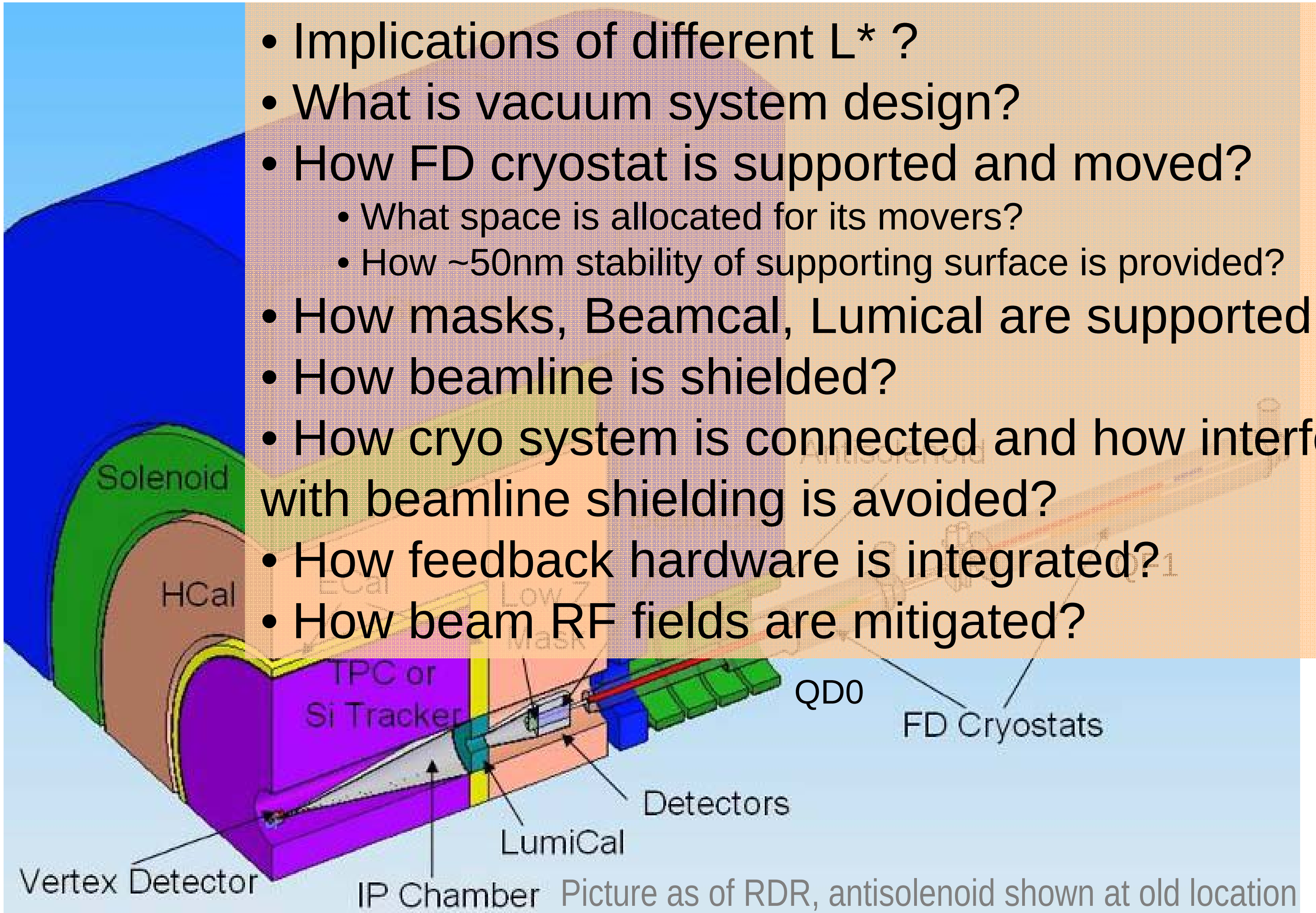
- Different L* for different detectors
- QD0 cryostat moves with detector, QF1 fixed
- Cryogenic is always connected
- Detector solenoid and FD moved cold
- Detector Integrated Dipole in Anti-DID mode



Picture as of RDR, antisolenoid shown at old location

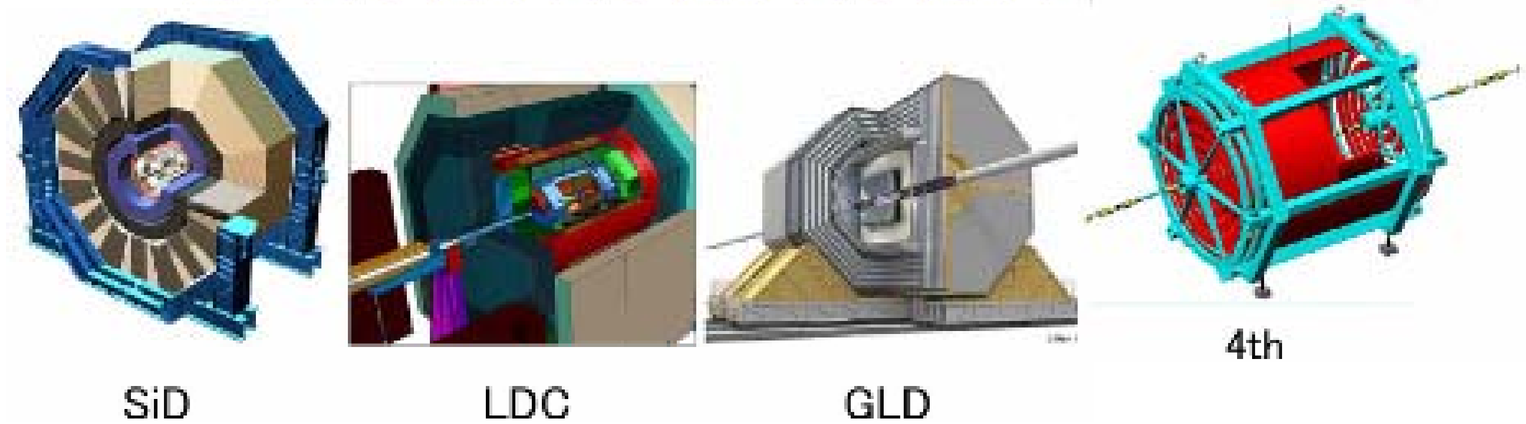
IR configuration, at IRENG07:

- Implications of different L* ?
- What is vacuum system design?
- How FD cryostat is supported and moved?
  - What space is allocated for its movers?
  - How ~50nm stability of supporting surface is provided?
- How masks, Beamcal, Lumical are supported
- How beamline is shielded?
- How cryo system is connected and how interference with beamline shielding is avoided?
- How feedback hardware is integrated?
- How beam RF fields are mitigated?



Picture as of RDR, antisolenoid shown at old location

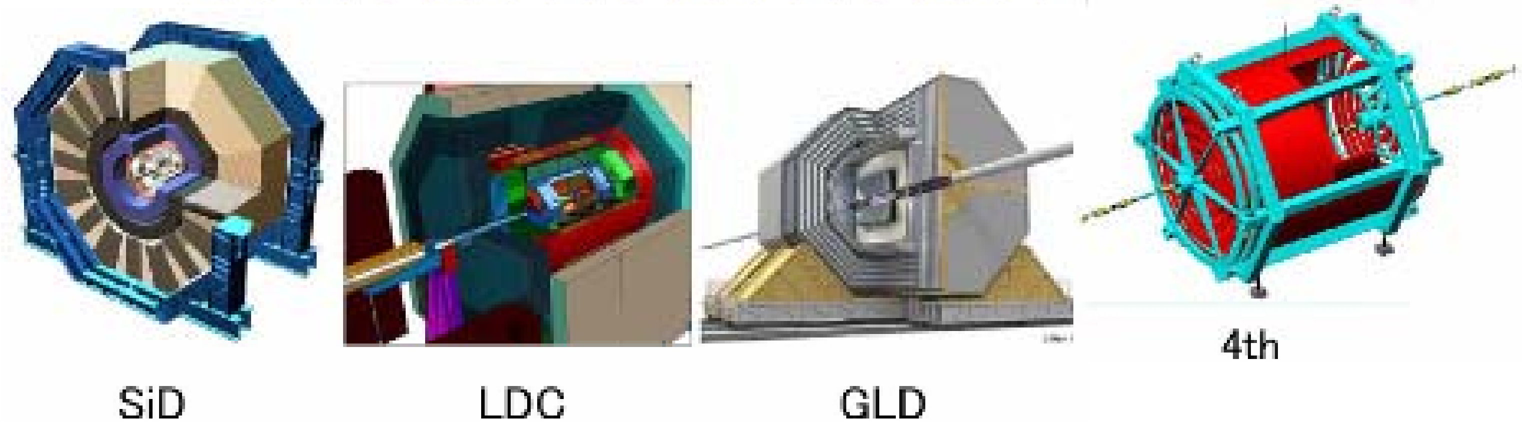
Detector design ?s at IRENG07:



- General parameters (size, weight, field in & out, acceptable L*, segmentation)
- How on surface & final underground assembly is done
  - What are space, cranes requirements, how pieces are moved
- What positioning accuracy needed after push-pull
  - What are detector alignment adjustment systems
- What are opening procedures on-beamline & in garage position
  - What are space requirements in either case and size of the platform
- What are gaps and how radiation shielding is provided
- How fire safety is provided, including these mandatory requirements
  - No flammable gases; only halogen-free cables; smoke sensors in sub-detectors

These and other questions were included in the template for detector concept introductory talks

Detector - machine interfaces



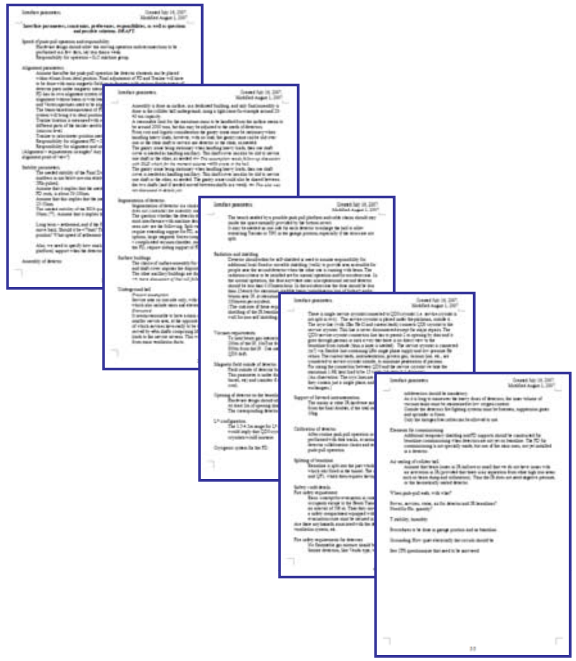
- The two complementary detectors for ILC IR may have different design, sizes, etc.
- Differences of their interfaces to the machine should be understood, and if possible, unified

Interface Document

- Speed of push-pull & responsibility
- Alignment parameters
- Stability parameters
- Assembly of detectors
- Segmentation of detector
- Surface buildings
- Underground hall
- Radiation and shielding
- Vacuum requirements
- Magnetic field outside of detector
- Opening of detector on the beamline
- L* configuration
- Cryogenic system for the FD
- Support of forward instrumentation
- Calibration of detectors
- Splitting of beamline
- Fire safety for IR hall and detectors
- Elements for commissioning
- And should include other not yet described

•The most important assumptions, agreements, design features, divisions of responsibilities, will be documented in the "Interface document"

The present draft is linked to
http://www-conf.slac.stanford.edu/ireng07/agenda.htm



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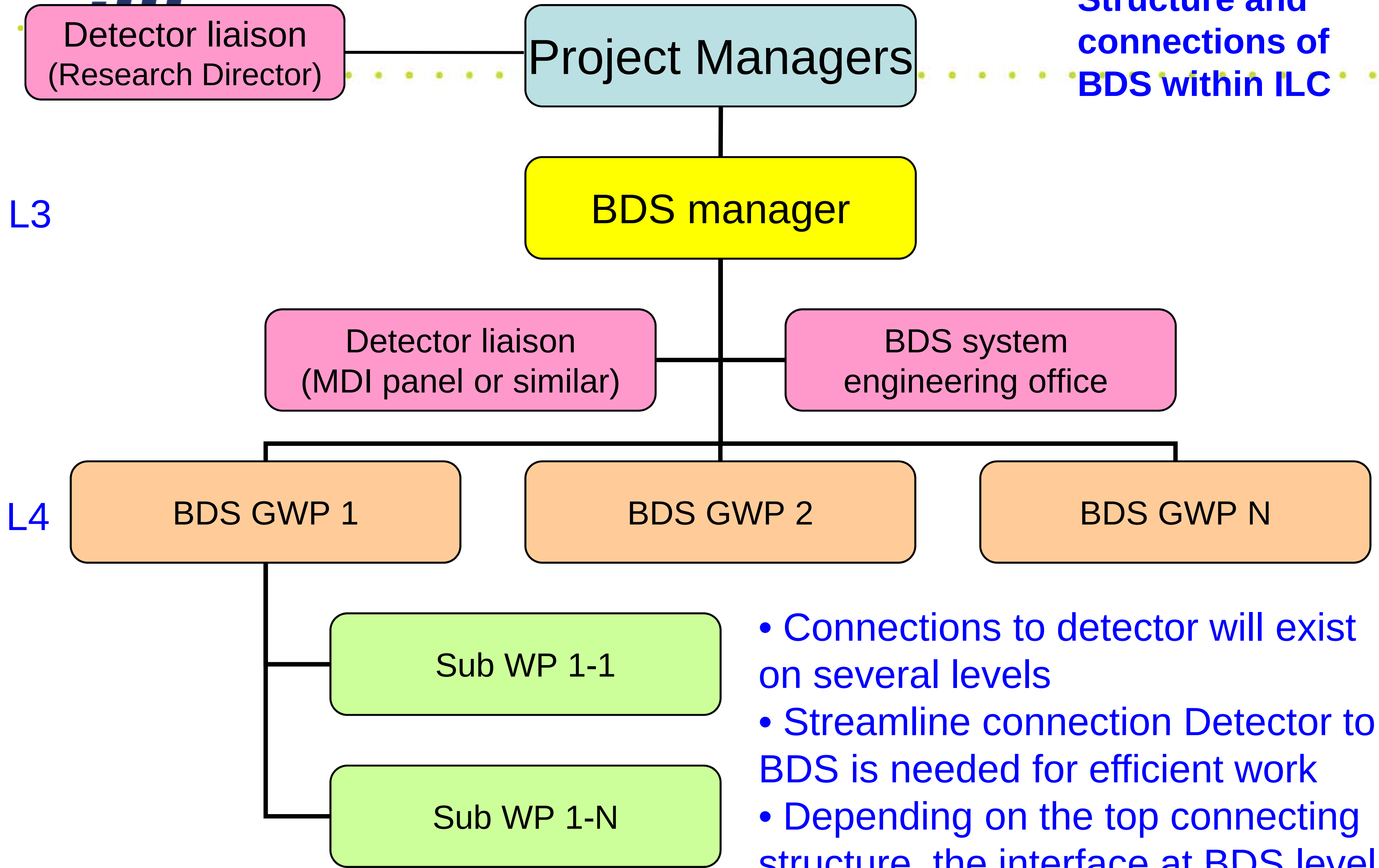
Structure and connections of BDS within ILC



- Connections to detector will exist on several levels
- Streamline connection Detector to BDS is needed for efficient work
- Depending on the top connecting structure, the interface at BDS level may need to be adjusted

Beam delivery structure for EDR

- "Generic" Work Packages (GWP) in for BDS in EDR
  - **BDS group managing**
  - **ATF2 construction, commissioning & operation**
  - **Acc. & physics requirements and design integration**
  - **Interaction Region and IR integration**
  - **Crab cavity system**
  - **BDS Beam Dump system**
  - **BDS Collimation system**
  - **BDS magnet & PS**
  - **BDS instrumentation**
  - **BDS Vacuum system**

} technical

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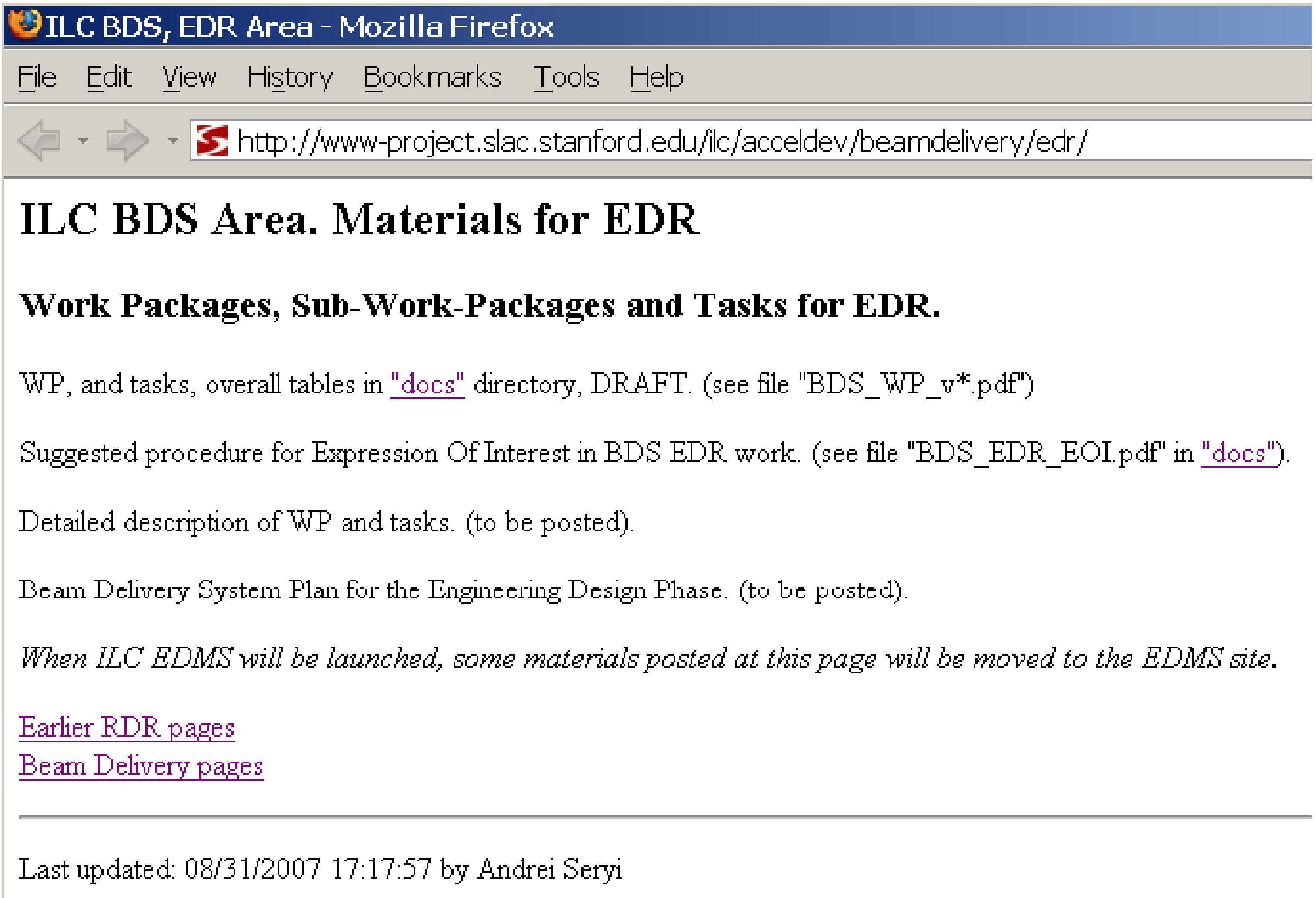
WP list and EOI solicitations


ILC BDS, EDR Area - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www-project.slac.stanford.edu/ilc/acceldev/beamdelivery/edr/

ILC BDS Area. Materials for EDR

Work Packages, Sub-Work-Packages and Tasks for EDR.

WP, and tasks, overall tables in "docs" directory, DRAFT. (see file "BDS_WP_v*.pdf")

Suggested procedure for Expression Of Interest in BDS EDR work. (see file "BDS_EDR_EOI.pdf" in "docs").

Detailed description of WP and tasks. (to be posted).

Beam Delivery System Plan for the Engineering Design Phase. (to be posted).

When ILC EDMS will be launched, some materials posted at this page will be moved to the EDMS site.

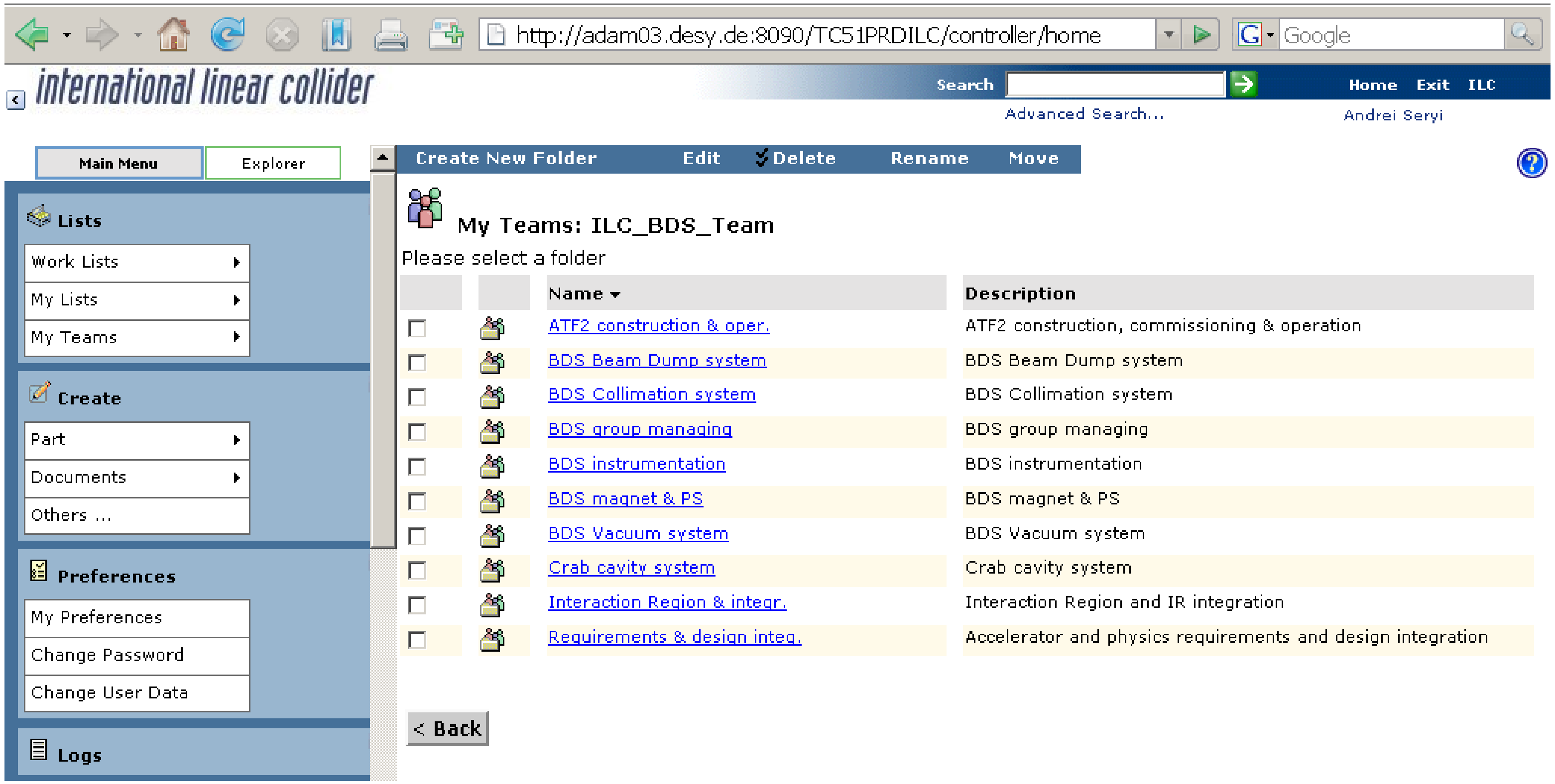
Earlier RDR pages
Beam Delivery pages

Last updated: 08/31/2007 17:17:57 by Andrei Seryi

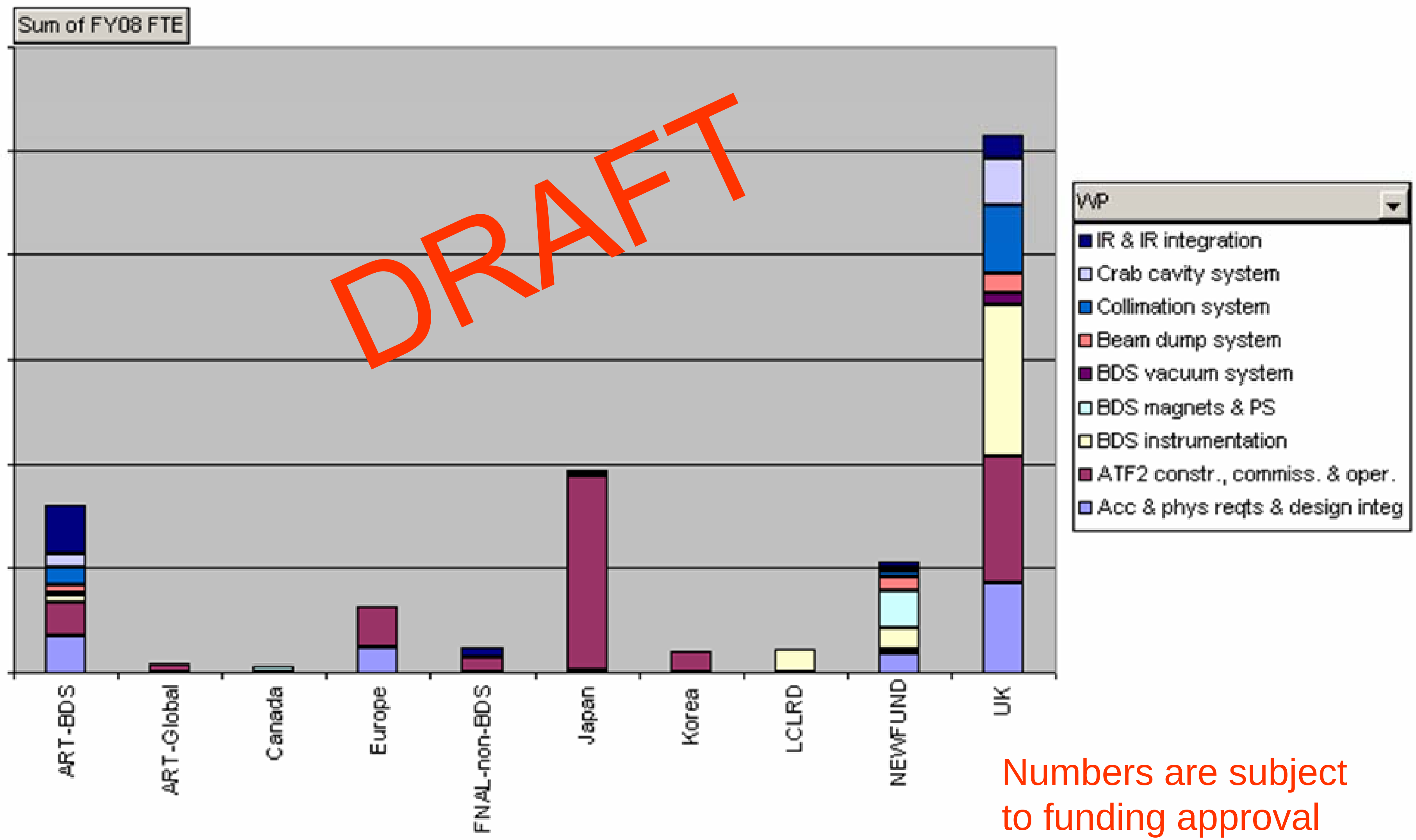
http://www-project.slac.stanford.edu/ilc/acceldev/beamdelivery/edr/

EOI received

- So far, 78 EOIs letters received. We will discuss them on Saturday
- They are posted temporarily here (to be moved to EDMS) http://www.slac.stanford.edu/~seryi/edr/

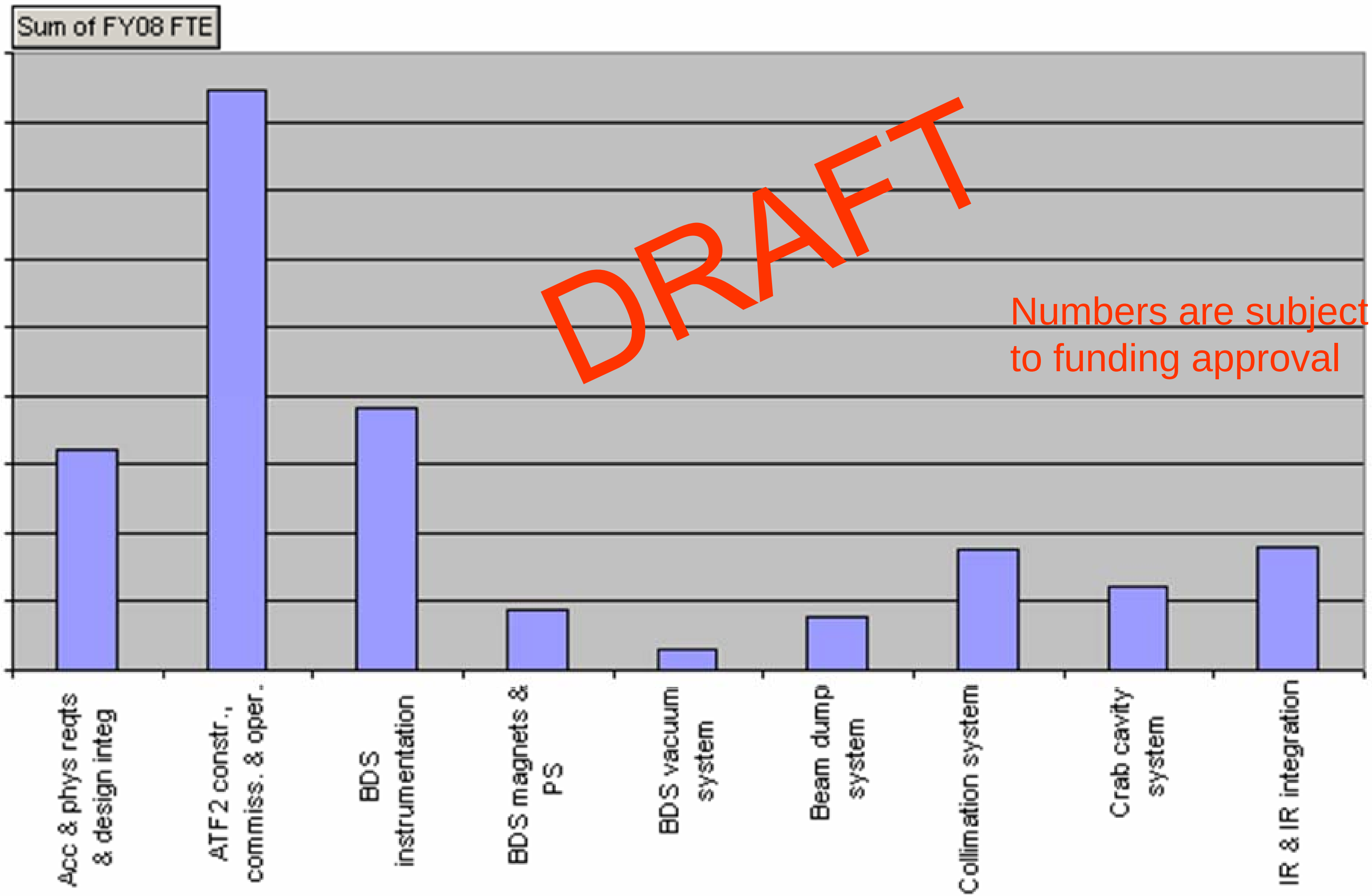


Distribution of resources on GWP



Numbers are subject to funding approval

Distribution of resources on GWP



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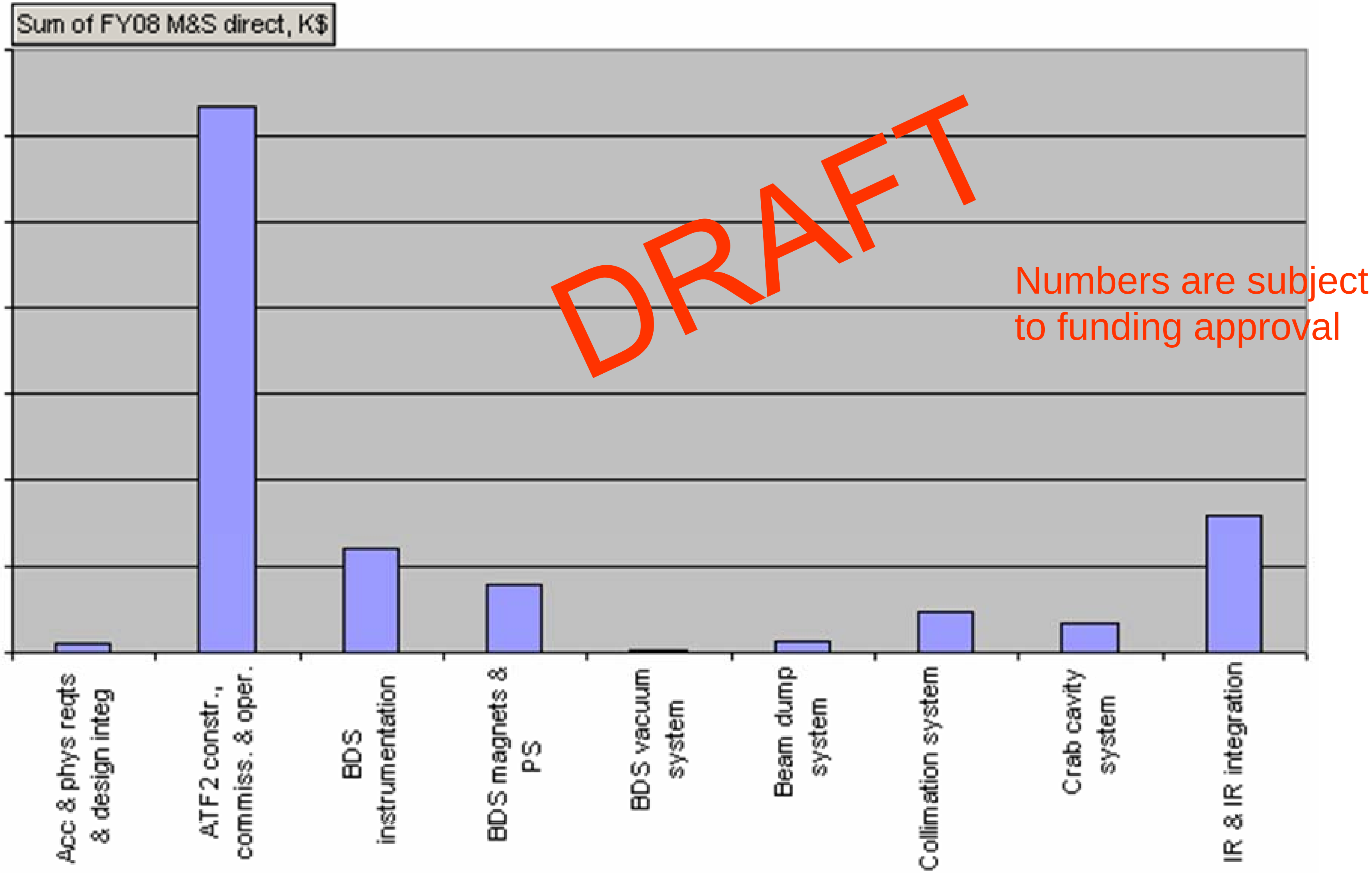

Next:

- Detailed discussion of RDR completeness