SuperB Physics

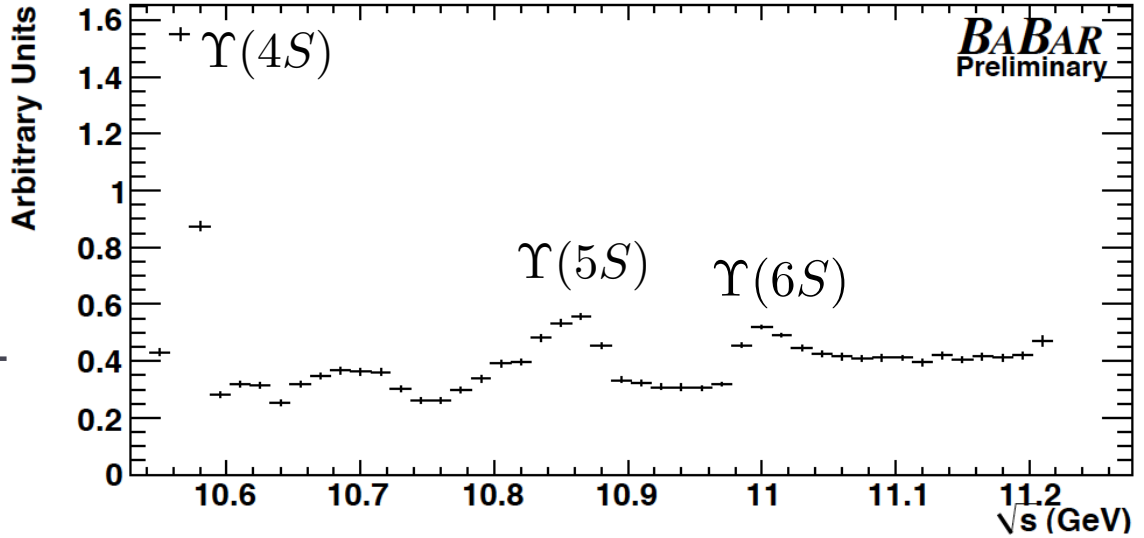
Elba 2011

Evolution of the physics programme

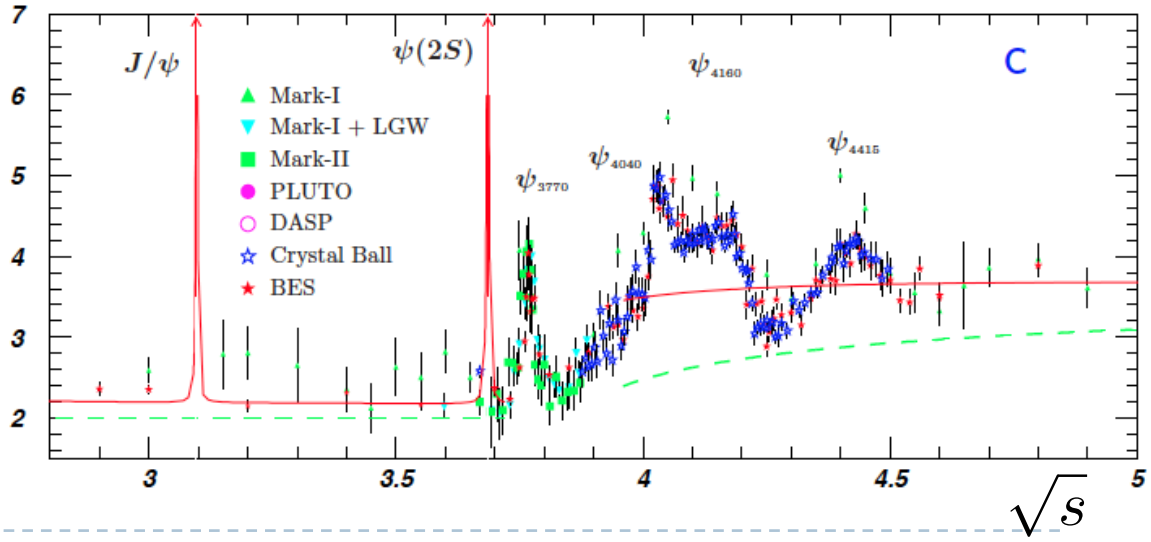
- 2007: CDR (*arXiv:0709.0451*)
  - A lot of work built upon and inspired by the BaBar and Belle physics programmes.
  - Started to go significantly beyond the B Factory era, and also understand implications of potential measurements.
- 2008: Valencia (*arXiv:0810.1312*)
  - Concentrated on many areas of the new physics interplay of observables that SuperB will measure.
- 2010: White Papers "SuperB Progress Reports" (*arXiv:1008.1541*)
  - A coherent update of the physics programme: New physics, interplay and standard model.
- 2012: Physics Technical Design Report
  - Finalise on a timescale comparable with detector TDR.
- SuperB Physics Book
  - Finalise shortly before data taking starts.

Data sample

- Υ(4S) region:
  - 75ab^{-1} at the 4S
  - Also run above / below the 4S
  - ~75 x10^{9} B, D and τ pairs



- ψ(3770) region:
  - 500fb^{-1} at threshold
  - Also run at nearby resonances
  - ~2 x 10^{9} D pairs



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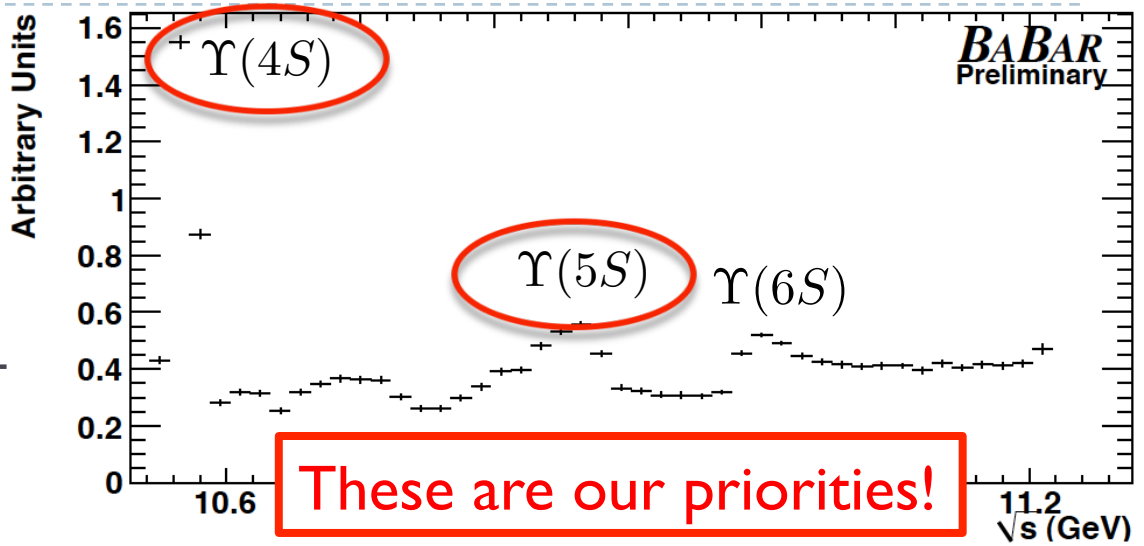

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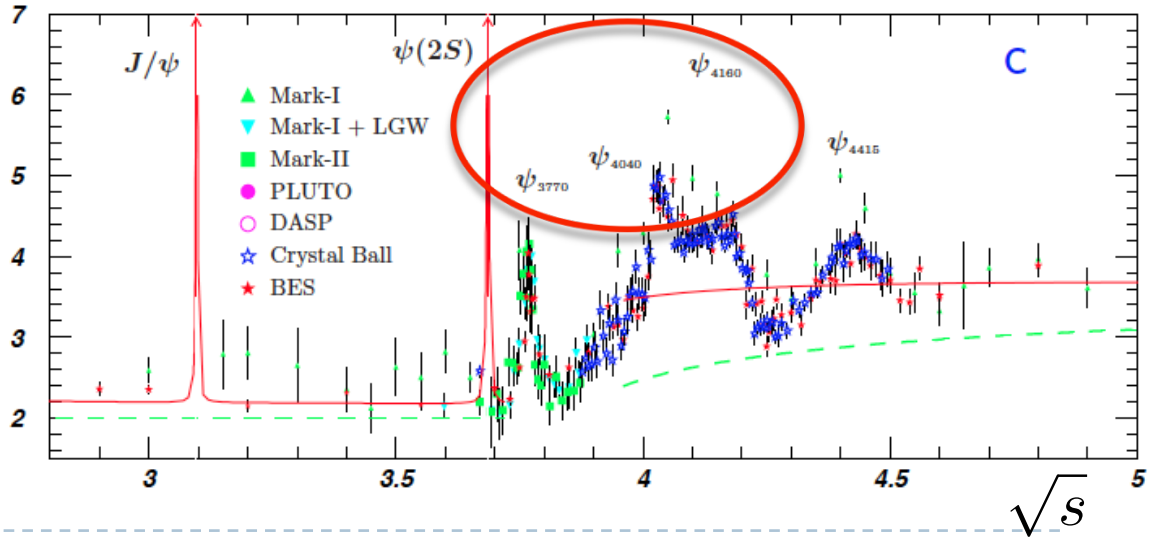
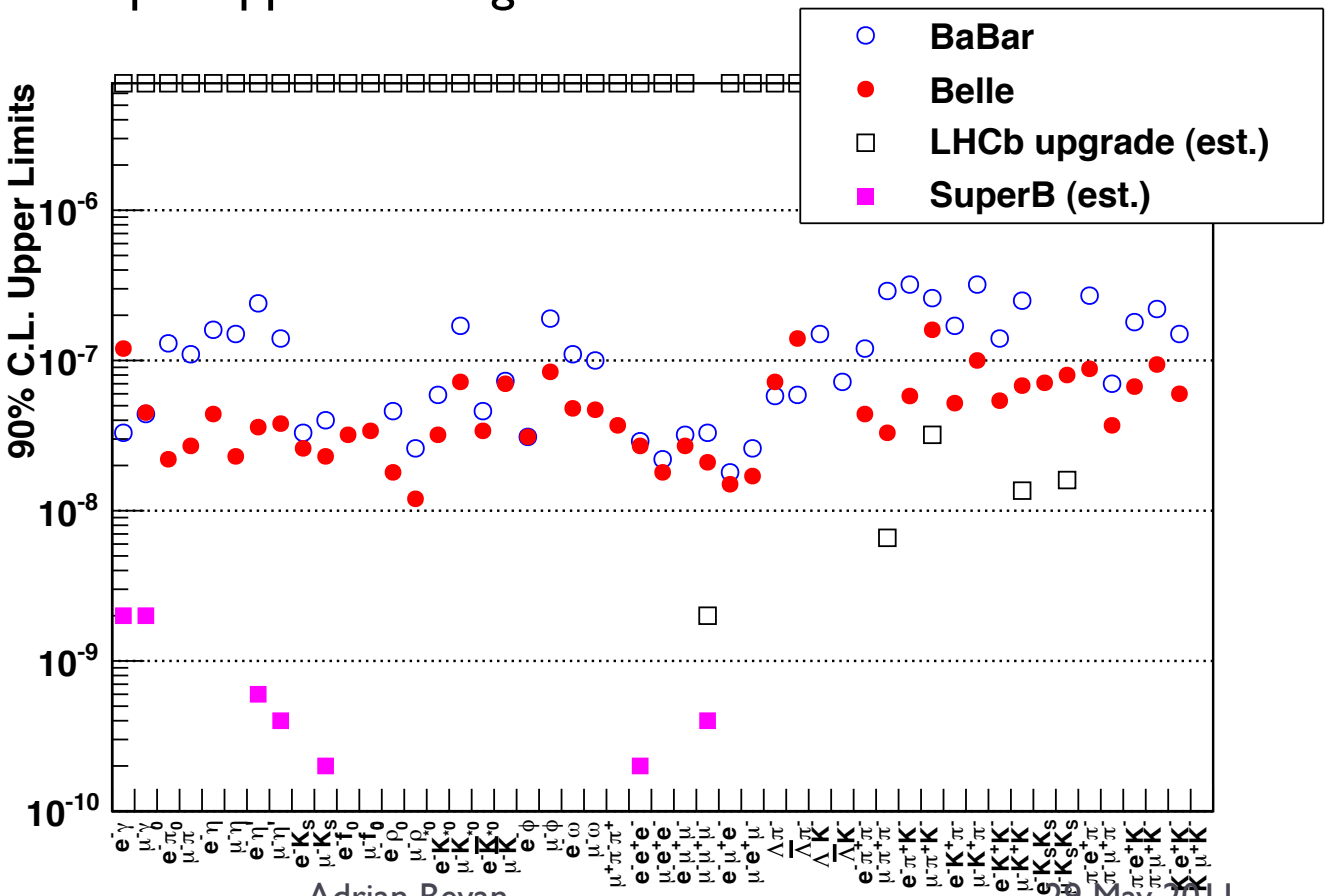


τ Lepton Flavor Violation (LFV)

- ν mixing leads to a low level of charged LFV (B~10^{-54}).
  - Enhancements to observable levels are possible with new physics.
- e^- beam polarisation helps suppress background.

Two orders of magnitude improvement at SuperB over current limits.

Hadron machines are not competitive with e^+e^- machines for these measurements.



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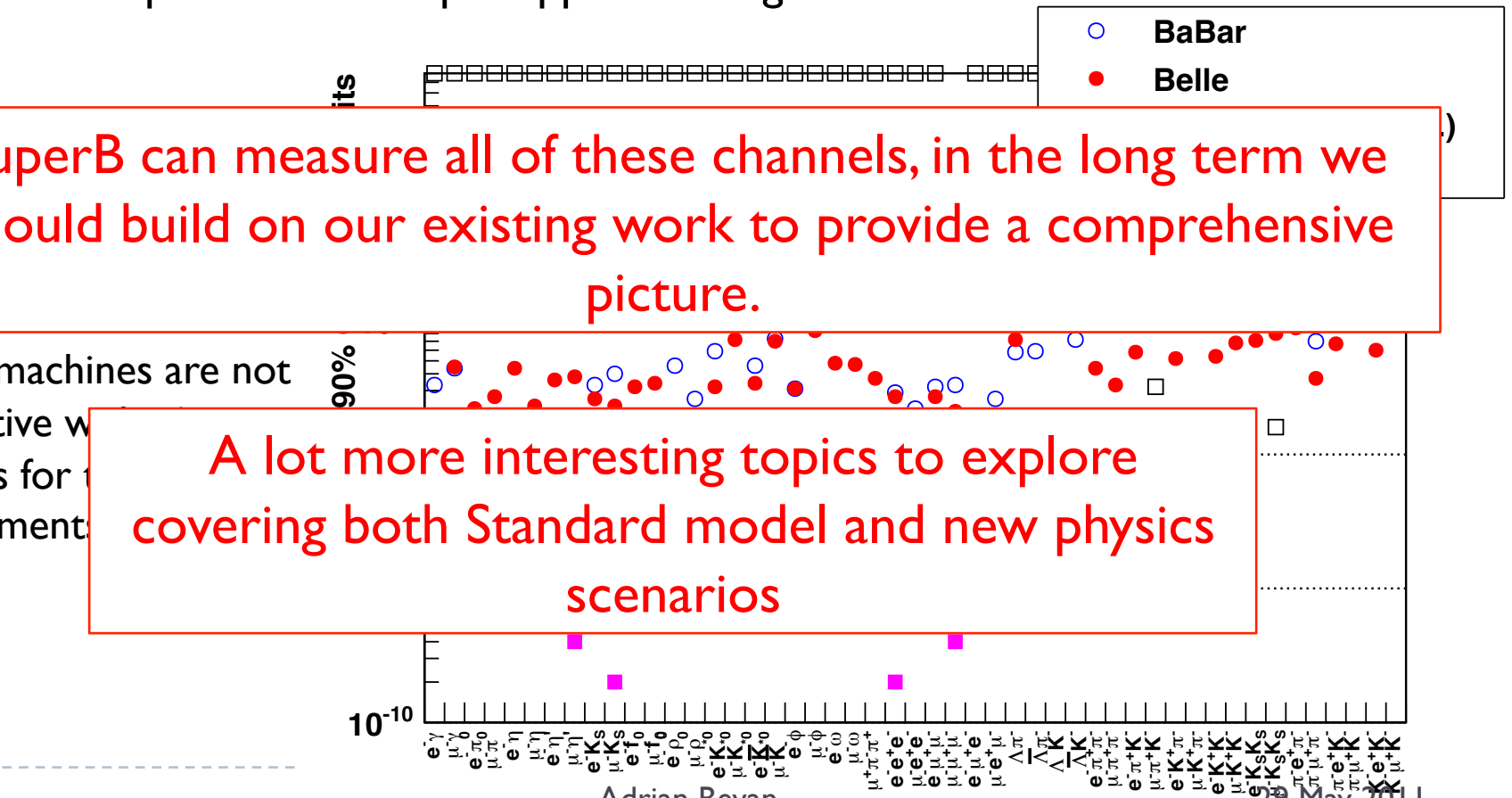
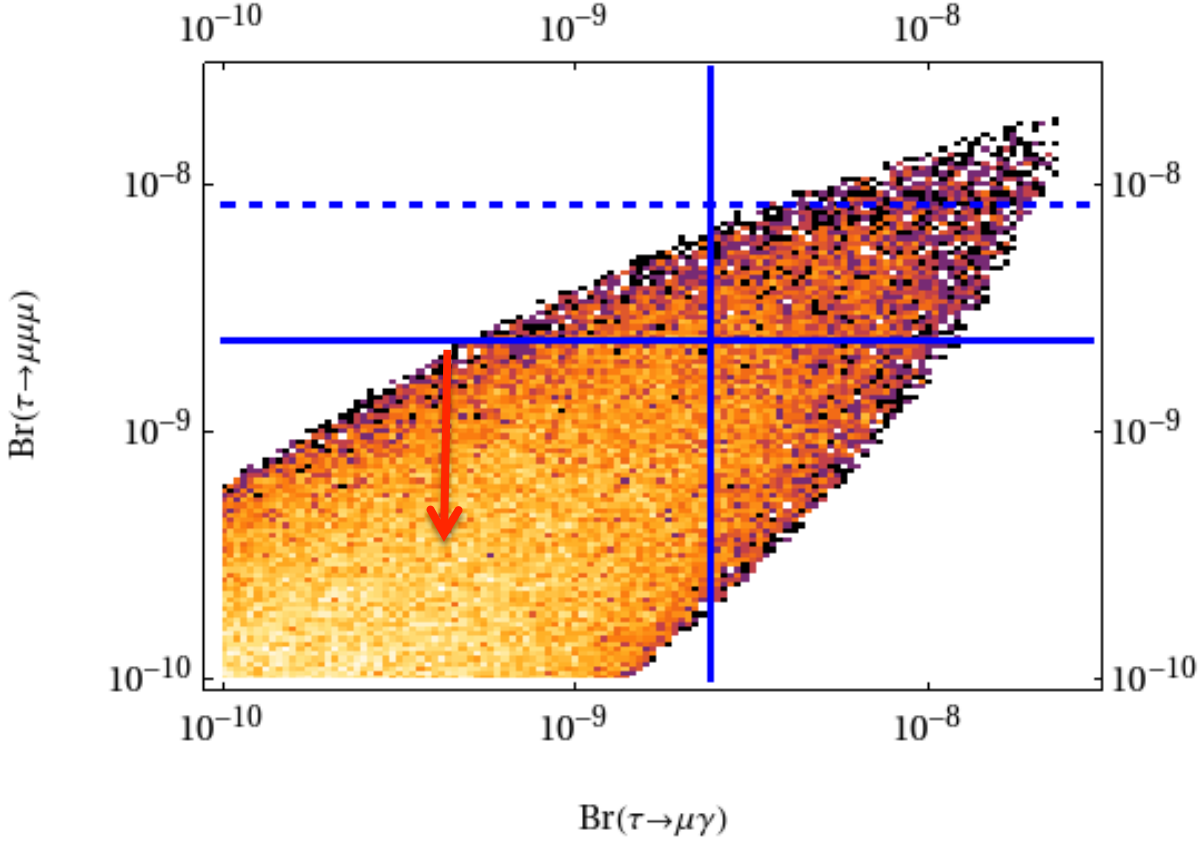


SuperB can measure all of these channels, in the long term we should build on our existing work to provide a comprehensive picture.

A lot more interesting topics to explore covering both Standard model and new physics scenarios

τ Lepton Flavor Violation (LFV)

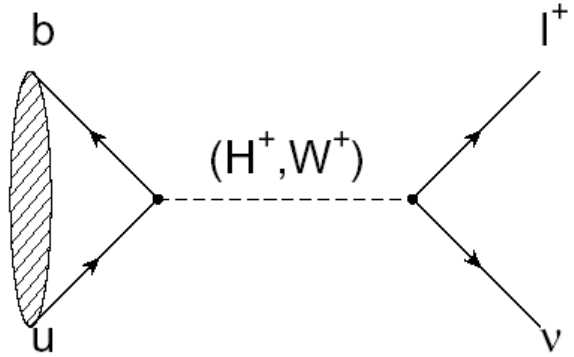


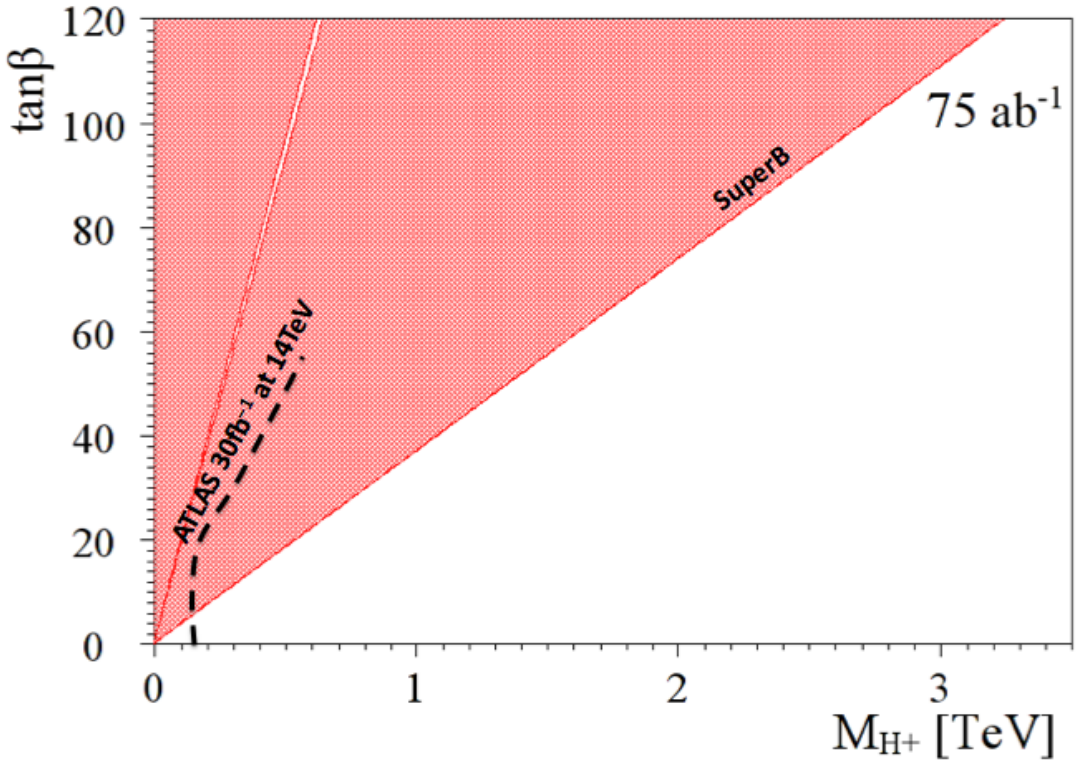
Correlation between $\tau \longrightarrow \mu\gamma$ and $\tau \longrightarrow \mu\mu\mu$ in LTH scenario with 500GeV SUSY breaking scale (C. Tarantino)

$B_{u,d}$ physics: Rare Decays

- Example: $B^{\pm} \rightarrow \tau^{\pm}\nu$
  - Rate modified by presence of H^+

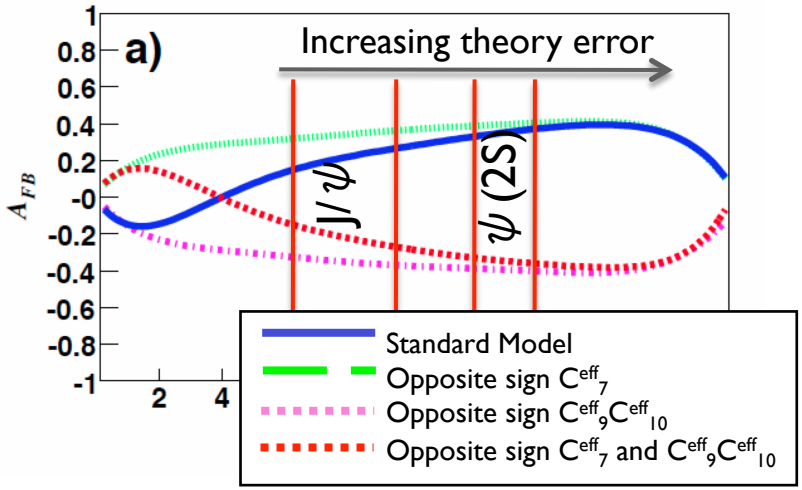
$$r_H = \frac{\mathcal{B}_{SM+NP}}{\mathcal{B}_{SM}}$$





$B_{u,d}$ physics: Rare Decays

- Example: $b \to s\ell^+\ell^-$
  - SuperB can provide:
    - inclusive measurements
    - competitive measurement of di-muon mode (c.f. LHCb)
    - definitive measurement of di-electron mode
  - Theoretical uncertainties and how these affect interpretation of results can be non-trivial: See session on Tuesday.



Need SuperB to access full set of new physics sensitive observables:

FB asymmetry

Isospin asymmetry

lepton asymmetry $(ee/\mu\mu)$

R_K (K/K*)

- We should remember that charm rare decay parallels of these B channels are also important probes for new physics.

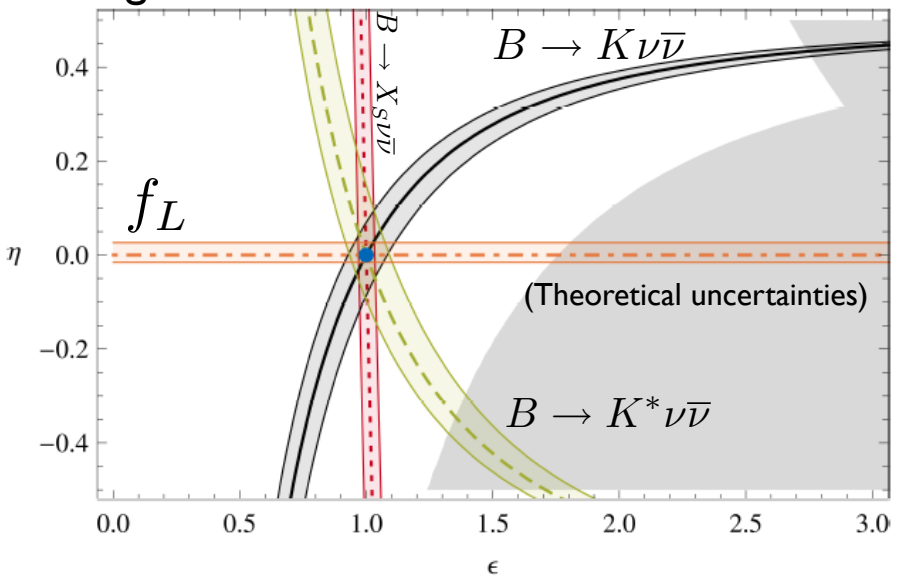
$B_{u,d}$ physics: Rare Decays

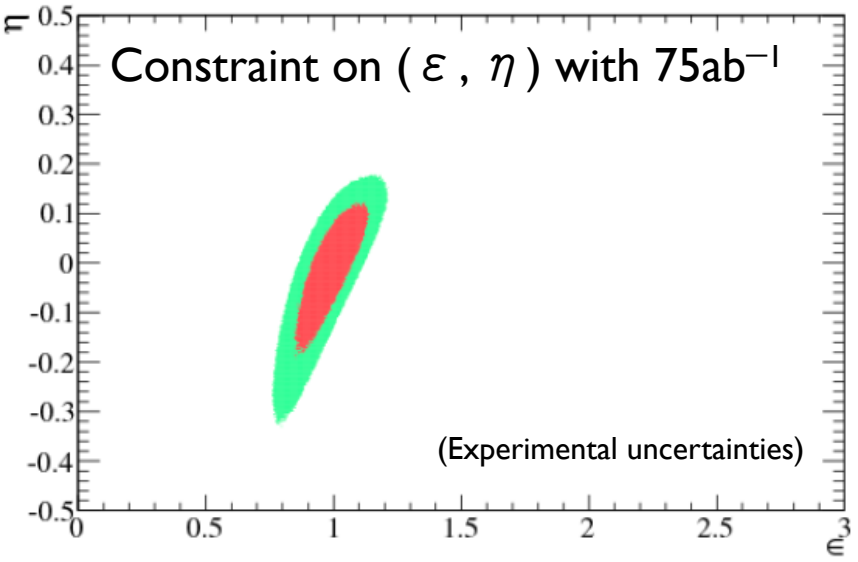
- Example: $B \to K^{(*)}\nu\overline{\nu}$
  - Need 75ab^{-1} to observe this mode.
  - With more than 75ab^{-1} we could measure polarisation.

$$\epsilon = \frac{\sqrt{|C_L^\nu|^2 + |C_R^\nu|^2}}{|(C_L^\nu)^{\rm SM}|}\ , \qquad \eta = \frac{-{\rm Re}\,(C_L^\nu C_R^{\nu *})}{|C_L^\nu|^2 + |C_R^\nu|^2}$$

Sensitive to models with Z penguins and RH currents.

e.g. see Altmannshofer, Buras, & Straub



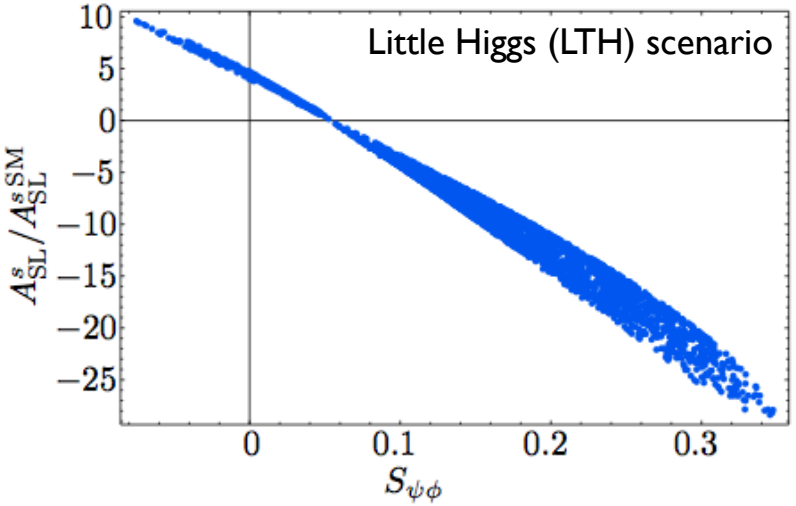


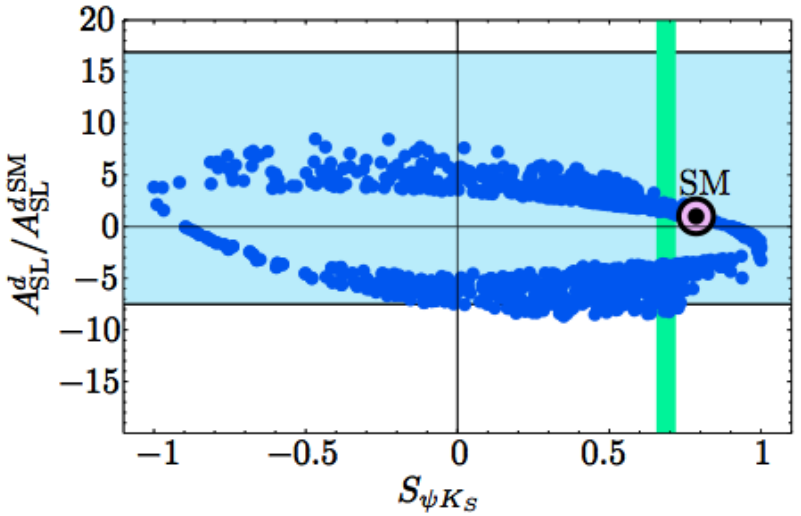
B_s physics

- Can cleanly measure A^s_{SL} using 5S data

$$A^s_{SL} = \frac{\mathcal{B}(B_s \to \overline{B}_s \to X^-\ell^+\nu_\ell) - \mathcal{B}(\overline{B}_s \to B_s \to X^-\ell^+\nu_\ell)}{\mathcal{B}(B_s \to \overline{B}_s \to X^-\ell^+\nu_\ell) + \mathcal{B}(\overline{B}_s \to B_s \to X^-\ell^+\nu_\ell)} = \frac{1-|q/p|^4}{1-|q/p|^4}$$

$$\sigma(A^s_{SL}) \sim 0.004 \text{ with a few } ab^{-1}$$

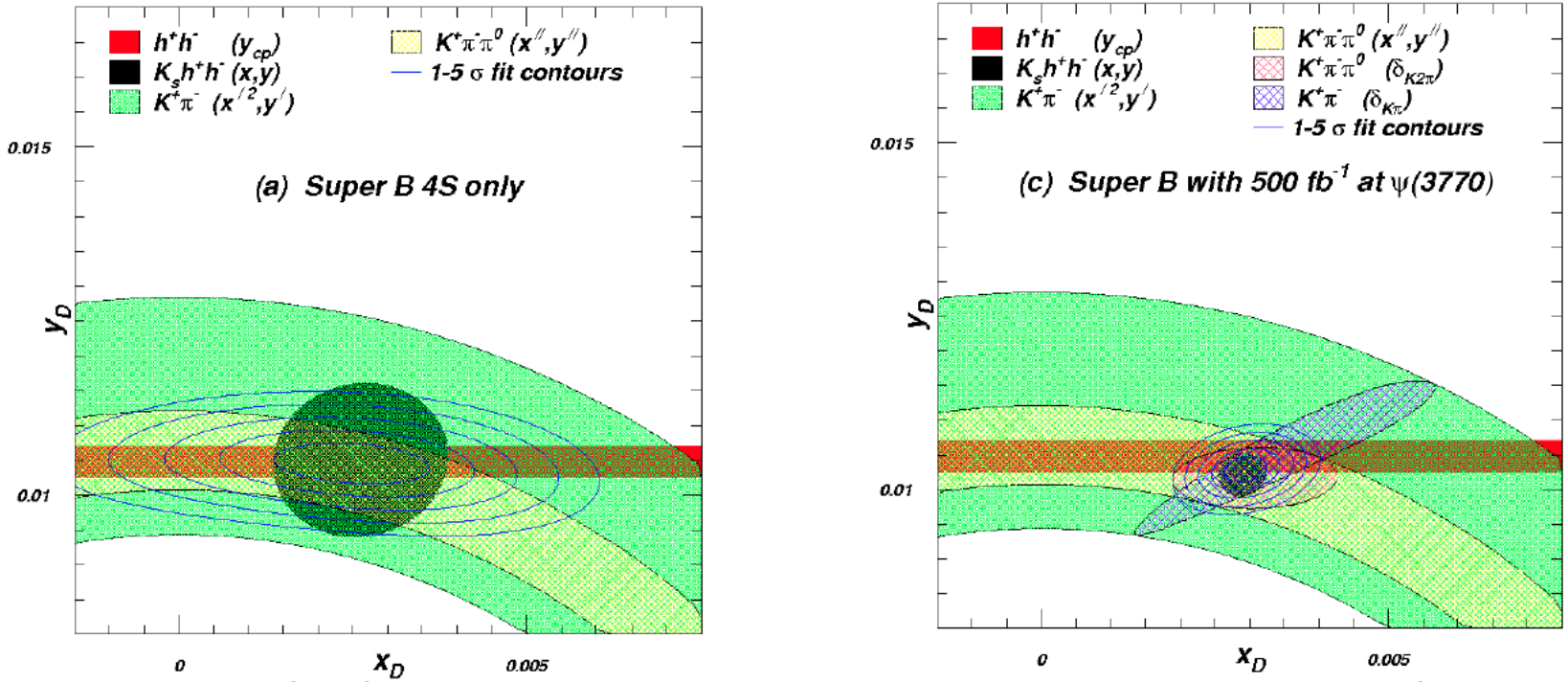




- SuperB can also study rare decays with many neutral particles, such as $B_s \to \gamma\gamma$, which can be enhanced by SUSY.

Charm

- Collect data at threshold and at the 4S.
  - Benefit charm mixing and CPV measurements.



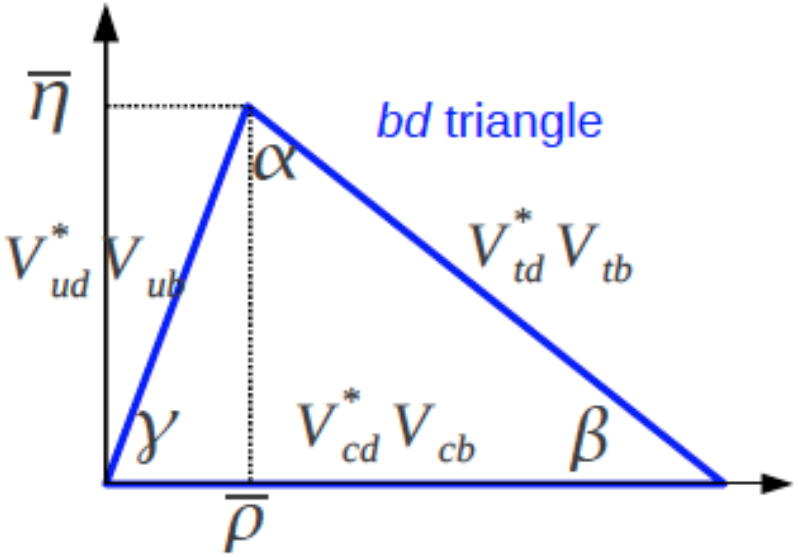
- Also useful for measuring the Unitarity triangle angle γ (strong phase in D→Kππ Dalitz plot) and charm mixing phase.

See tomorrow's charm session for first look at TDCPV with D mesons

G. Inguglia (Monday)

Unitarity triangles

Unitarity conditions of the CKM matrix are translated into 6 possible unitary triangles in the complex plane. We illustrate two here.



bd triangle

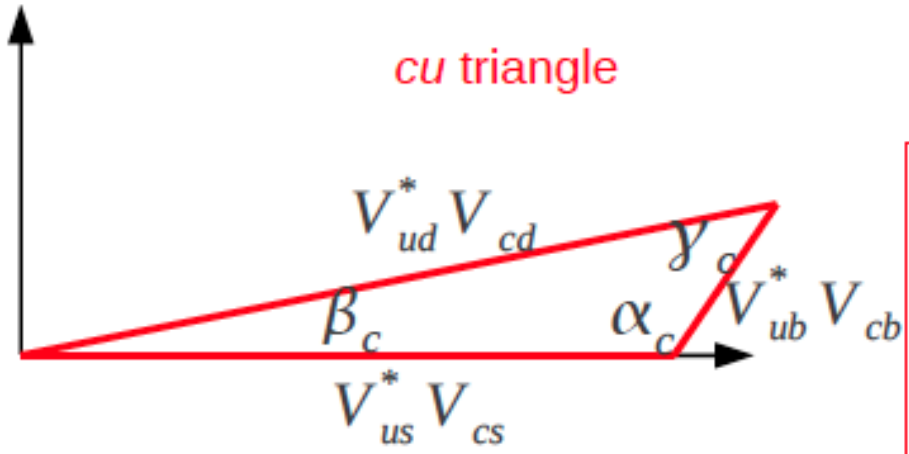
$$V_{ud}^* V_{ub} + V_{cd}^* V_{cb} + V_{td}^* V_{tb} = 0$$

$$\alpha = arg\left[\frac{-V_{td} V_{tb}^*}{V_{ud} V_{ub}^*}\right] = (91.4 \pm 6.1)^o$$

$$\beta = arg\left[\frac{-V_{cd} V_{cb}^*}{V_{td} V_{tb}^*}\right] = (21.1 \pm 0.9)^o$$

$$\gamma = arg\left[\frac{-V_{ud} V_{ub}^*}{V_{cd} V_{cb}^*}\right] = (74 \pm 11)^o$$

FROM EXPERIMENTS



cu triangle

$$V_{ud}^* V_{cd} + V_{us}^* V_{cs} + V_{ub}^* V_{cb} = 0$$

$$\alpha_c = arg\left[\frac{-V_{ub}^* V_{cb}}{V_{us}^* V_{cs}}\right] = (111.5 \pm 4.2)^o$$

$$\beta_c = arg\left[\frac{-V_{ud}^* V_{cd}}{V_{us}^* V_{cs}}\right] = (0.0350 \pm 0.0001)^o$$

$$\gamma_c = arg\left[\frac{-V_{ub}^* V_{cb}}{V_{ud}^* V_{cd}}\right] = (68.4 \pm 0.1)^o$$

AVERAGE OF VALUES IN TAB 1

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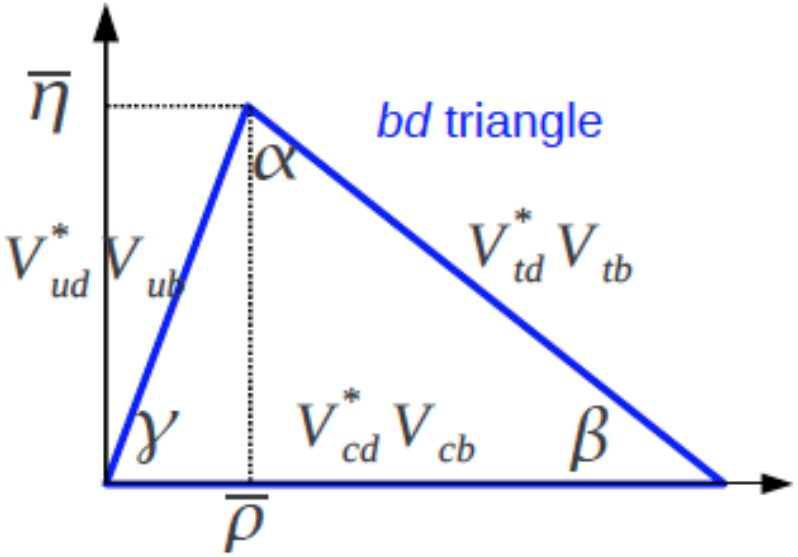

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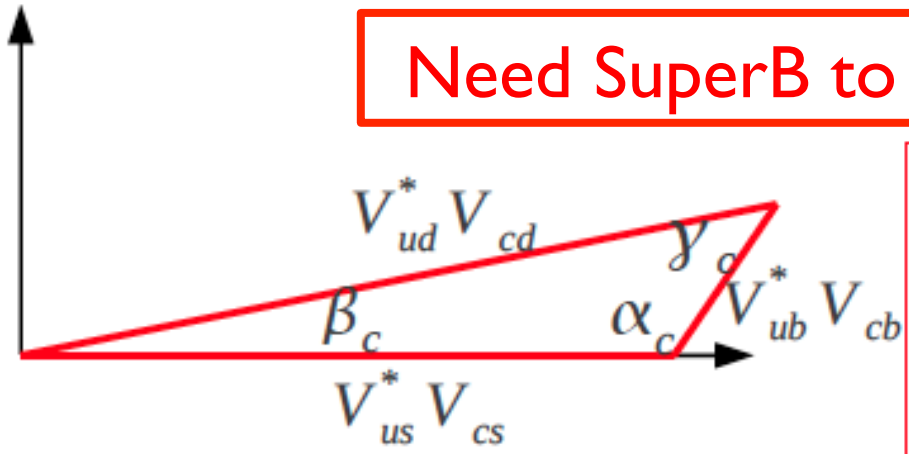
Need SuperB to measure β_c



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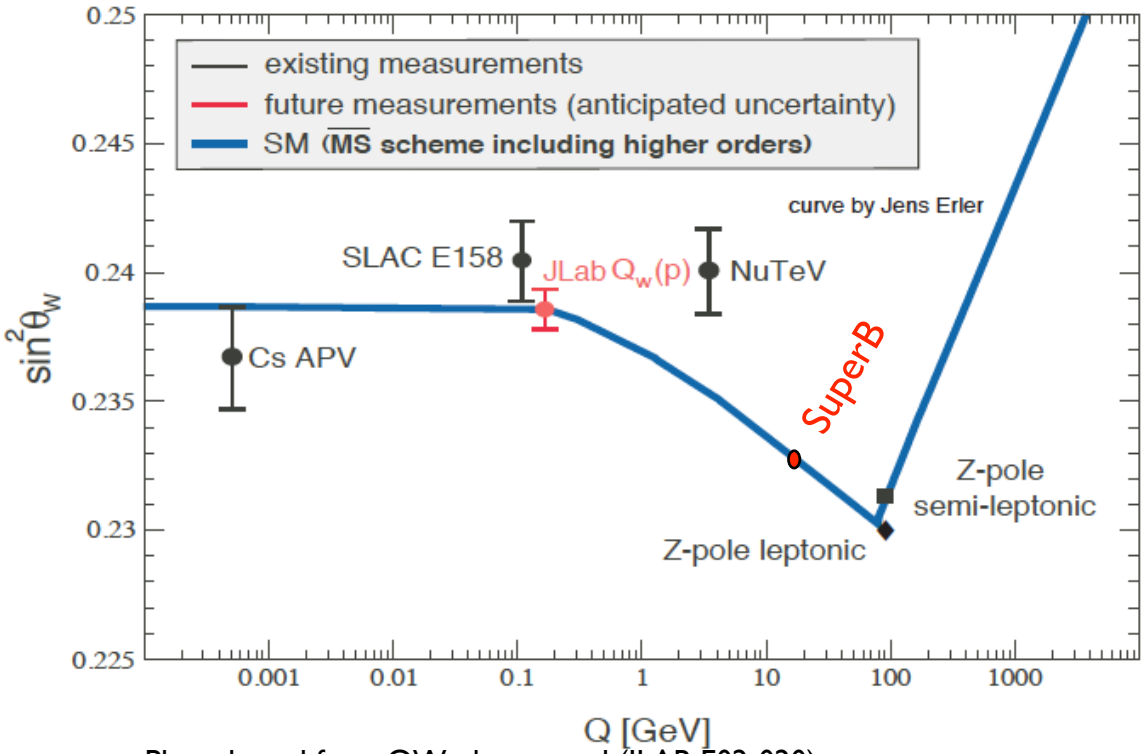
Precision Electroweak

- $\sin^2\theta_W$ can be measured with polarised e^- beam
  - $\sqrt{s} = \Upsilon(4S)$ is theoretically clean, c.f. b-fragmentation at Z pole



Plot adapted from QWeak proposal (JLAB E02-020)

Measure LR asymmetry in

$$e^+e^- \rightarrow c\bar{c}$$
$$e^+e^- \rightarrow \mu^+\mu^-$$
$$e^+e^- \rightarrow \tau^+\tau^-$$

at the $\Upsilon(4S)$ to same precision as LEP/SLC at the Z-pole.

Can also perform crosscheck at $\psi(3770)$.

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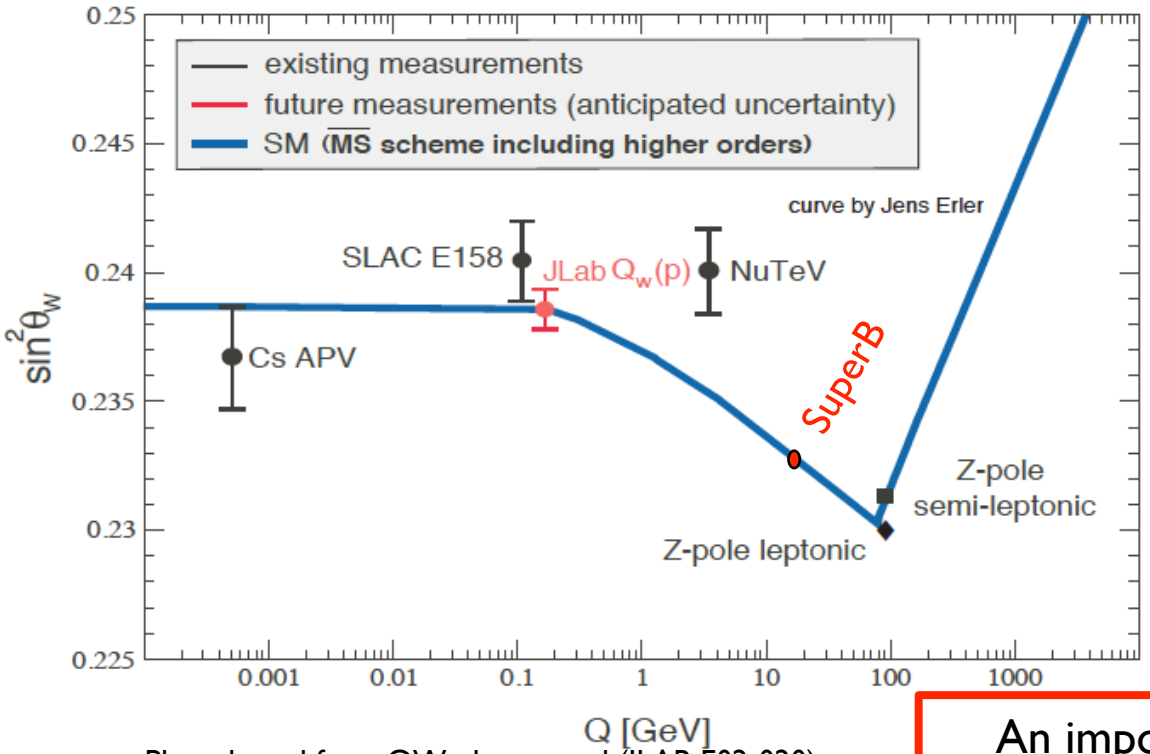

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Can also perform crosscheck at $\psi(3770)$.

An important test of the SM in the electroweak sector

Interplay

More information on the golden matrix can be found in arXiv:1008.1541, arXiv:0909.1333, and arXiv:0810.1312.

- Combine measurements to elucidate structure of new physics.

	Observable/mode	H^+ high $\tan\beta$	MFV	non-MFV	NP Z penguins	Right-handed currents	LTH	SUSY AC	SUSY RVV2	SUSY AKM	SUSY δLL	SUSY FBMSSM
✓	$\tau \to \mu\gamma$							★★★	★★★	★	★★★	★★★
✓	$\tau \to \ell\ell\ell$						★★★					
✓	$B \to \tau\nu, \mu\nu$	★★★(CKM)										
✓	$B \to K^{(*)+}\nu\bar{\nu}$			★	★★★			★	★	★	★	★
✓	S in $B \to K^0_S\pi^0\gamma$					★★★						
✓	S in other penguin modes			★★★(CKM)		★★★		★★★	★★	★	★★★	★★★
✓	$A_{CP}(B \to X_s\gamma)$			★★★		★★		★	★	★	★★★	★★★
✓	$BR(B \to X_s\gamma)$		★★★	★		★						
✓	$BR(B \to X_s\ell\ell)$			★	★	★						
✓	$B \to K^{(*)}\ell\ell$ (FB Asym)							★	★	★	★★★	★★★
	$B_s \to \mu\mu$							★★★	★★★	★★★	★★★	★★★
	β_s from $B_s \to J/\psi\phi$							★★★	★★★	★★★	★	★
✓	a_{sl}						★★★					
✓	Charm mixing							★★★	★	★	★	★
✓	CPV in Charm	★★									★★★	

✓= SuperB can measure these modes

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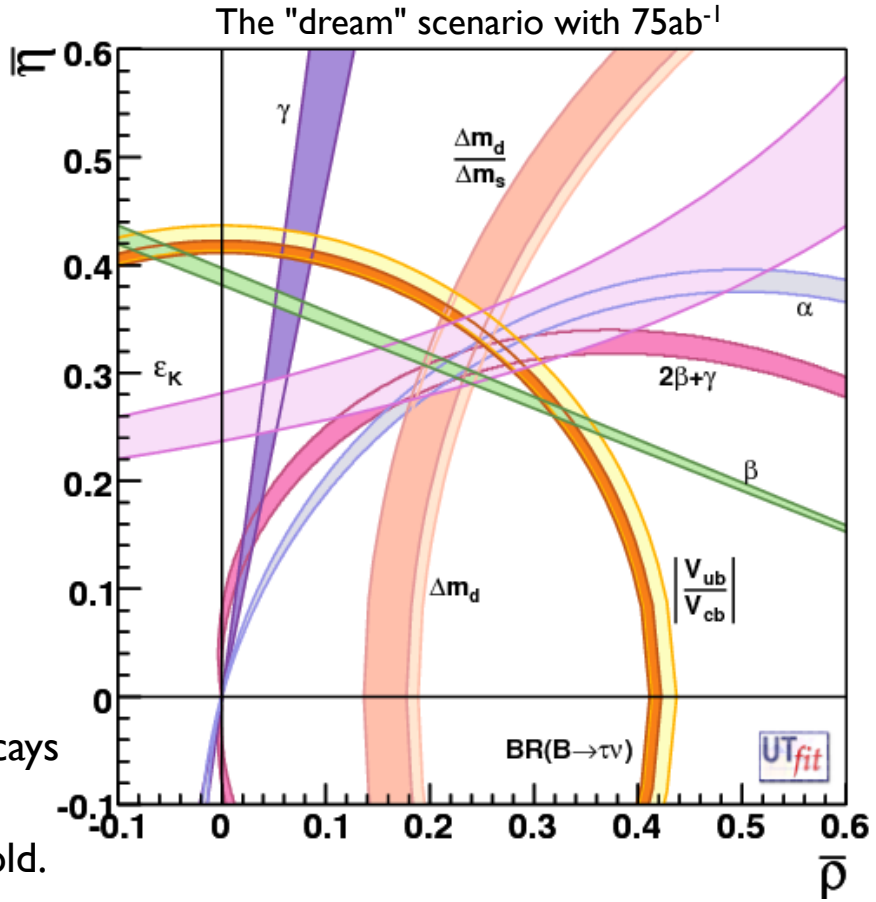
✓	$\tau \to \ell\ell\ell$						★★★					
✓	$B \to \tau\nu, \mu\nu$	★★★(CKM)										
✓	$B \to K^{(*)+}\nu\bar{\nu}$			★	★★★			★	★	★	★	★
✓	S in $B \to K^0_S\pi^0\gamma$					★★★						
✓	S in other penguin modes			★★★(CKM)		★★★		★★★	★★	★	★★★	★★★
✓	$A_{CP}(B \to X_s\gamma)$			★★★		★★		★	★	★	★★★	★★★
✓	$BR(B \to X_s\gamma)$		★★★	★		★						
✓	$BR(B \to X_s\ell\ell)$			★	★	★						
✓	$B \to K^{(*)}\ell\ell$ (FB Asym)							★	★	★	★★★	★★★
	$B_s \to \mu\mu$							★★★	★★★	★★★	★★★	★★★
	β_s from $B_s \to J/\psi\phi$							★★★	★★★	★★★	★	★
✓	a_{sl}						★★★					
✓	Charm mixing							★★★	★	★	★	★
✓	CPV in Charm	★★									★★★	

✓= SuperB can measure these modes

SuperB is a very versatile tool to decode the nature of new physics using this golden matrix

Precision CKM constraints

- Unitarity Triangle Angles
  - $\sigma(\alpha) = 1\text{–}2°$
  - $\sigma(\beta) = 0.1°$
  - $\sigma(\gamma) = 1\text{–}2°$
- CKM Matrix Elements
  - $|V_{ub}|$
    - Inclusive σ = 2%
    - Exclusive σ = 3%
  - $|V_{cb}|$
    - Inclusive σ = 1%
    - Exclusive σ = 1%
  - $|V_{us}|$
    - Can be measured precisely using τ decays
  - $|V_{cd}|$ and $|V_{cs}|$
    - can be measured at/near charm threshold.



- SuperB Measures the sides and angles of the *bd* unitarity Triangle
  - (and sides and β_c angle of the *cu* charm unitarity triangle)

R. Faccini, Elba 2010

Conclusions

- Luminosity is needed to create a complete picture in **exotic spectroscopy**
  - SuperB@Y(4S) would do the core of the job
  - L~100fb-1 on Y(nS) would already be enough to overcome the BF data sample
  - No real development needed for TDR
- Dark Matter (Y→invisible) would be helped by low angle detector coverage
  - Simulation missing (manpower!)
- Dark forces are a brand new field
  - Only basic studies available
  - Simulation missing (manpower?)

See WG5 parallel sessions on Tuesday and Wednesday

Golden Measurements: CKM

- Comparison of relative benefits of SuperB ($75ab^{-1}$) vs. existing measurements and LHCb ($5fb^{-1}$) and the LHCb upgrade ($50fb^{-1}$).

Observable/mode	Current (now)	LHCb (2017)	Super*B* (2021)	LHCb upgrade (2030?)	Theory
α					
β from $b \to c\bar{c}s$					
$B_d \to J/\psi\pi^0$					
$B_s \to J/\psi K_S^0$					
γ					
$\|V_{ub}\|$ inclusive					
$\|V_{ub}\|$ exclusive					
$\|V_{cb}\|$ inclusive					
$\|V_{cb}\|$ exclusive					

LHCb can only use $\rho\,\pi$

β theory error B_d

β theory error B_s

Need an e^+e^- environment to do a precision measurement using semi-leptonic B decays.

Experiment: No Result | Moderate Precision | Precise | Very Precise

Theory: Moderately clean | Clean Need lattice | Clean

Golden Measurements: General

Experiment: No Result | Moderate Precision | Precise | Very Precise

Theory: Moderately clean | Clean Need lattice | Clean

Observable/mode	Current (now)	LHCb (2017)	Super$B$ (2021)	LHCb upgrade (2030?)	theory	
τ Decays						
$\tau \to \mu\gamma$						Benefit from polarised e^- beam
$\tau \to e\gamma$						
$B_{u,d}$ Decays						
$B \to \tau\nu, \mu\nu$						very precise with improved detector
$B \to K^{(*)+}\nu\bar{\nu}$						Statistically limited: Angular analysis with >75ab^{-1}
S in $B \to K^0_S\pi^0\gamma$						Right handed currents
S in other penguin modes						SuperB measures many more modes
$A_{CP}(B \to X_s\gamma)$						systematic error is main challenge
$BR(B \to X_s\gamma)$						control systematic error with data
$BR(B \to X_s\ell\ell)$						
$BR(B \to K^{(*)}\ell\ell)$						SuperB measures e mode well, LHCb does μ
B_s Decays						
$B_s \to \mu\mu$						
β_s from $B_s \to J/\psi\phi$						
$B_s \to \gamma\gamma$						
a_{sl}						
D Decays						
mixing parameters						Clean NP search
CPV						
Precision EW						
$\sin^2\theta_W$ at $\Upsilon(4S)$						Theoretically clean
$\sin^2\theta_W$ at Z-pole						b fragmentation limits interpretation

Physics programme in a nutshell

- Versatile flavour physics experiment
  - Probe new physics observables in wide range of decays.
    - Pattern of deviation from Standard Model can be used to identify structure of new physics.
    - Clean experimental environment means clean signals in many modes.
    - Polarised e^- beam benefit for τ LFV searches & $\sin^2\theta_W$.
  - Best capability for precision CKM constraints of any existing/ proposed experiment.
    - Measure angles and sides of the bd unitarity triangle.
    - Measure β_c and sides of the cu unitarity triangle (see charm tomorrow).
    - Measure other CKM matrix elements at threshold and using τ data (see tau contributions).

Aims of this week

- Physics workshop
  - Focus on many areas of the programme in parallel with the general meeting.
  - Dedicated session on b→sll experimental and theoretical reach
- Comparison document
  - Finalise the document, in consultation with other experiments (LHCb, Belle II etc.)
- TDR
  - The writing starts now...
  - NOTE: discussion session on Wednesday morning
  - See outline at http://mailman.fe.infn.it/superbwiki/index.php/SuperB_Physics_TDR
- December workshop
  - Highlight priorities and schedule dates for December physics workshop: b→s γ is already identified for discussion.

XVII SuperB Workshop and Kick-off Meeting
La Biodola, Isola d'Elba
May 28 - June 2, 2011

Agenda

All Plenary Sessions will be held in Sala Maria Luisa

Meeting Registration Desk : Saturday May 28, 17:00 - Hotel Hermitage

Welcome Reception: Saturday May 28, 20:00 - Hotel Hermitage - Swimming pool area

	Sunday, May 29, 2011		Monday, May 30, 2011		Tuesday, May 31, 2011		Wednesday, June 1, 2011		Thursday, June 2, 2011
8:00	Registration							6:00	*BUS TO Pisa and Fiumicino*
9:00	PLENARY	8:30	PARALLEL	8:30	PARALLEL	8:30	PARALLEL 9	8:30	CLOSED MEETINGS
SML	*Introduction and Status*	SE	Acc 3: Site + Vibrations	SE	Acc 4: IR & Backgrounds	SE	Acc 8: RF + Feedbacks + Controls	SB1+2	Detector Technical Board
10	Welcome (G.Batignani)	SML	Det: ETD1	SML	Det: ETD2	SML	Detector: Mechanical Integration		
20	Project status (M.Giorgi)	SA	Physics 2: WG5	SA	Physics 4: WG 5	SA	Physics 6: Other experiments	SE	Accelerator Board
30	Physics (A.Bevan)	SB1	Det+Comp: Fullsim & Backgrounds	SB1	Comp: Distributed Computing	SB1	Comp: Planning		
30	Detector (B.Ratcliff)	SB2	Physics 3: Charm	SB2	Physics 8: sll	SB2			
		SBIO	Charm / WG5	SBIO	b→sll / WG5		Other Expts.		
10:30	*Coffee Break*	10:30	*Coffee Break*	10:30	*Coffee Break*	10:30	*Coffee Break*	10:30	*Coffee Break*
11:00	PLENARY	11:00	PLENARY	11:00	PARALLEL	11:00	PARALLEL 10	11:00	CLOSED MEETINGS
SML	*Introduction and Status*	SML	KICK-OFF DAY						
30	Computing (E.Luppi)	30	Status of the SuperB Project (R.Petronzio)	SE	Det: ETD3	SE	Acc 9: Future Plans		
30	Accelerator (M.Biagini)	30	SuperB e il Piano Nazionale della Ricerca (A.Agostini)	SML	Det+Acc 5: MDI	SML	Detector subsystem Summaries	SB1+2	Detector Technical Board
				SA	Physics 7: Lattice tau	SA	Physics 9: TDR Planning/ Dec WS		
		30	SuperB nel Campus dell'Università di Tor Vergata (P.Masi)	SB1	Comp: R&D projects	SB1		SE	Accelerator Board
				SB2		SB2			
		30	SuperB as High Brilliance Light Source (E. Di Fabrizio)	SBIO	Lattice / tau		TDR / planning		
12:30	*Lunch - Fuoco di Bosco*	13:30	*Lunch - Fuoco di Bosco*	12:30	*Lunch - Fuoco di Bosco*	12:30	*Lunch - Fuoco di Bosco*	12:30	*Lunch - Fuoco di Bosco*
16:00	PARALLEL	15:30	PLENARY	16:00	PARALLEL	16:00	PLENARY	16:00	CLOSED MEETINGS
		SML	KICK-OFF DAY			SML	*Summaries and outlook*		
SE	Acc 1: Lattice + Design	30	The European Strategy Session and the New Particle Physics Roadmap (S. Stapnes)	SE	Acc 6: Collective effects I				
SML	SVT			SML	SVT	15	Forward Task Force (H.Jawahery)	SB1+2	Project Board
SA	Physics 1: Interplay			SA	DCH	15	Backward Task Force (W.Wisniewski)		
SB1	Forw task force meeting (closed)			SB1	PID	30	Computing (F.Bianchi)		
SB2	EMC (Start at 15:30)	30	Super Flavour Collires and ECFA (T. Nakada)	SB2	EMC	30	Physics (TBD)		
SBIO	IFR			SBIO	IFR				
	Interplay								
17:30	*Coffee Break*	16:30	*Coffee Break*	17:30	*Coffee Break*	17:30	*Coffee Break*	17:30	*Coffee Break*
18:00	PARALLEL	17:00	PLENARY	18:00	PARALLEL	18:00	PLENARY	18:00	CLOSED MEETINGS
		SML				SML	*Summaries and outlook*		
SE	Acc 2: Injection	25	LHCb, Belle II, Super τ / charm	SML	*Exp Collaboration PI Meeting*				
SML	SVT			SE	Acc 7: Collective effects II	20	Mach-Det Interface (E.Paoloni)	SB1+2	Steering committee
SA	DCH	25				30	Accelerator summary (J. Seeman)		
SB1	PID					30	Acc.IR Summary (M. Sullivan)		
SB2	EMC	25				10	Project outlook		
SBIO	IFR								
		25							
		18:45							
		SML	Experiment Collaboration Forming						
19:30		19:30		19:30		19:30	*END OF GENERAL MEETING*	19:30	*ADJOURN*
20:00	*Dinner at one's own hotel*	20:00	*Dinner at one's own hotel*	20:00	*Social Dinner (Fuoco di Bosco)*	20:00	*Dinner at one's own hotel*	20:00	*Dinner at one's own hotel*

	Meeting Room	Conf. code #
SB1	Sala Bonaparte 1 - Hotel Hermitage	1303
SB2	Sala Bonaparte 2 - Hotel Hermitage	1304
SE	Sala Elena - Conference Center	1301

	Meeting Room	Conf. code #
SML	Sala Maria Luisa - Conference Center	1300
SA	Sala Ajaccio - Conference Center	1302
SBIO	Sala Biodola - Hotel Biodola	1305
	Phone conference number for all calls at:	http://server10.infn.it/video/index.php?page=telephone_numbers

XVII SuperB Workshop and Kick-off Meeting
La Biodola, Isola d'Elba
May 28 - June 2, 2011

Agenda

All Plenary Sessions will be held in Sala Maria Luisa

Meeting Registration Desk : Saturday May 28, 17:00 - Hotel Hermitage

Welcome Reception: Saturday May 28, 20:00 - Hotel Hermitage - Swimming pool area

	Sunday, May 29, 2011		Monday, May 30, 2011		Tuesday, May 31, 2011		Wednesday, June 1, 2011		Thursday, June 2, 2011
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9:00	PLENARY	8:30	PARALLEL	8:30	PARALLEL	8:30	PARALLEL 9	8:30	CLOSED MEETINGS
SML	*Introduction and Status*	SE	Acc 3: Site + Vibrations	SE	Acc 4: IR & Backgrounds	SE	Acc 8: RF + Feedbacks + Controls	SB1+2	Detector Technical Board
10	Welcome (G.Batignani)	SML	Det: ETD1	SML	Det: ETD2	SML	Detector: Mechanical Integration		
20	Project status (M.Giorgi)	SA	Physics 2: WG5	SA	Physics 4: WG 5	SA	Physics 6: Other experiments	SE	Accelerator Board
30	Physics (A.Bevan)	SB1	Det+Comp: Fullsim & Backgrounds	SB1	Comp: Distributed Computing	SB1	Comp: Planning		
30	Detector (B.Ratcliff)	SB2	Physics 3: Charm	SB2	Physics 8: sll	SB2			
		SBIO	Charm / WG5	SBIO	b→sll / WG5		Other Expts.		
10:30	*Coffee Break*	10:30	*Coffee Break*	10:30	*Coffee Break*	10:30	*Coffee Break*	10:30	*Coffee Break*
11:00	PLENARY	11:00	PLENARY	11:00	PARALLEL	11:00	PARALLEL 10	11:00	CLOSED MEETINGS
SML	*Introduction and Status*	SML	KICK-OFF DAY						
30	Computing (E.Luppi)	30	Status of the SuperB Project (R.Petronzio)	SE	Det: ETD3	SE	Acc 9: Future Plans		
30	Accelerator (M.Biagini)	30	SuperB e il Piano Nazionale della Ricerca (A.Agostini)	SML	Det+Acc 5: MDI	SML	Detector subsystem Summaries	SB1+2	Detector Technical Board
			SuperB nel Campus dell'Università	SA	Physics 7: Lattice tau	SA	Physics 9: TDR Planning/ Dec WS	SE	Accelerator Board
				SB1	Comp: R&D projects	SB1			
				SB2		SB2			
12:30	*Lunch - Fuoco di Bos*								*Lunch - Fuoco di Bosco*
16:00	PARALLEL								CLOSED MEETINGS
SE	Acc 1: Lattice + Design								
SML	SVT								Project Board
SA	Physics 1: Interplay								
SB1	Forw task force meeting (cl								
SB2	EMC (Start at 15:30)								
SBIO	IFR								
	Interplay								
17:30	*Coffee Break*	16:30	*Coffee Break*	17:30	*Coffee Break*	17:30	*Coffee Break*	17:30	*Coffee Break*
18:00	PARALLEL	17:00	PLENARY	18:00	PARALLEL	18:00	PLENARY	18:00	CLOSED MEETINGS
SE	Acc 2: Injection	SML		SML	*Exp Collaboration PI Meeting*	SML	*Summaries and outlook*	SB1+2	Steering committee
SML	SVT	25				20	Mach-Det Interface (E.Paoloni)		
SA	DCH	25		SE	Acc 7: Collective effects II	30	Accelerator summary (J. Seeman)		
SB1	PID					30	Acc.IR Summary (M. Sullivan)		
SB2	EMC	25				10	Project outlook		
SBIO	IFR	25							
			LHCb, Belle II, Super τ / charm/BES III						
		18:45							
		SML	Experiment Collaboration Forming						
19:30		19:30		19:30		19:30	*END OF GENERAL MEETING*	19:30	*ADJOURN*
20:00	*Dinner at one's own hotel*	20:00	*Dinner at one's own hotel*	20:00	*Social Dinner (Fuoco di Bosco)*	20:00	*Dinner at one's own hotel*	20:00	*Dinner at one's own hotel*

Meeting Room		*Conf. code #*
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SB2	*Sala Bonaparte 2 - Hotel Hermitage*	*1304*
SE	*Sala Elena - Conference Center*	*1301*

Meeting Room		*Conf. code #*
SML	*Sala Maria Luisa - Conference Center*	*1300*
SA	*Sala Ajaccio - Conference Center*	*1302*
SBIO	*Sala Biodola - Hotel Biodola*	*1305*

Phone conference number for all calls at: *http://server10.infn.it/video/index.php?page=telephone_numbers*

Unfortunately some sessions run in parallel

but there is also plenty of workshop time available this week – let's use it wisely