SuperB Project

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Overview

Toward TDR completion, intermediate document is ready..
Better understanding of:
- Physics with Polarization (a few slides).
- Machine parameters and flexibility .
- Detector Geometry and requirements.

Process:
- Increase the size of the collaboration with new entries (Poland).
- Mou’ s.
- Close to the startup.

Progress report before TDR

Super*B*

Progress Reports

The Physics

Accelerator

Detector

Computing

- http://mailman.fe.infn.it/superbwiki/index.php/SuperB_white_paper

B Physics @ Υ(4S)

	ab^{-1})	SuperB (75 ab^{-1})
$\sin(2\beta)$ $(J/\psi\, K^0)$	0.018	0.005 (†)
$\cos(2\beta)$ $(J/\psi\, K^{*0})$	0.30	0.05
$\sin(2\beta)$ (Dh^0)	0.10	0.02
$\cos(2\beta)$ (Dh^0)	0.20	0.04
$S(J/\psi\,\pi^0)$	0.10	0.02
$S(D^+D^-)$	0.20	0.03
$S(\phi K^0)$	0.13	0.02 (∗)
$S(\eta' K^0)$	0.05	0.01 (∗)
$S(K_S^0K_S^0K_S^0)$	0.15	0.02 (∗)
$S(K_S^0\pi^0)$	0.15	0.02 (∗)
$S(\omega K_S^0)$	0.17	0.03 (∗)
$S(f_0K_S^0)$	0.12	0.02 (∗)
γ $(B\to DK,\, D\to CP$ eigenstates)	$\sim 15°$	2.5°
γ $(B\to DK,\, D\to$ suppressed states)	$\sim 12°$	2.0°
γ $(B\to DK,\, D\to$ multibody states)	$\sim 9°$	1.5°
γ $(B\to DK$, combined)	$\sim 6°$	1–2°
α $(B\to\pi\pi)$	$\sim 16°$	3°
α $(B\to\rho\rho)$	$\sim 7°$	1–2° (∗)
α $(B\to\rho\pi)$	$\sim 12°$	2°
α (combined)	$\sim 6°$	1–2° (∗)
$2\beta+\gamma$ $(D^{(*)\pm}\pi^\mp,\, D^\pm K_S^0\pi^\mp)$	20°	5°

Observable	B Factories (2 ab^{-1})	SuperB (75 ab^{-1})
$\lvert V_{cb}\rvert$ (exclusive)	4% (∗)	1.0% (∗)
$\lvert V_{cb}\rvert$ (inclusive)	1% (∗)	0.5% (∗)
$\lvert V_{ub}\rvert$ (exclusive)	8% (∗)	3.0% (∗)
$\lvert V_{ub}\rvert$ (inclusive)	8% (∗)	2.0% (∗)
$\mathcal{B}(B\to\tau\nu)$	20%	4% (†)
$\mathcal{B}(B\to\mu\nu)$	visible	5%
$\mathcal{B}(B\to D\tau\nu)$	10%	2%
$\mathcal{B}(B\to\rho\gamma)$	15%	3% (†)
$\mathcal{B}(B\to\omega\gamma)$	30%	5%
$A_{CP}(B\to K^*\gamma)$	0.007 (†)	0.004 († ∗)
$A_{CP}(B\to\rho\gamma)$	~ 0.20	0.05
$A_{CP}(b\to s\gamma)$	0.012 (†)	0.004 (†)
$A_{CP}(b\to(s+d)\gamma)$	0.03	0.006 (†)
$S(K_S^0\pi^0\gamma)$	0.15	0.02 (∗)
$S(\rho^0\gamma)$	possible	0.10
$A_{CP}(B\to K^*\ell\ell)$	7%	1%
$A^{FB}(B\to K^*\ell\ell)s_0$	25%	9%
$A^{FB}(B\to X_s\ell\ell)s_0$	35%	5%
$\mathcal{B}(B\to K\nu\bar\nu)$	visible	20%
$\mathcal{B}(B\to\pi\nu\bar\nu)$	–	possible

Charm mixing and CP

Mode	Observable	$\Upsilon(4S)$ (75 ab^{-1})	$\psi(3770)$ (300 fb^{-1})
$D^0\to K^+\pi^-$	x'^2	3×10^{-5}	
	y'	7×10^{-4}	
$D^0\to K^+K^-$	y_{CP}	5×10^{-4}	
$D^0\to K_S^0\pi^+\pi^-$	x	4.9×10^{-4}	
	y	3.5×10^{-4}	
	$\lvert q/p\rvert$	3×10^{-2}	
	ϕ	2°	
$\psi(3770)\to D^0\overline{D}^0$	x^2		$(1-2)\times10^{-5}$
	y		$(1-2)\times10^{-3}$
	$\cos\delta$		$(0.01-0.02)$

Charm FCNC

	Sensitivity
$D^0\to e^+e^-$, $D^0\to\mu^+\mu^-$	1×10^{-8}
$D^0\to\pi^0e^+e^-$, $D^0\to\pi^0\mu^+\mu^-$	2×10^{-8}
$D^0\to\eta e^+e^-$, $D^0\to\eta\mu^+\mu^-$	3×10^{-8}
$D^0\to K_S^0e^+e^-$, $D^0\to K_S^0\mu^+\mu^-$	3×10^{-8}
$D^+\to\pi^+e^+e^-$, $D^+\to\pi^+\mu^+\mu^-$	1×10^{-8}
$D^0\to e^\pm\mu^\mp$	1×10^{-8}
$D^+\to\pi^+e^\pm\mu^\mp$	1×10^{-8}
$D^0\to\pi^0e^\pm\mu^\mp$	2×10^{-8}
$D^0\to\eta e^\pm\mu^\mp$	3×10^{-8}
$D^0\to K_S^0e^\pm\mu^\mp$	3×10^{-8}
$D^+\to\pi^-e^+e^+$, $D^+\to K^-e^+e^+$	1×10^{-8}
$D^+\to\pi^-\mu^+\mu^+$, $D^+\to K^-\mu^+\mu^+$	1×10^{-8}
$D^+\to\pi^-e^\pm\mu^\mp$, $D^+\to K^-e^\pm\mu^\mp$	1×10^{-8}

τ Physics

	Sensitivity
$\mathcal{B}(\tau\to\mu\gamma)$	2×10^{-9}
$\mathcal{B}(\tau\to e\gamma)$	2×10^{-9}
$\mathcal{B}(\tau\to\mu\mu\mu)$	2×10^{-10}
$\mathcal{B}(\tau\to eee)$	2×10^{-10}
$\mathcal{B}(\tau\to\mu\eta)$	4×10^{-10}
$\mathcal{B}(\tau\to e\eta)$	6×10^{-10}
$\mathcal{B}(\tau\to\ell K_S^0)$	2×10^{-10}

B_s Physics @ Υ(5S)

Observable	Error with 1 ab^{-1}	Error with 30 ab^{-1}
$\Delta\Gamma$	0.16 ps^{-1}	0.03 ps^{-1}
Γ	0.07 ps^{-1}	0.01 ps^{-1}
β_s from angular analysis	20°	8°
A_{SL}^s	0.006	0.004
A_{CH}	0.004	0.004
$\mathcal{B}(B_s\to\mu^+\mu^-)$	-	$< 8\times10^{-9}$
$\lvert V_{td}/V_{ts}\rvert$	0.08	0.017
$\mathcal{B}(B_s\to\gamma\gamma)$	38%	7%
β_s from $J/\psi\phi$	10°	3°
β_s from $B_s\to K^0\bar{K}^0$	24°	11°

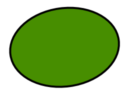
Interest of running @ threshold

500 fb-1 at $\psi(3770)$

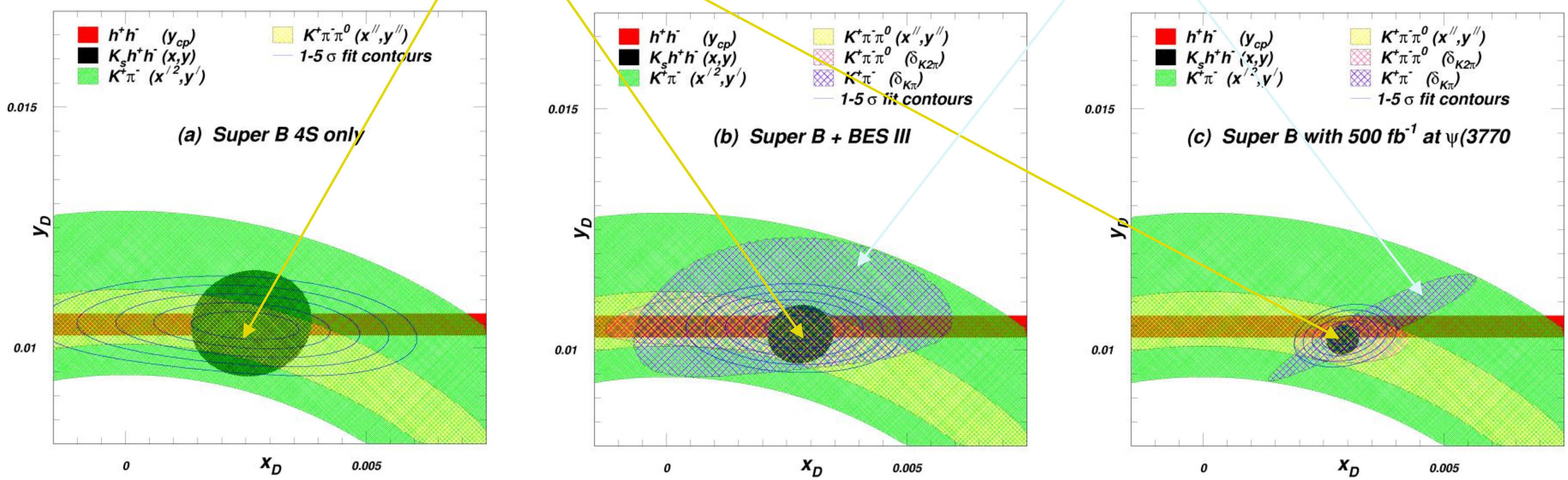
B.Meadows et al.

Decays of $\psi(3770) \rightarrow D^0D^0$ produce coherent $(C=-1)$ pairs of D^0's. Quantum correlations in their subsequent decays allow measurements of strong phases

- Required for improved measurement of CKM γ
- Also required for D^0 mixing studies

- Dalitz plot model uncertainty shrinks 

- Information on overall strong phase is added 



Fit	$x\times10^3$	$y\times10^3$	$\delta^\circ_{K+\pi-}$	$\delta^\circ_{K+\pi-\pi^0}$
(b)	$xxx^{+0.72}_{-0.75}$	$xxx\pm0.19$	$xxx^{+3.7}_{-3.4}$	$xxx^{+4.6}_{-4.5}$
Stat.	(0.18)	(0.11)	(1.3)	(2.9)

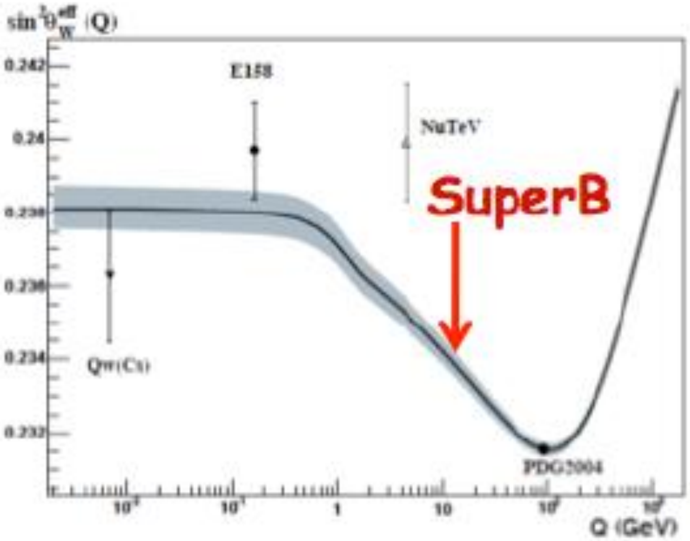
Fit	$x\times10^3$	$y\times10^3$	$\delta^\circ_{K+\pi-}$	$\delta^\circ_{K+\pi-\pi^0}$
(c)	$xxx\pm0.42$	$xxx\pm0.17$	$xxx\pm2.2$	$xxx^{+3.3}_{-3.4}$
Stat.	(0.18)	(0.11)	(1.3)	(2.7)

Fit	$x\times10^3$	$y\times10^3$	$\delta^\circ_{K+\pi-}$	$\delta^\circ_{K+\pi-\pi^0}$
(d)	$xxx\pm0.20$	$xxx\pm0.12$	$xxx\pm1.0$	$xxx\pm1.1$
Stat.	(0.17)	(0.10)	(0.9)	(1.1)

Uncertainty in x_D improves more than that of y_D

Electroweak measurement @ SuperB
POLARIZATION NEEDED

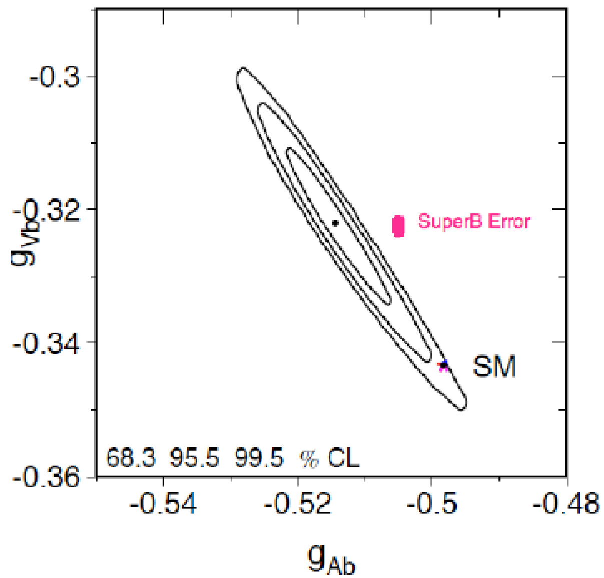
M.Roney et al.



$$A_{LR} = \frac{\sigma(P)-\sigma(-P)}{\sigma(P)+\sigma(-P)} = \frac{16}{\sqrt{2}} \left(\frac{G_F q^2}{4\pi\alpha}\right) \left(\frac{g_A^e\ g_V^b}{Q_b}\right) P$$

- Measurable for all $B^0\ \bar{B}^0$ and $B^+\ B^-$ final states, both resonant and continuum.
- **All** QCD corrections included in the **single** form factor that cancels in the asymmetry.
- Very clean measurement, no **large** theoretical corrections (in progress...)

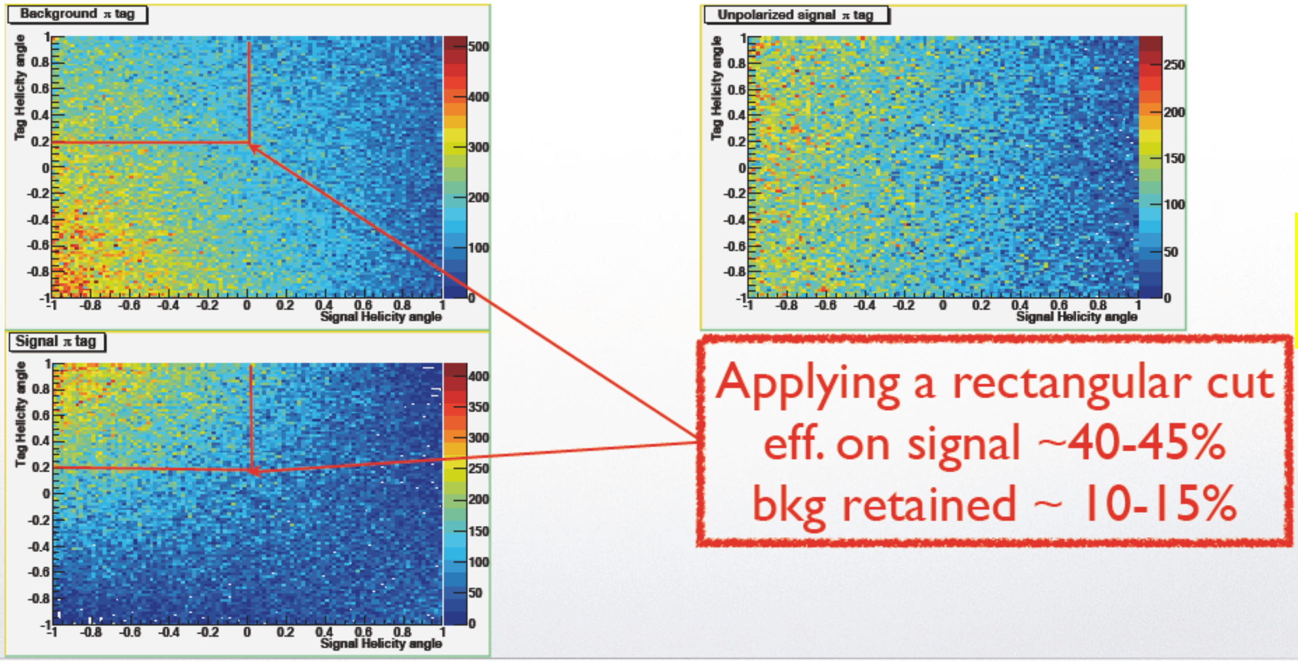
$\Rightarrow$ Excellent opportunity to measure g_V & $\sin^2\theta_W$ at SuperB with polarized beams!!



0.5% polarization syst.
0.3% stat. error
→ 0.0021

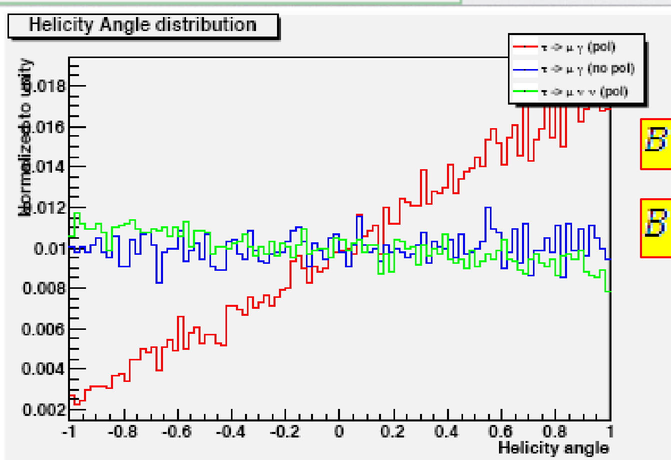
Important point :
The L-R luminosity asymmetry has to be very well controlled.
Possibly done using monitoring using Bhabhas. Thought needed

Polarized beam and tag on leptons and on hadrons ($\tau \rightarrow \pi\nu$ / $\tau \rightarrow \rho\nu$) reduces irreducible background!



75 ab^{-1}

A.Cervelli, A.Lusiani, M.A.G., B.Oberhof, E.Paoloni



$B(\tau \rightarrow \mu\gamma)\ 2 \times 10-9$

$B(\tau \rightarrow e\,\gamma)\ 2 \times 10-9$

$B(\tau \rightarrow \mu\gamma)\ 1 \times 10-9$

$B(\tau \rightarrow e\,\gamma)\ 1 \times 10-9$

Sensitivity improves at least by a factor 2.
Equivalent to a factor 4 increase in luminosity.

Merit Medals to Physics of are in the following order:

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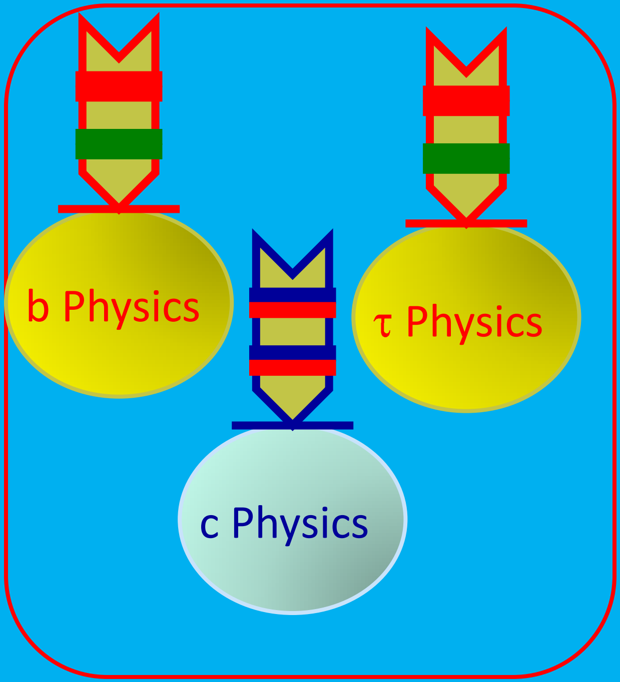


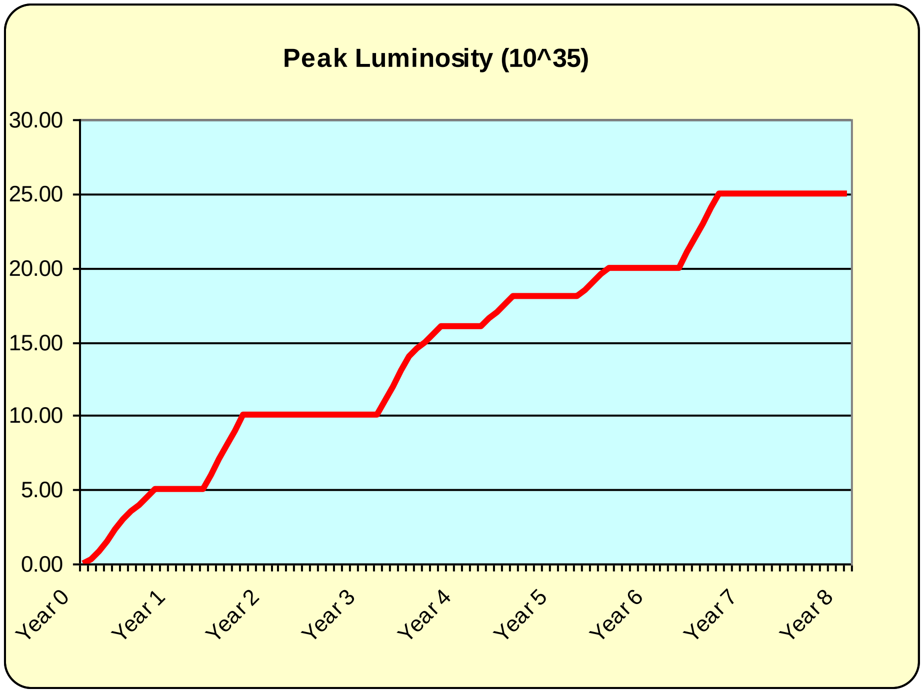
Machine: parameter requirements from physics

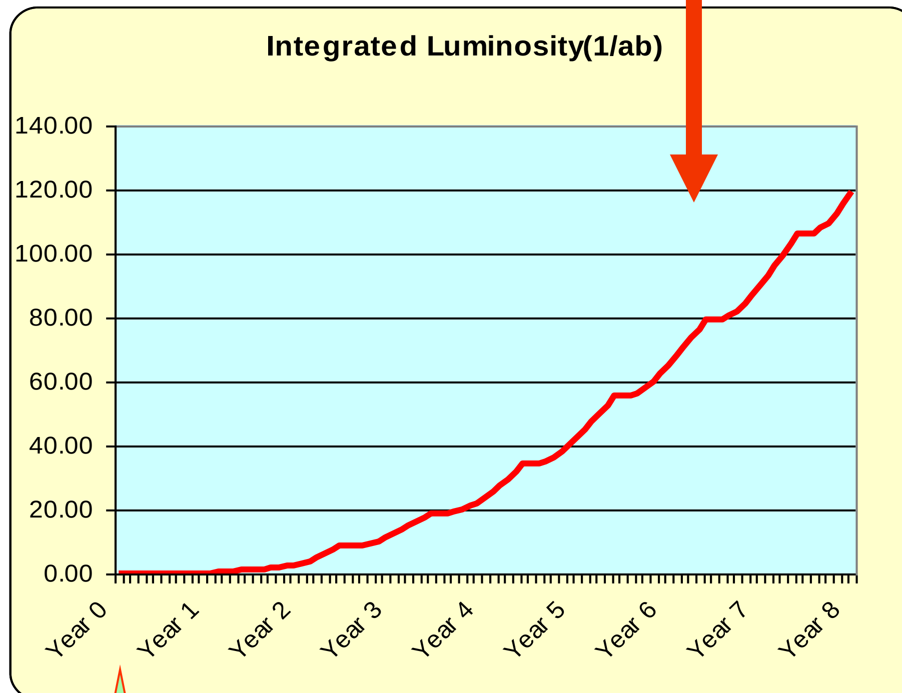
Parameter	Requirement	Comment
Luminosity (top-up mode)	$\geq 10^{36}$ cm^{-2}s^{-1} @ $\Upsilon(4S)$	It can extend up to an ultimate peak luminosity of 4 10^{36} cm^{-2}s^{-1}
Integrated luminosity	75 ab^{-1}	Based on a "New Snowmass Year" of 1.5 x 10^7 seconds (PEP-II experience-based)
CM energy range	τ threshold to $\Upsilon(5S)$	
Minimum boost	$\beta\gamma = 0.28$ (≈4x7 GeV)	1 cm beampipe radius. First measurement at 1.5 cm
e^- Polarization	60-85%	Enables τ *CP* and *T* violation studies, measurement of τ *g*-2 and improves sensitivity to lepton flavor-violating decays. Detailed simulation, needed to ascertain a more precise requirement, are in progress.

With 7th year integrated Luminosity can grow at rate of ~40 ÷ 60 ab^{-1}/year
Longitudinally polarized beam (e-) at the IP (>80%). (LER)
Ability to collide from Charm threshold. (E_{cms}≤4.0 GeV) to @Y(5s).

Luminosity expectation

>80ab-1 after 6 years





2015?

Design based on the "large Piwinski angle and crab waist sextupoles" collision scheme, tested at DAΦNE Φ-Factory with an increase in peak luminosity of a factor of 3 w.r.t. previous scheme.
bb

SuperB Accelerator Update

- Flexibility : Luminosity of 10^{36} it is not a "singularity" in the parameter space. It can be achieved with different settings of parameters, varying independently their values from nominal as:
  - Increase vertical emittance in HER and LER by x 4
  - Increase β_y^* by 40% in both rings
  - Increase vertical emittance and β_y^* by 40% in both rings
  - Increase x and y emittance by 40%
  - Decrease Vertical tune shift from 0.117 to 0.09
- Maximum currents: 3.5 A in both rings (based on RF best design), however the nominal operating is ≈ 2.1 A
- Energy asymmetry : Being the choice 4.0/7.0 not good for polarization
- Reasonable choice for accelerator design are:
  - **4.18/6.71 (best for machine optimization!)**
  - **3.85/7.27 (higher boost better for detector performance but more power expensive)**

Latest studies

- Machine layout updated (flexible lattice), including design of injection, RF and ring crossing straight section opposite to IP
- Beam-beam simulations (with codes benchmarked with DAΦNE measurements) give feasible and flexible design satisfying the physics requirements.
- An improved bunch-by bunch feedback will be tested on DAΦNE
- Design of the injection system almost completed (includes polarized e- gun, damping ring, bunch compressor, e+ source, linac).
- The Interaction Region has been updated, with compensation scheme of the solenoidal detector field.
- Detailed IR design with estimates of backgrounds in progress

Latest studies

- RF, High Order Modes at high current and vacuum system .
- Feedbacks (longitudinal, transverse) design almost completed
- Dynamic aperture studies show good properties also with the crab sextupoles, further studies in progress (E.Levichev,P.Piminov)
- Vacuum specs and requirements have been identified
- RF budget detailed and complete
- Study of electron Polarization in LER is progressing: beam-beam depolarization, trying to simplify the polarized gun, spin measurements
- Light source possibilities are being studied
- Geological and vibrations studies done Study of the LNF site and facilities in progress.
- Baseline machine ≈1258 m.long with:
  - Spin rotators in LER for polarization (electrons, ~4 GeV)
  - Positrons in HER, ~7 GeV

Parameters for 1 10^{36} Lumi (max 4 10^{36})_

		Base Line		Low Emittance		High Current		Tau/Charm (prelim.)	
Parameter	Units	HER (e+)	LER (e-)	HER (e+)	LER (e-)	HER (e+)	LER (e-)	HER (e+)	LER (e-)
LUMINOSITY	cm^{-2} s^{-1}	1.00E+36		1.00E+36		1.00E+36		1.00E+35	
Energy	GeV	6.7	4.18	6.7	4.18	6.7	4.18	2.58	1.61
Circumference	m	1258.4		1258.4		1258.4		1258.4	
X-Angle (full)	mrad	66		66		66		66	
Piwinski angle	rad	22.88	18.60	32.36	26.30	14.43	11.74	8.80	7.15
β_x @ IP	cm	2.6	3.2	2.6	3.2	5.06	6.22	6.76	8.32
β_y @ IP	cm	0.0253	0.0205	0.0179	0.0145	0.0292	0.0237	0.0658	0.0533
Coupling (full current)	%	0.25	0.25	0.25	0.25	0.5	0.5	0.25	0.25
ε_x (without IBS)	nm	1.97	1.82	1.00	0.91	1.97	1.82	1.97	1.82
ε_x (with IBS)	nm	2.00	2.46	1.00	1.23	2.00	2.46	5.20	6.4
ε_y	pm	5	6.15	2.5	3.075	10	12.3	13	16
σ_x @ IP	μm	7.211	6.872	5.090	6.274	10.060	12.370	18.749	23.076
σ_y @ IP	μm	0.036	0.036	0.021	0.021	0.054	0.054	0.092	0.092
Σ_x	μm	11.433		8.085		15.944		29.732	
Σ_y	μm	0.050		0.030		0.076		0.131	
σ_L (0 current)	mm	4.69	4.29	4.73	4.34	4.03	3.65	4.75	4.36
σ_L (full current)	mm	5	5	5	5	4.4	4.4	5	5
Beam current	mA	1892	2447	1460	1888	3094	4000	1365	1766
Buckets distance	#	2		2		1		1	
Ion gap	%	2		2		2		2	
RF frequency	Hz	4.76E+08		4.76E+08		4.76E+08		4.76E+08	
Harmonic number		1998		1998		1998		1998	
Number of bunches		978		978		1956		1956	
N. Particle/bunch		5.08E+10	6.56E+10	3.92E+10	5.06E+10	4.15E+10	5.36E+10	1.83E+10	2.37E+10
Tune shift x		0.0021	0.0033	0.0017	0.0025	0.0044	0.0067	0.0052	0.0080
Tune shift y		0.0970	0.0971	0.0891	0.0892	0.0684	0.0687	0.0909	0.0910
Long. damping time	msec	13.4	20.3	13.4	20.3	13.4	20.3	26.8	40.6
Energy Loss/turn	MeV	2.11	0.865	2.11	0.865	2.11	0.865	0.4	0.166
σ_E (full current)	dE/E	6.43E-04	7.34E-04	6.43E-04	7.34E-04	6.43E-04	7.34E-04	6.94E-04	7.34E-04
CM σ_E	dE/E	5.00E-04		5.00E-04		5.00E-04		5.26E-04	
Total lifetime	min	4.23	4.48	3.05	3.00	7.08	7.73	11.41	6.79
Total RF Power	MW	17.08		12.72		30.48		3.11	

Tau/charm threshold running at 10^{35}

Baseline + other 2 options:
- Lower y-emittance
- Higher currents (twice bunches)

Baseline:
- Higher emittance due to IBS
- Asymmetric beam currents

RF power includes SR and HOM

J.Seeman

Machine-Detector interface: Background studies

	Cross section	Evt/bunch xing	Rate
Beam Strahlung	~340 mbarn (Eγ/Ebeam > 1%)	~850	0.3THz
e^+e^- pair production	~7.3 mbarn	~18	7GHz
e^+e^- pair (seen by L0 @ 1.5 cm)	~0.07 mbarn	~0.2	70 MHz
Elastic Bhabha	O(10^{-4}) mbarn (Det. acceptance)	~250/Million	100KHz
Y(4S)	O(10^{-6}) mbarn	~2.5/Million	1 KHz
	Loss rate	**Loss/bunch pass**	**Rate**
Touschek (LER)	4.1kHz / bunch (+/- 2 m from IP)	~3/100	~5 MHz

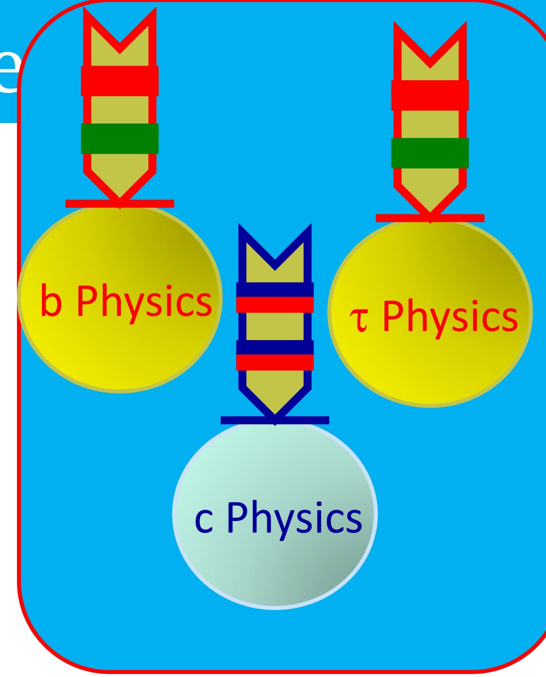
Two colliding beams :
- radiative Bhabha → *dominant effect on lifetime*
- e+e- e+e- production → *important source for SVT layer-0*

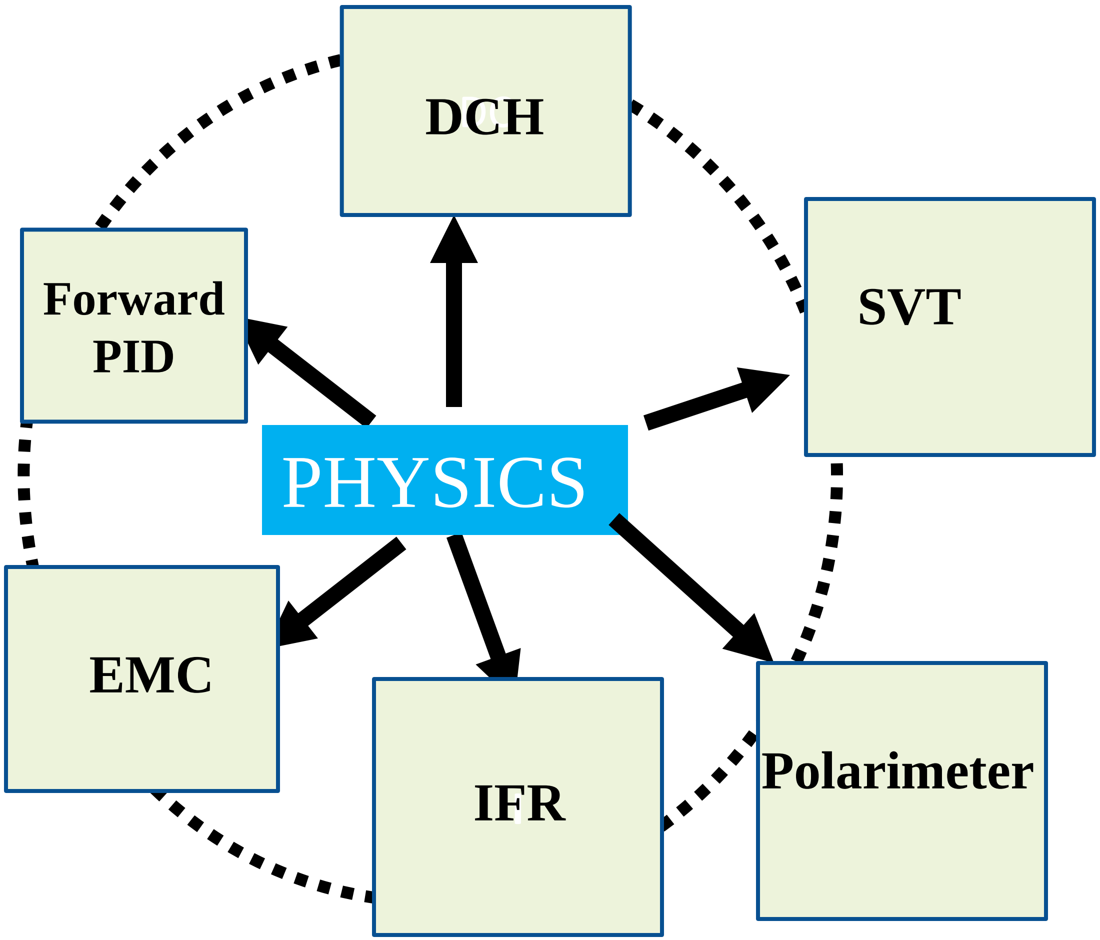
impact on beam pipe,vertex detector design and b physics

Single beam :
- synchrotron radiation → *strictly connected to IR design*
- Touschek → *negligible in BaBar, important in SuperB*
- beam-gas
- intra-beam scattering

Collimators, dynamic aperture and energy acceptance optimization solve the problem of Touschek Background in LER

Requirements to Detector and Machine



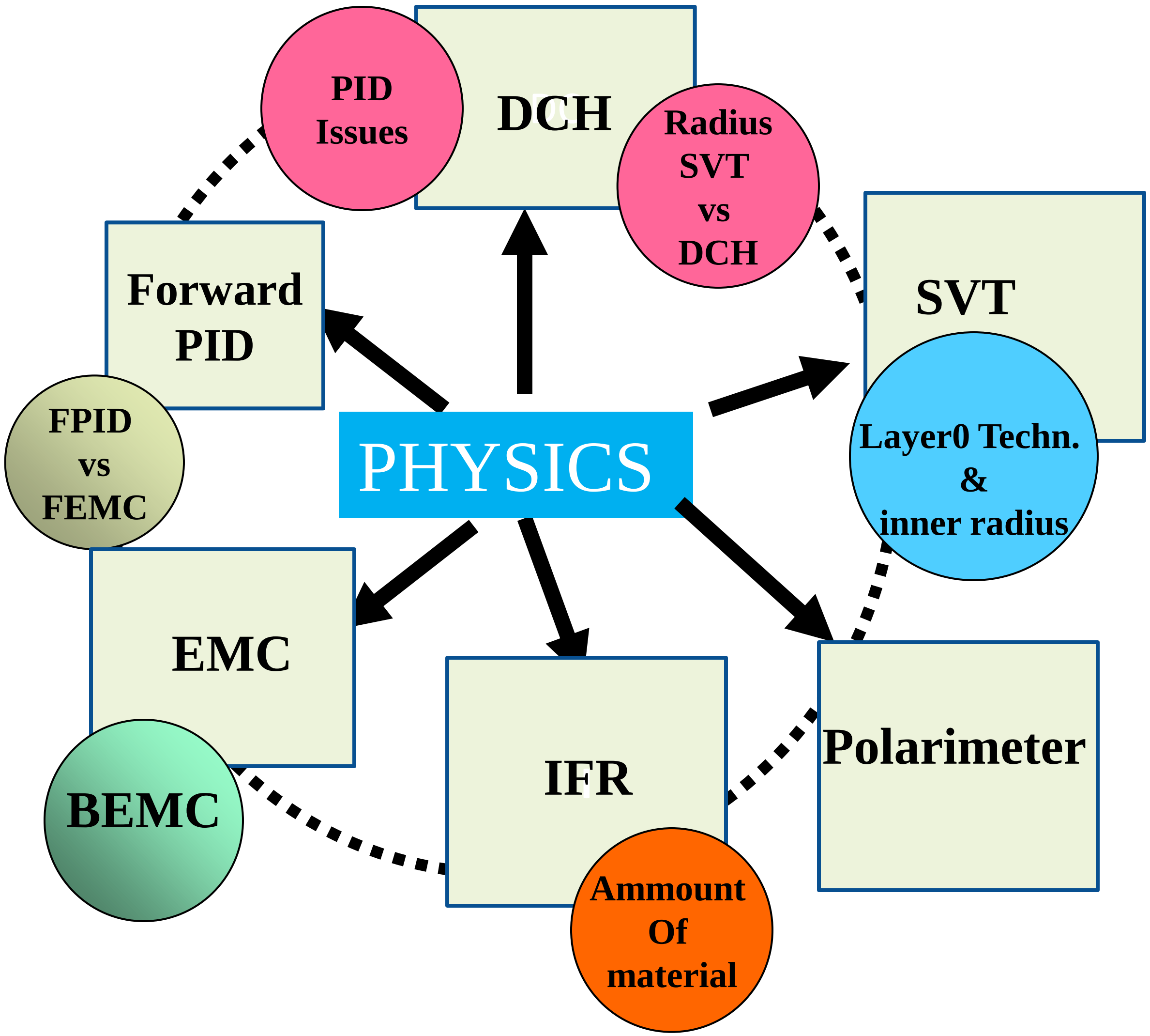


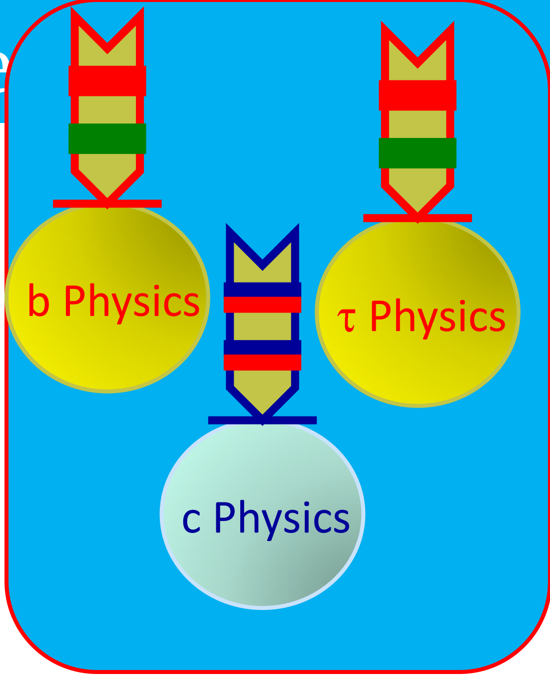
Impact of Geometry on sensitivity
+
Background related issues
$B \to K \nu\nu$, $B \to \tau\nu$
+ Polarimetry for
$\tau \to \mu \gamma$

PID/EMC Material

IFR Optimisation

Requirements to Detector and Machine





Impact of Geometry on sensitivity
+
Background related issues
$B \rightarrow K \nu\nu$, $B \rightarrow \tau\nu$
+ Polarimetry for
$\tau \rightarrow \mu \gamma$

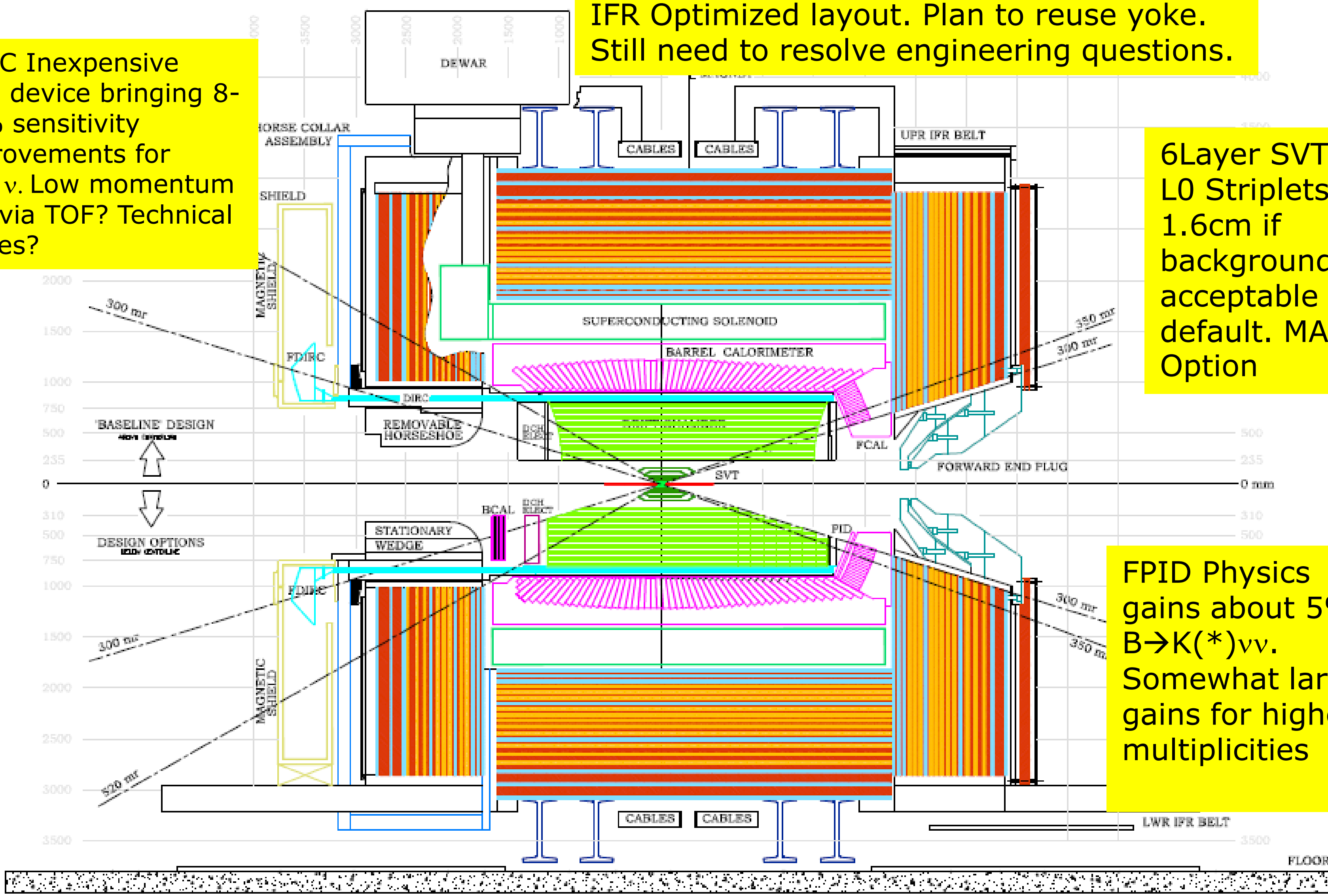
PID/EMC Material

IFR Optimisation

SuperB Detector (with options)

BEMC Inexpensive Veto device bringing 8-10% sensitivity improvements for B→τ ν. Low momentum PID via TOF? Technical Issues?

IFR Optimized layout. Plan to reuse yoke. Still need to resolve engineering questions.



6Layer SVT L0 Striplets @ 1.6cm if background is acceptable as default. MAPS Option

FPID Physics gains about 5% in B→K(*)νν. Somewhat larger gains for higher multiplicities

Where are we with process, since TDR is on the rightpath and the white paper pre-TDR ready ?

While activity continues with further developments for

- Better understanding of SuperB Physics
- Optimization of Accelerator and Detector

We move on with MOU's:

- MOU's with France, USA and Russia in operation.
- MOU with Canada in final step.

The approval path

1) A substantial financial request from Ministry of research has been adressed to the Infrastructure Interministerial panel (CIPE).

2) An exploitation program with the Italian Institute of Technology (IIT) of synchrotron light from SuperB has been designed with photon beam lines to be in operation since beginning are included in the layout .

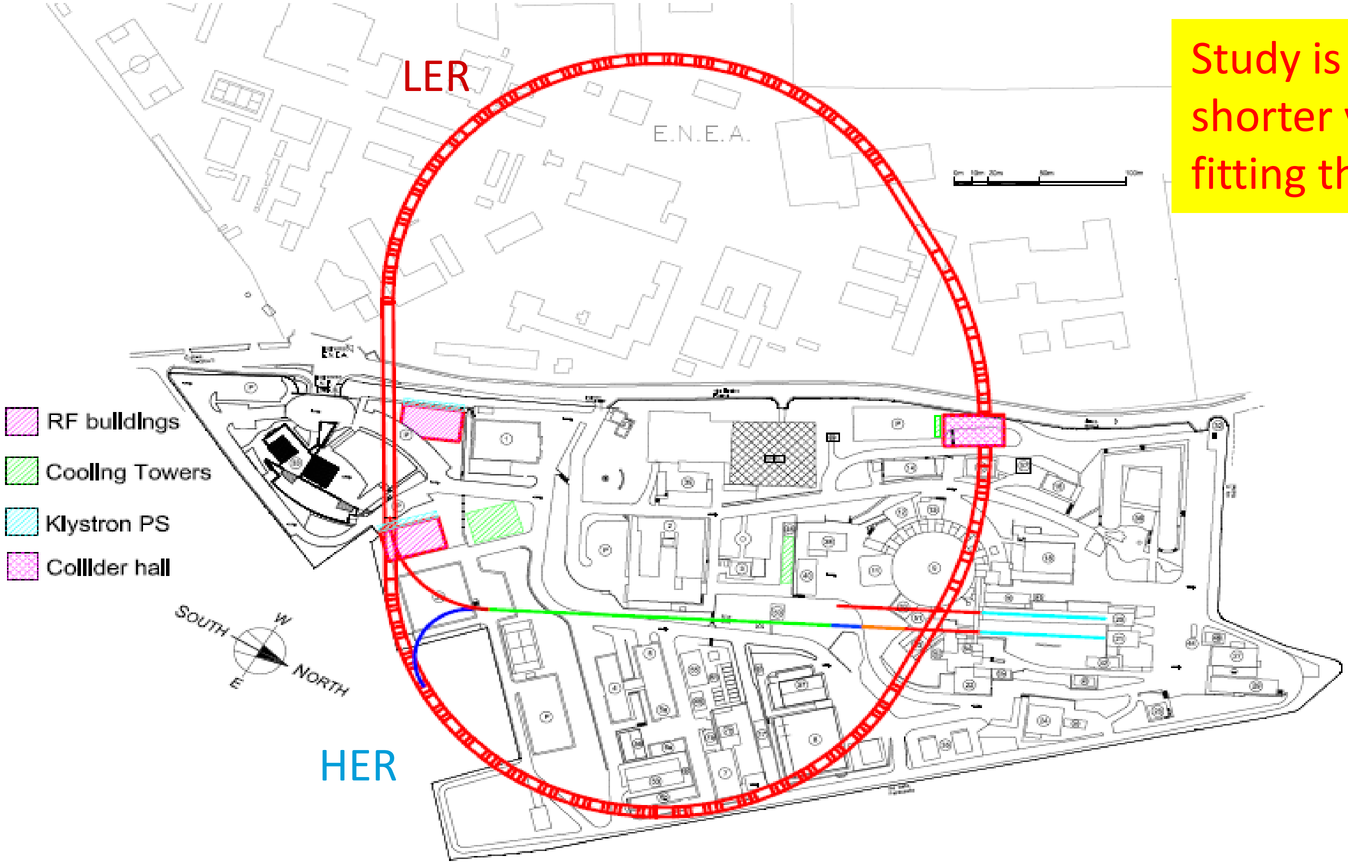
3) The corresponding funding for construction and operation has been preliminary favourably discussed at IIT and adds to the construction funds in the Government plan.

IIT is an agency for interdisciplinary and technology research linked to the Economy Ministry

Some of the topics selected by IIT for SuperB:

- lithography for 3D scaffolding for bio-engineering
- laser ablation on biomaterials
- femtochemistry studies
- photon induced growth for material science
- innovative interface diffraction techniques
- imaging in biomedicine
- X ray microscopy

1258m. Machine layout

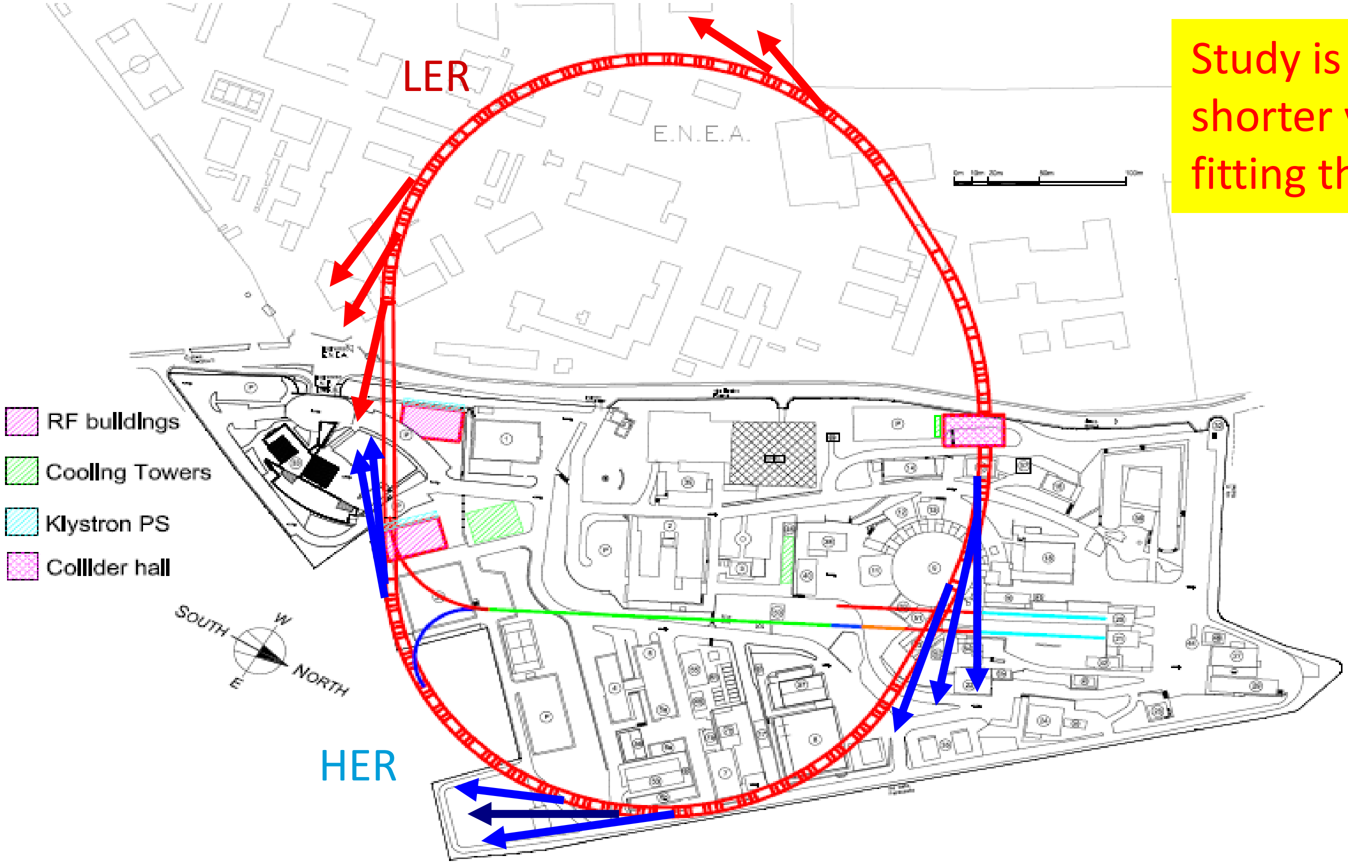


Study is in progress on a shorter version, entirely fitting the LNF site .

INFN
SLAC
In2p3+Cea
BINP
Poland
UK

Polarization is understood and feasible!
Parameter flexibility allows 10^{36} peak lumi without stressing limits!

1258m. Machine layout with Photon Beam Lines



Study is in progress on a shorter version, entirely fitting the LNF site .

INFN
SLAC
In2p3+Cea
BINP
Poland
UK

Polarization is understood and feasible!
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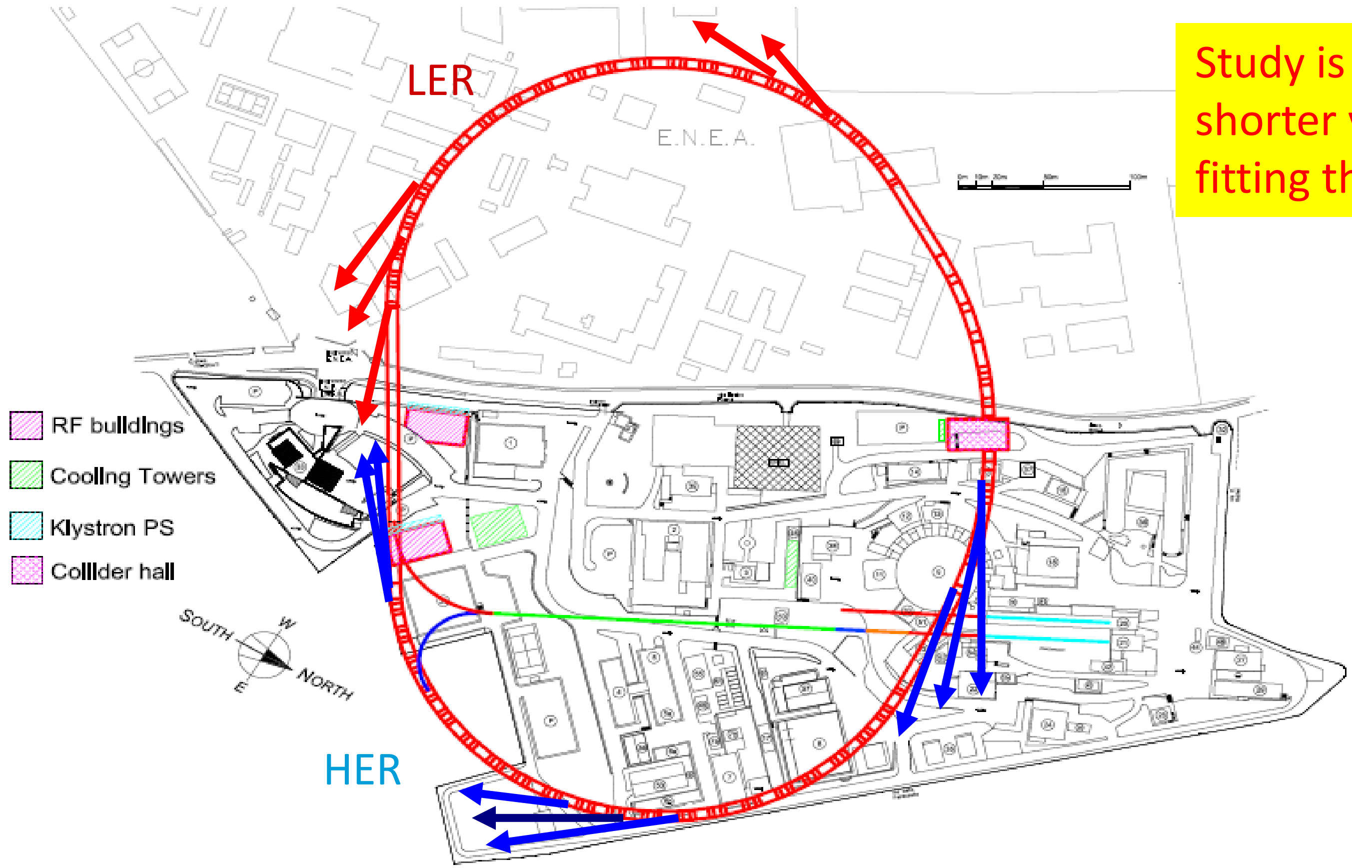

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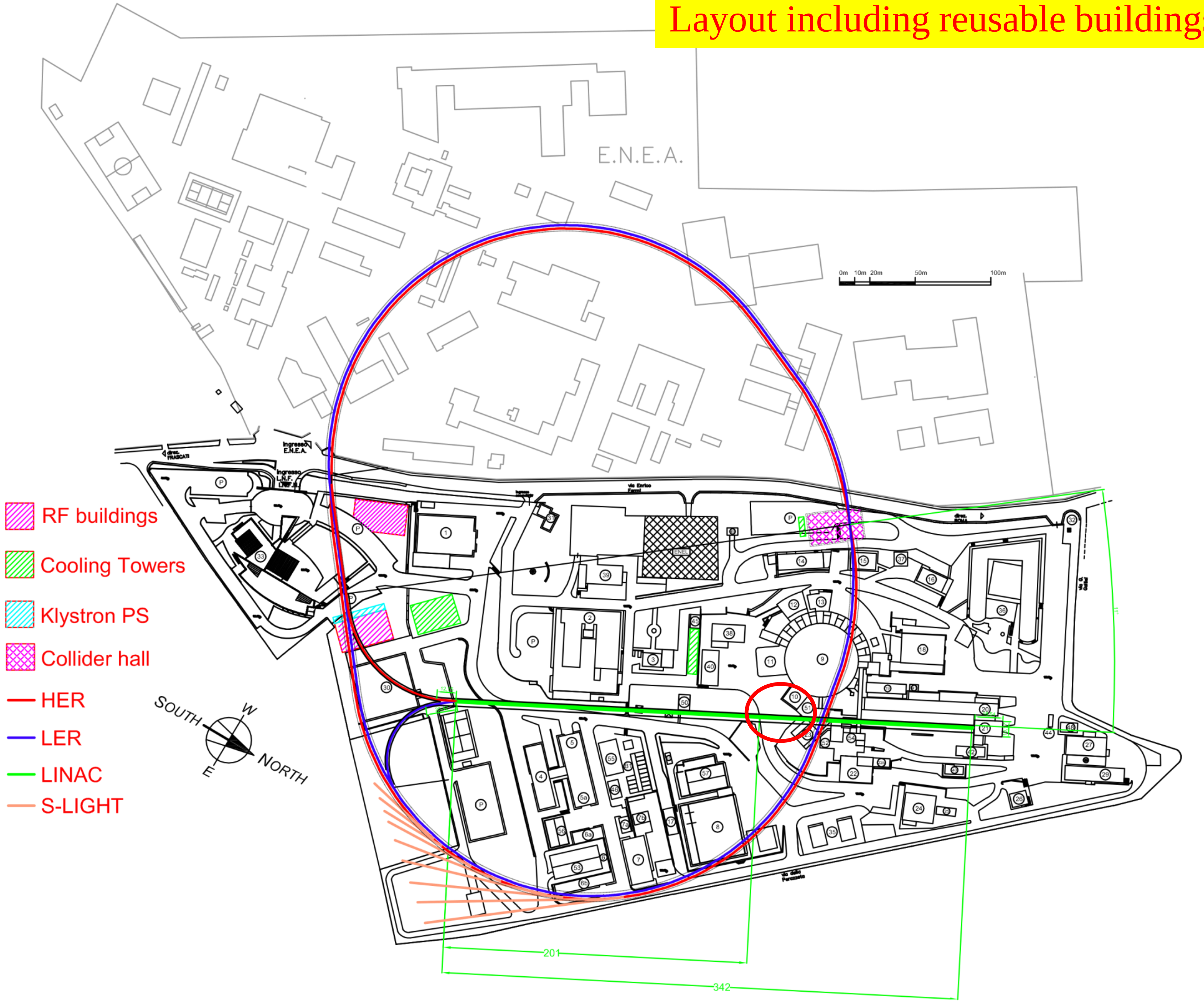
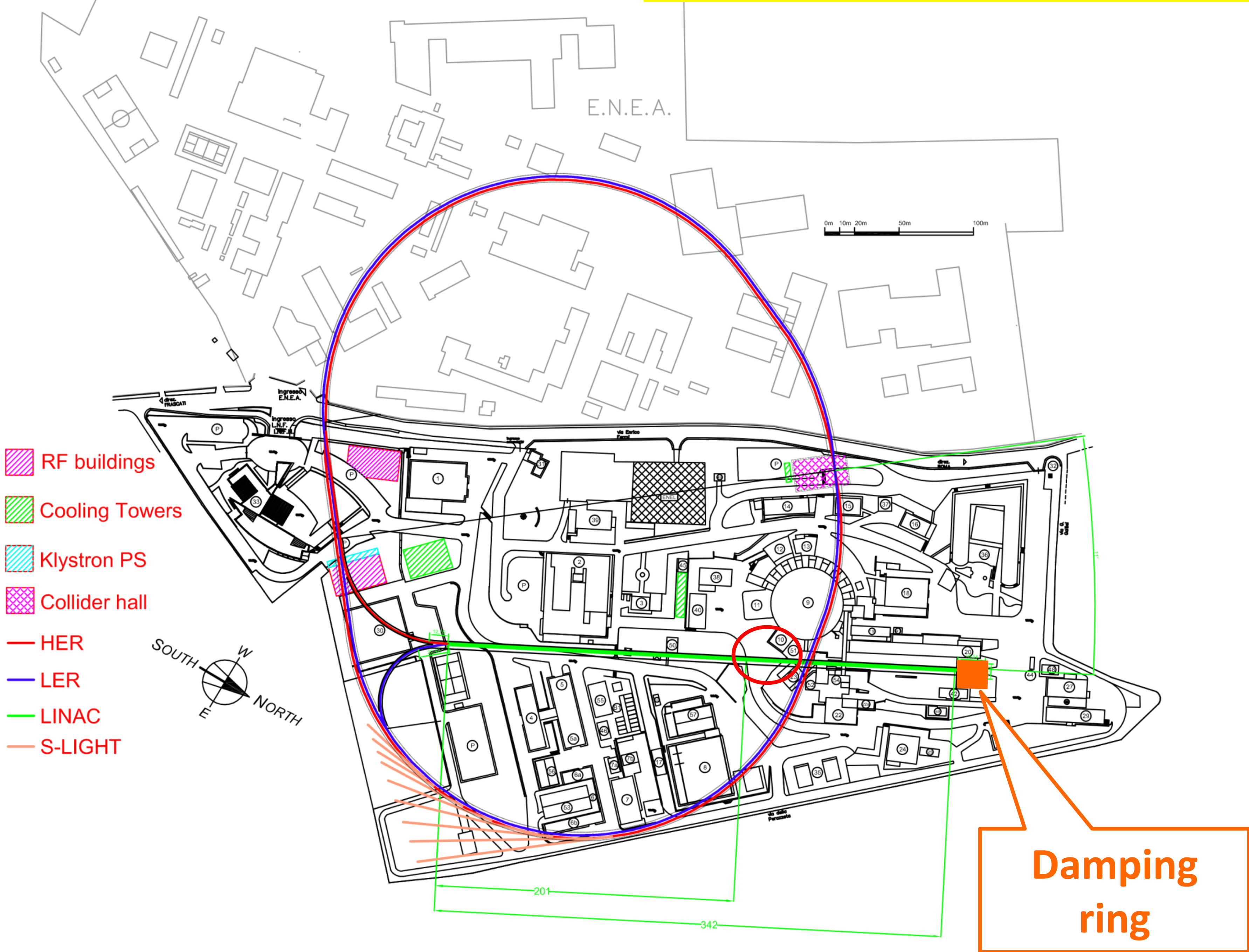
No impediment caused by the photon operation is seen so far to prevent design operations of SuperB for HEP.

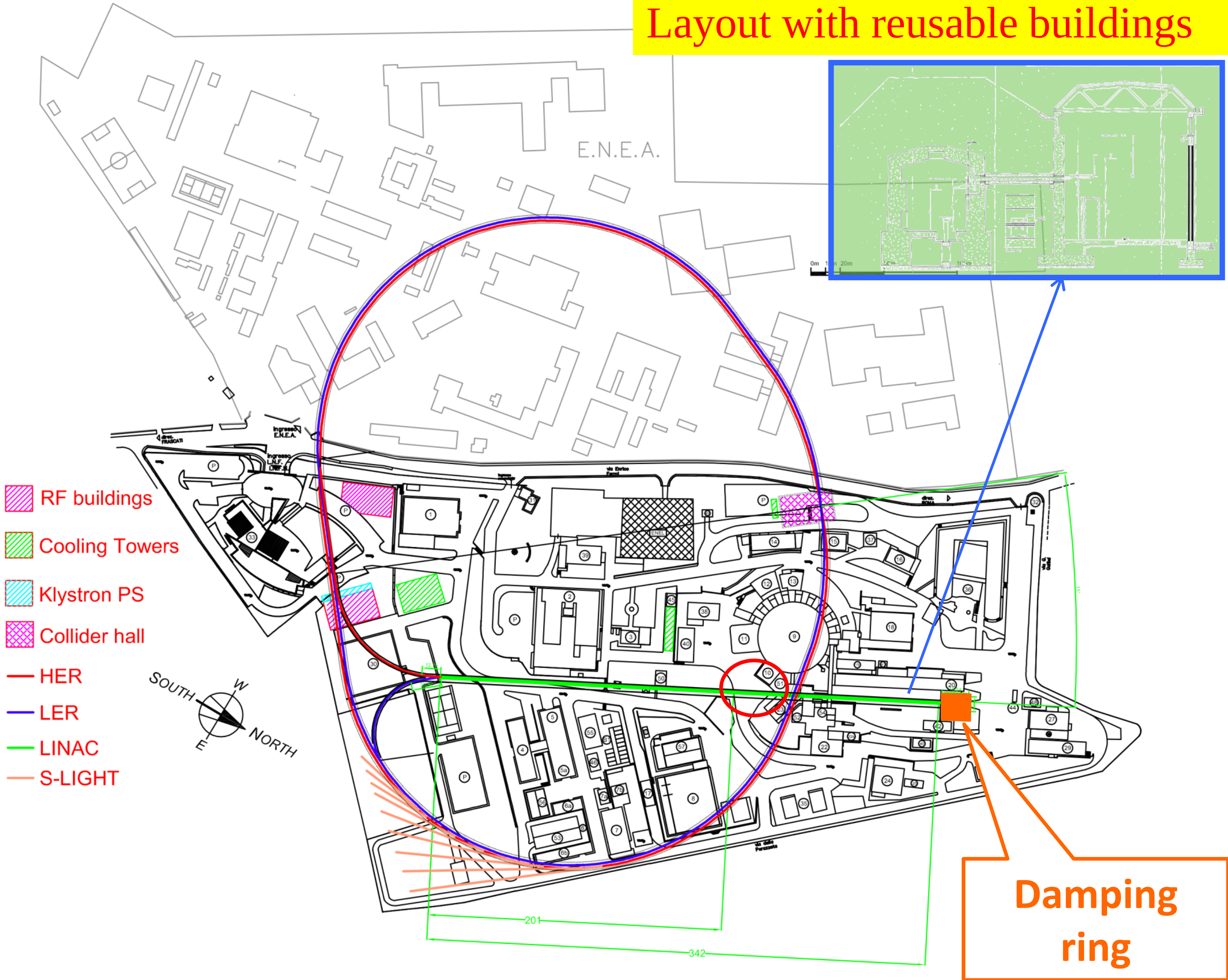
Layout including reusable buildings



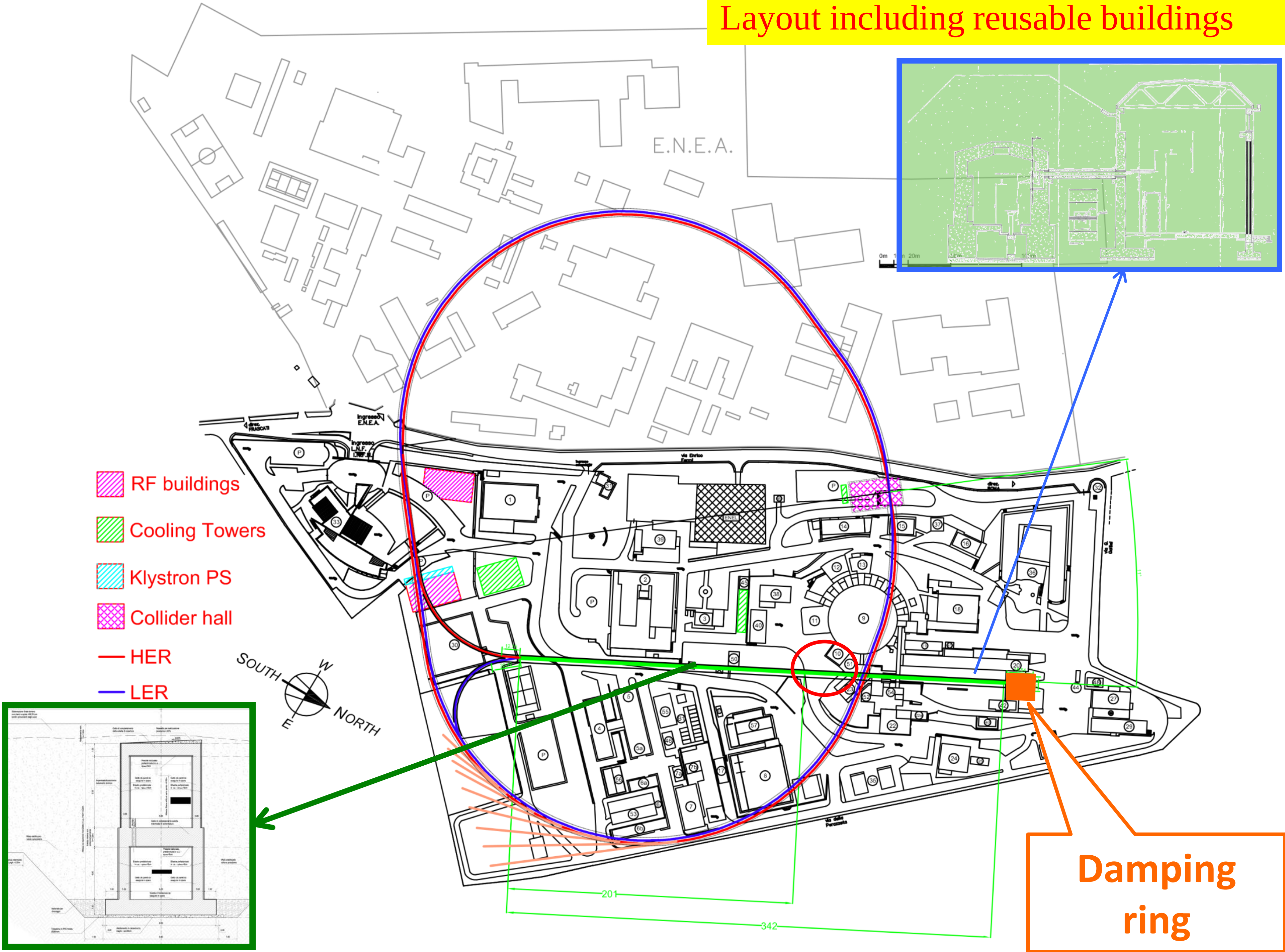
Layout including reusable buildings



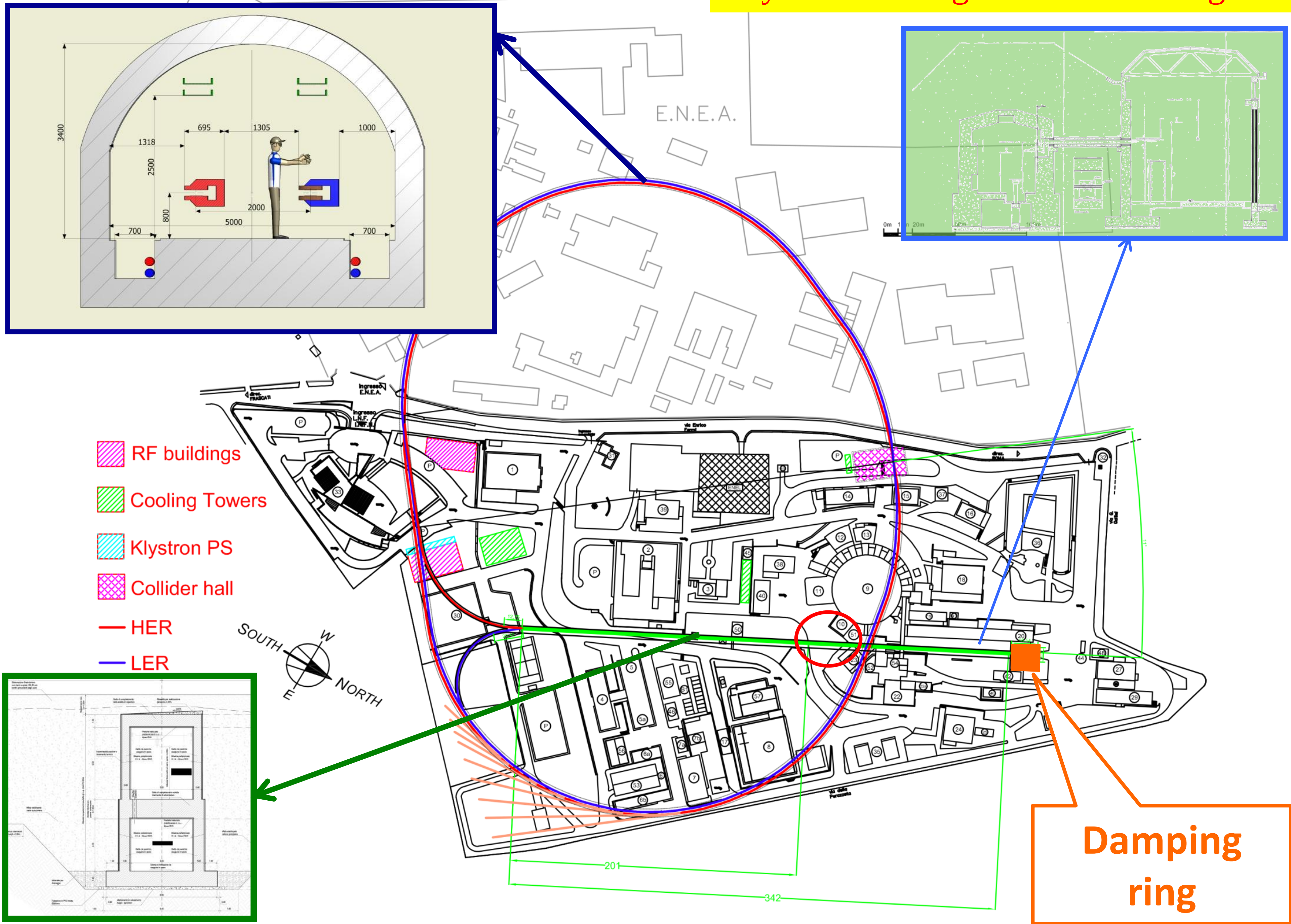
Layout with reusable buildings



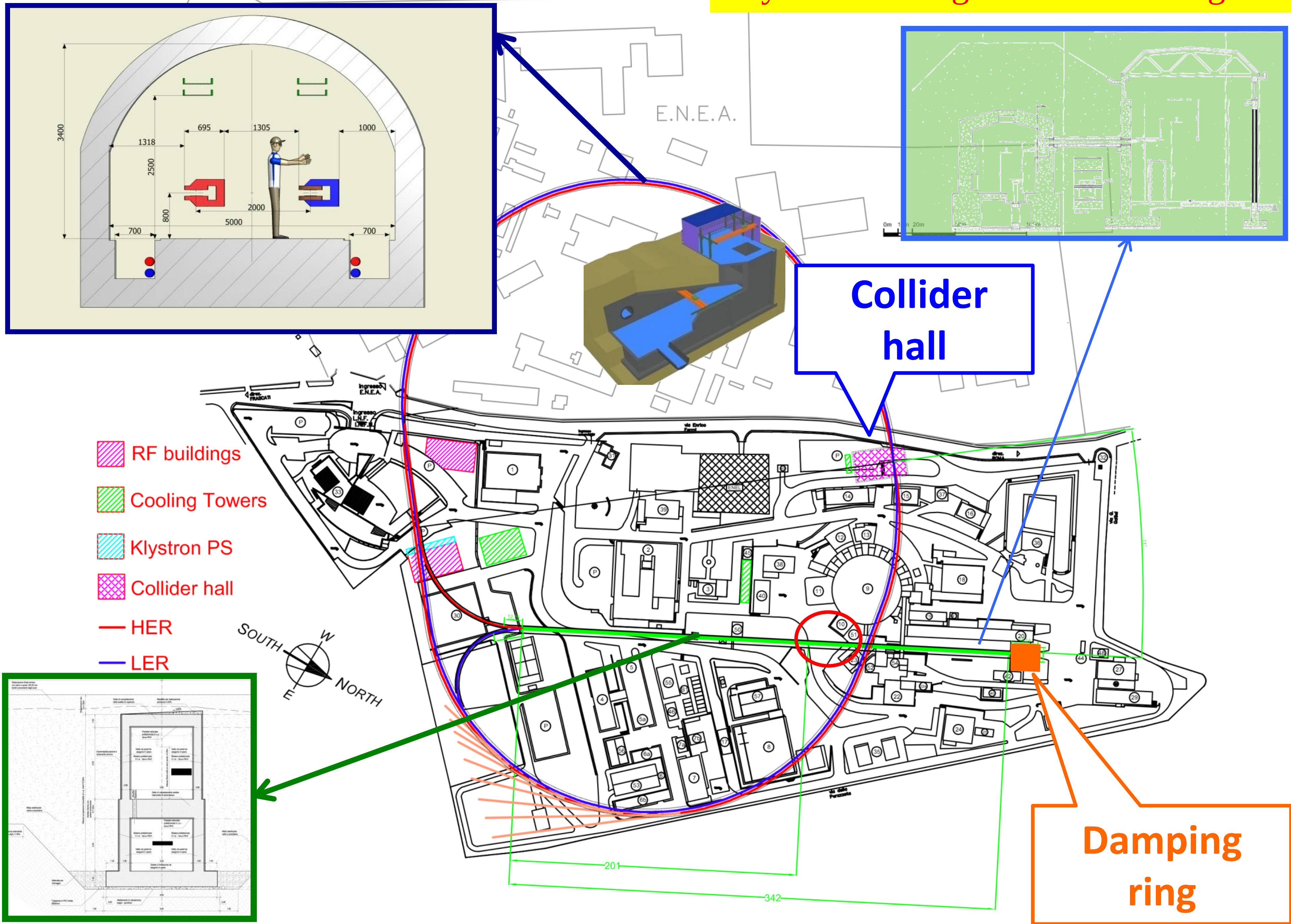
Layout including reusable buildings



Layout including reusable buildings



Layout including reusable buildings



Toward green light

- The project is the first “flagship project” of the new national research plan
- The project has been mentioned as a reciprocity condition in a russian italian agreement on ignitor (nuclear fusion)

PNR on newspapers & Minister press release

Mer 14/04/2010	Il Sole 24 ORE	Estratto da pag. 25

Innovazione. Più spazio all'industria

Gelmini aggiorna il piano nazionale

Eugenio Bruno
ROMA

Un acceleratore di particelle complementare a quello del Cern di Ginevra. Un network dei laboratori di nanotecnologia. Una «fabbrica del futuro» per rilanciare il manifatturiero. Uno studio approfondito nell'epigenetica. Sono alcuni dei «progetti bandiera» che il ministro dell'Istruzione Maristella Gelmini punta a inserire tra le priorità del programma nazionale della ricerca (Pnr) 2010-2012.

La lista degli interventi su cui il Miur vuole dirottare le prime risorse che il Pnr intercetterà contiene 14 voci. Fermo restando che da qui alla sua ufficializzazione potrebbe anche subire delle modifiche, l'elenco si presenta estremamente variegato. Alle azioni sulla formazione nel campo del nucleare, sull'approfondimento dei rapporti tra invecchiamento e Dna e alle misure per l'agroalimentare e i beni culturali – anticipati dallo stesso ministro al Sole 24 Ore il 26

Gli interventi

Progetto	Settore	Valore stimato (milioni)
Super B Factory	Fisica	680
Cosmo - Skymed II generation	Aerospazio	N.D.
Epigenomica	Medicina	N.D.
3N - Network nazionale delle nanotecnologie	Industria	300
Ritmare - Ricerca ita. per il mare	Industria	795
Sintonia - Sistema integrato di telecomunicazioni	Aerospazio	671
Ipi - Invecchiamento e pop. isolate	Medicina	90
Agro Alimentare	Agricoltura	100
L'ambito nucleare	Energia	53,5
Recupero e rilancio della Villa dei Papiri	Beni cluturali	20
Elettra-Fermi-Eurofel	Industria	191
Astri - Astrofisica con specchi a tecnologia replicante italiana	Aerospazio	8
Controllo delle crisi nei sistemi complessi socio-economici	Economica	30
La fabbrica del futuro	Industria	30

ra: «Cosmo-Skymed II generation», «Sintonia» e «Astri». Con i primi due orientati a potenziare i metodi di osservazione della terra dallo spazio e il terzo che, quasi fosse un contro-campo, si concentra sull'osser-

Se ne dovrebbe sapere di più tra fine aprile e i primi di maggio quando ministri e governatori si siederanno allo stesso tavolo. Dopodiché il Pnr sarà pronto per andare a Palazzo Chigi, prima, e al Cipe, poi.

Comunicato stampa del 26 Aprile 2010 - Miur

Ministero dell'Istruzione, dell'Università e della Ricerca

Home » Ministero » Il Ministro » Comunicati Stampa » 2010 » 260410

Ministero

Istruzione

Ufficio Stampa

Roma, 26 Aprile 2010

RICERCA, VERTICE ITALIA-RUSSIA, GELMINI FIRMA ACCORDO SU RICERCA NUCLEARE

Oggi, il ministro Mariastella Gelmini, in occasione del vertice italo-russo di Lesmo, ha firmato una dichiarazione d'intenti tra il MIUR e il Ministero della ricerca scientifica russo per la realizzazione di due importanti progetti per la promozione della ricerca nel settore della fusione nucleare.

L'intesa riguarda i programmi di ricerca denominati "IGNITOR" e "SUPER B". Il programma "IGNITOR" prevede la realizzazione in Russia di un innovativo reattore sperimentale a fusione nucleare che verrà utilizzato come fonte di energia.

Il programma "SUPER B" riguarda la realizzazione in Italia di un acceleratore di particelle di nuova generazione che consentirà una più alta intensità di collisioni tra particelle, permettendo la produzione di "quark pesanti".

START

- A formal commitment with INFN for the project with the declaration of some available budget in the current year is expected.
- This commitment will set the start of the project.