Physics Overview

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Princeton University

4th Super B Collaboration Meeting

June 1, 2012

Outline:

- A few slides on LHC search status
- Summary of the Physics Workshop
- Overview of collab mtg physics sessions

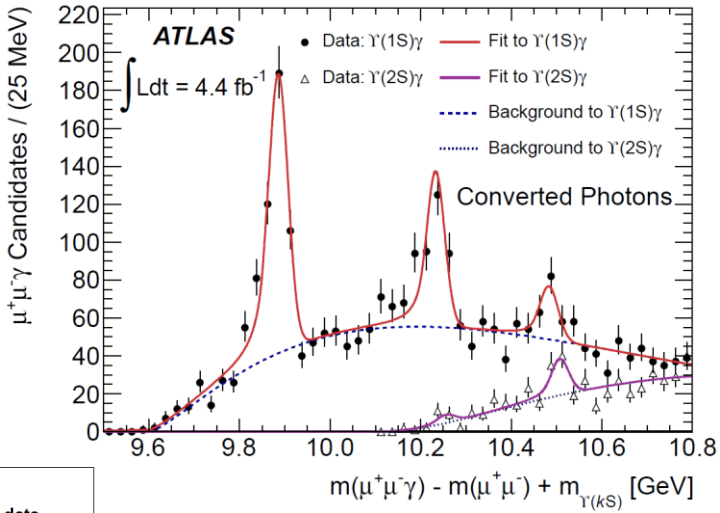
Pop Quiz

- **What are the only new particles discovered at the LHC to date?**

A. Higgs boson
B. Black holes
C. Gluinos
D. Squarks
E. B hadrons

$\chi_b(3P)$

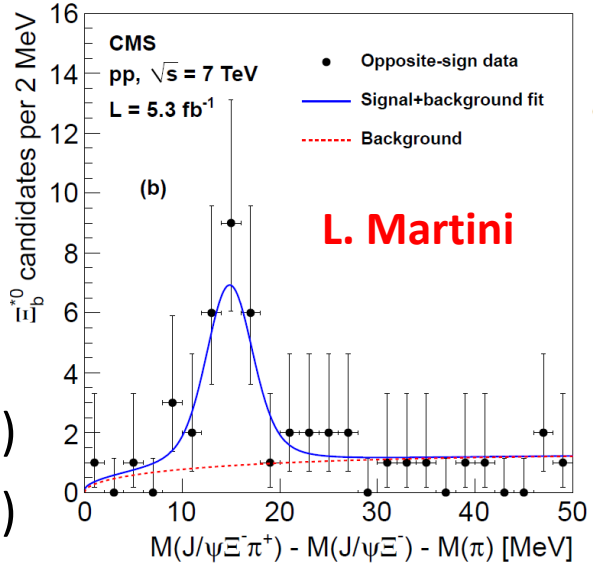
- ATLAS (Dec, 2011)

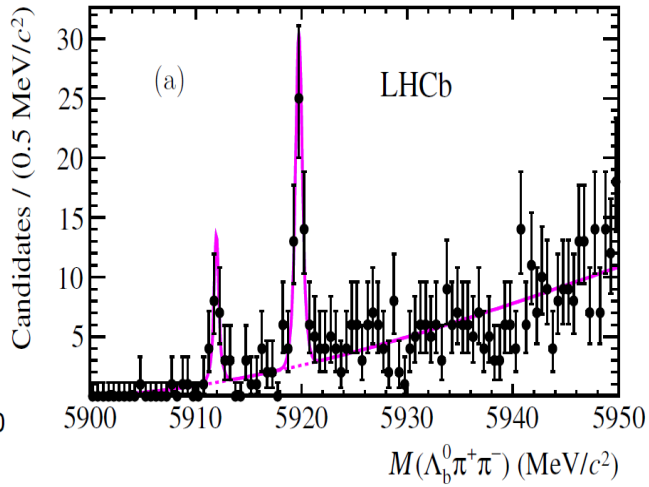


$\Xi_b^{*0}(5945)$ - CMS (April, 2012)

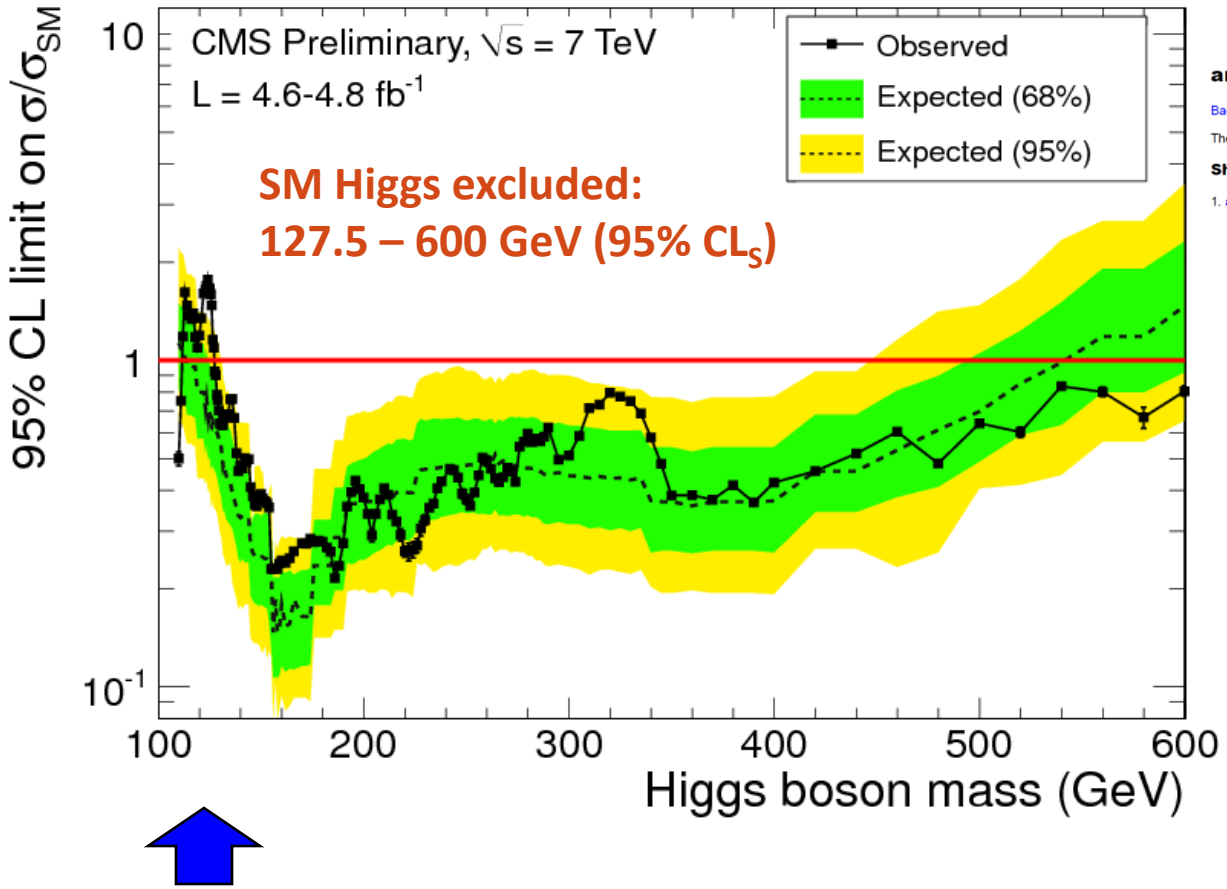
$\Lambda_b^{*0}(5912)$ - LHCb (May, 2012)

$\Lambda_b^{*0}(5920)$ - LHCb (May, 2012)





Where is the SM Higgs?



arXiv.org Search Results

Back to Search form | Next 6 results

The URL for this search is http://arxiv.org/find/all/1/ti:+AND+Higgs+AND+125+GeV/0/1/0/all/0/1

Showing results 1 through 25 (of 31 total) for ti:(Higgs AND (125 AND GeV))

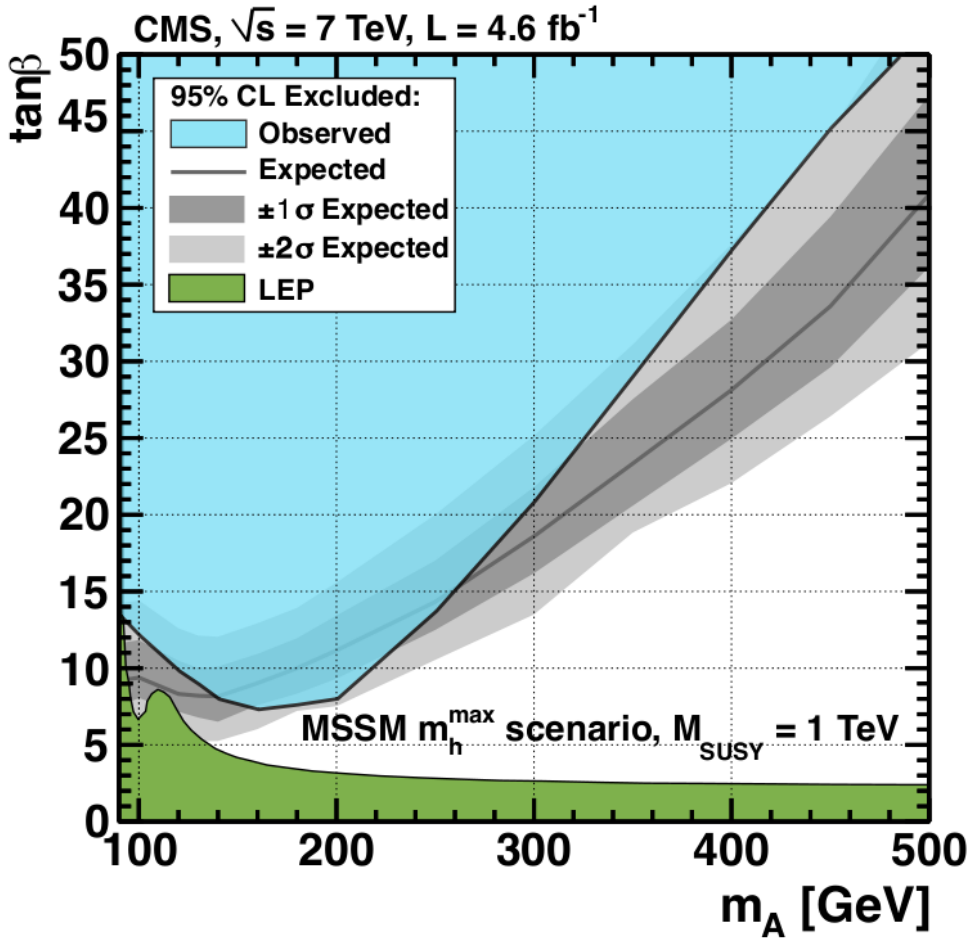
1. arXiv:1205.4247 [pdf, other]
Probing the scalar-pseudoscalar mixing in the 125 GeV Higgs particle with current data
A. Barroso, P. M. Ferreira, Rui Santos, João P. Silva
Comments: 12 pages, 4 figures
Subjects: **High Energy Physics - Phenomenology (hep-ph)**

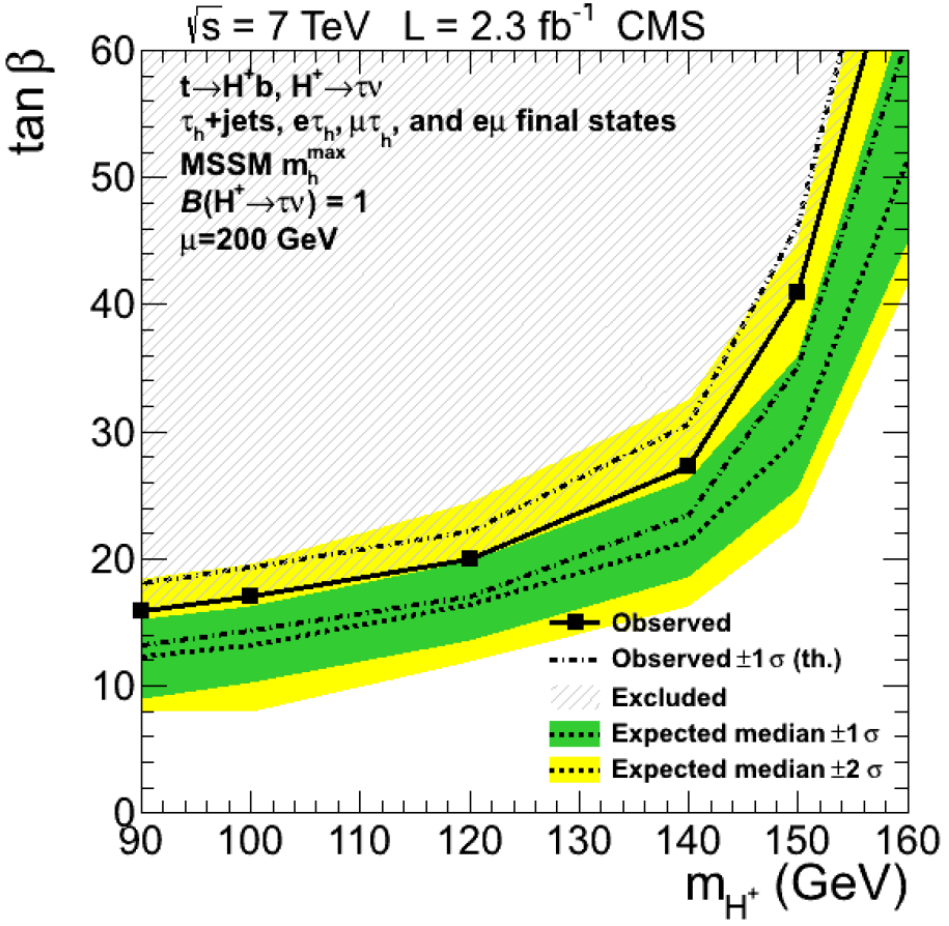
31 papers on arXiv with
"125 GeV Higgs"
in the title since Dec…
(and zero before)

If not here…

It must be way out here

Where are the MSSM Higgses?



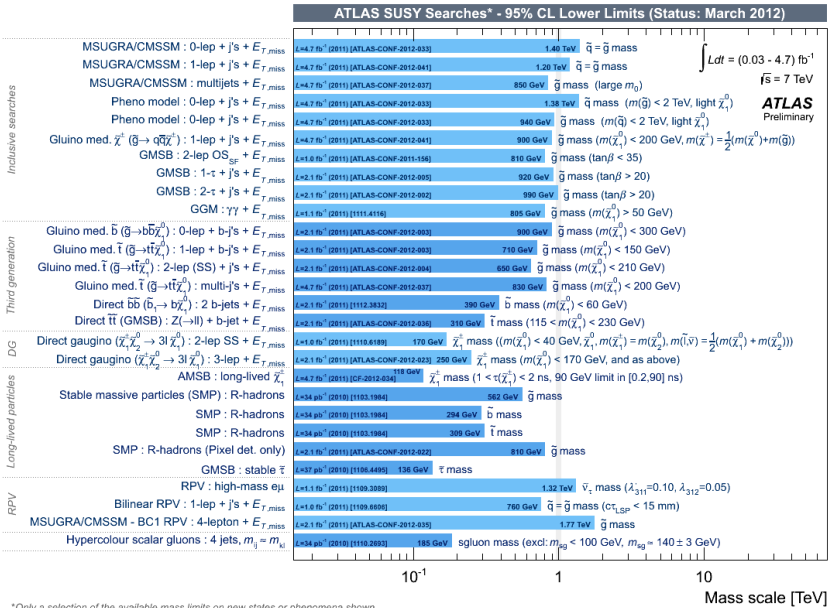


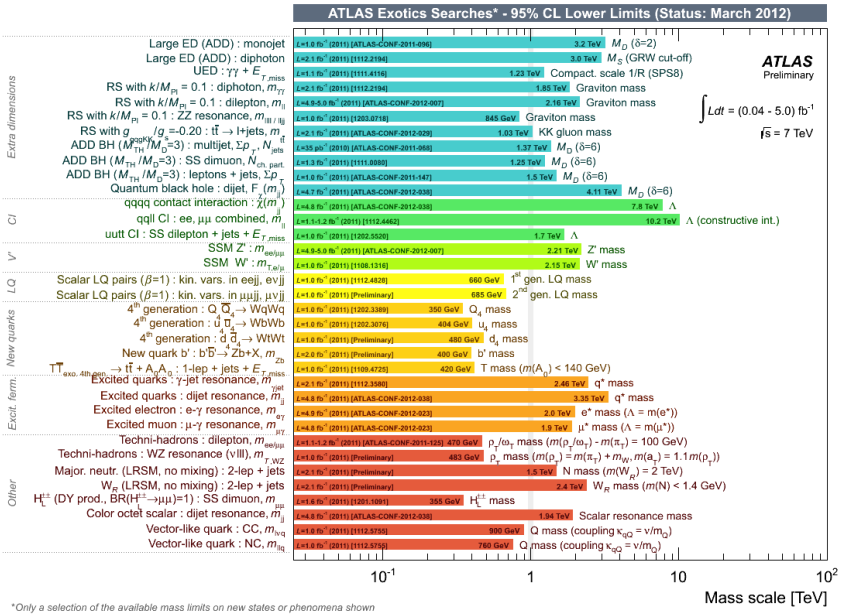
Direct searches exclude low mass for almost all values of tanβ

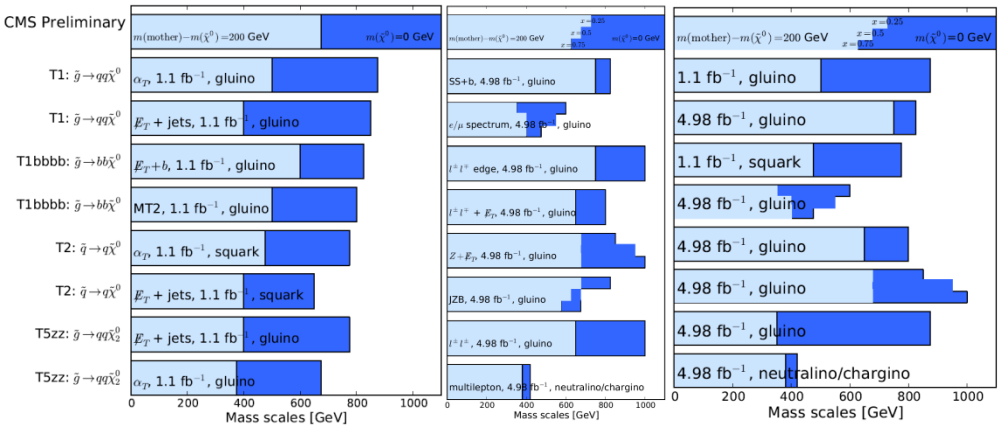
Where is “Everything Else”?

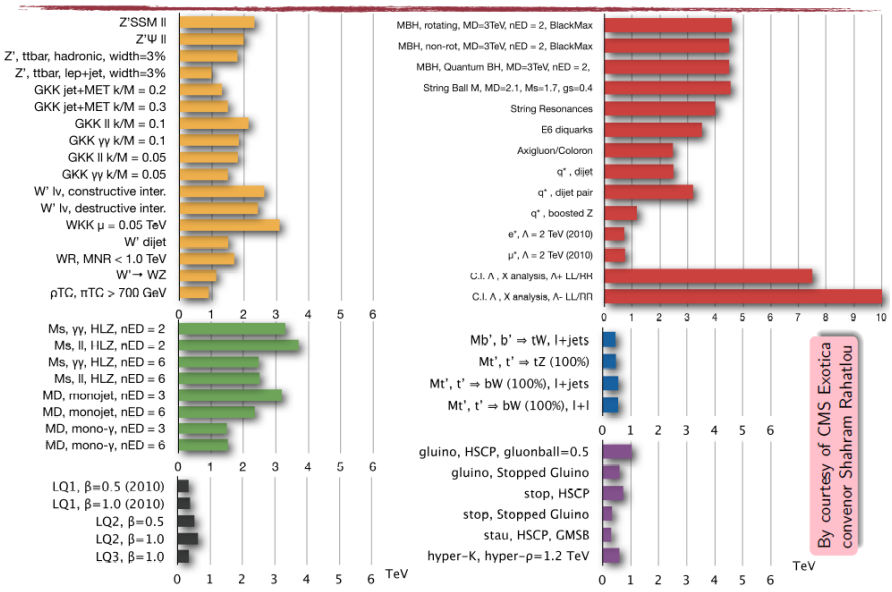
> 150 searches:

“no significant signal was found…”









Summary of LHC: Spring 2012

- Most of the low-hanging fruit has been picked
  - Starting to get creative ("SUSY with no MET", etc)
- SM reigns supreme at the LHC thus far
- With no clear hint of NP in direct searches, flavor physics continues to be a critical search focus

No stone unturned, no loop untied…

Super B Physics Workshop

- **Thursday, May 31 (9:00-18:00)**
- **~30 participants, good discussion**
- **Plenary only format, similar to Dec workshop**
- **13 speakers (8 thy, 5 exp)**
- **Invited talks from LHCb, CMS, BES III**
- **Apologies**
  - Shameless use of other's slides
  - Any misrepresentations are mine!
  - Ordering rearranged

Agenda

4th SuperB Collaboration Meeting - La Biodola (Isola d'Elba) Italy (31 May 2012 - 05 June 2012)

09:00->*19:00* Physics Meeting (Convener: John Joseph Walsh (*PI*) , Marco Ciuchini (*ROMA3*) , James Olsen (*Princeton University*) , Adrian Bevan (*Queen Mary*)) EVO meeting URL; EVO meeting information

09:00	Welcome (05') (Slides) (Aula Maria Luisa)	Marco Ciuchini (*ROMA3*)
09:05	Delta ACP in Charm from LHCb (25') (Slides) (Aula Maria Luisa)	benoit viaud (*LAL-in2p3-CNRS*)
09:30	Hadronic Uncertainties in Delta ACP (25') (Slides) (Aula Maria Luisa)	Luca Silvestrini (*ROMA1*)
09:55	Lattice and Charm (30') (Slides) (Aula Maria Luisa)	Cecilia Tarantino (*ROMA3*)
10:25	Rare Charm decays from BES III (25') (Slides) (Aula Maria Luisa)	Xiao-Rui Lu (*Graduate Unversity of Chinese Academy of Sciences*)
11:00	coffee break (30')	
11:30	Vub Theoretical Overview (30') (Slides) (Aula Maria Luisa)	Paolo Gambino (*TO*)
12:00	Extracting Vub and B->Xs gamma from global fits (25') (Slides) (Aula Maria Luisa)	Kerstin Tackmann (*DESY*)
12:25	Vub Experimental overview (20') (Slides) (Aula Maria Luisa)	Marcello Rotondo (*PD*)
12:45	Vub and the CKM fits (15') (Slides) (Aula Maria Luisa)	Marco Ciuchini (*ROMA3*)
13:00	Right-handed effects in Vub (20') (Slides) (Aula Maria Luisa)	Andreas Crivellin (*TTP Karlsruhe*)
13:30	lunch break (2h30')	
16:00	B physics from CMS including Bs -> mu+mu- (25') (Slides) (Aula Maria Luisa)	Luca Martini (*PI*)
16:25	B physics from LHCb, Bs->mumu and K*ll (25') (Slides) (Aula Maria Luisa)	Patrick Koppenburg (*Nikhef*)
16:50	Bs->mu+mu- and B->tau nu comparison (25') (Slides) (Aula Maria Luisa)	Gianluca Blankenburg (*ROMA3*)
17:15	Hadronic form factors in tauola (20') (Slides) (Aula Maria Luisa)	Pablo Roig Garces (*LPT CNRS, Orsay*)
17:35	Closeout (05') (Aula Maria Luisa)	John Joseph Walsh (*PI*)

Session III: Rare decays

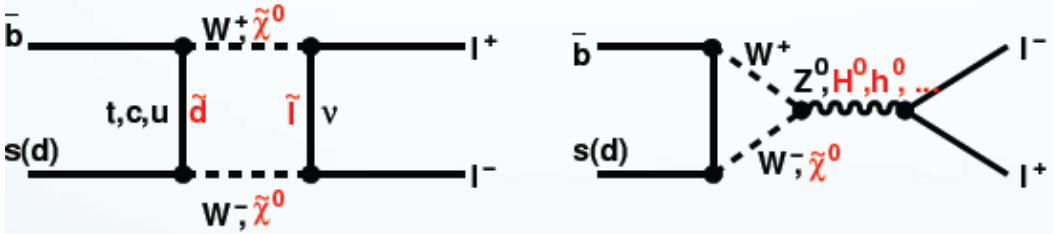
- **Experimental talks**
  - B physics at CMS (Luca Martini)
  - B physics at LHCb (Patrick Koppenburg)
  - Emphasis on NP searches in Bs $\rightarrow \mu\mu$ and B $\rightarrow$ K*$\mu\mu$
- **Theory talks**
  - Bs $\rightarrow \mu\mu$ vs B $\rightarrow \tau\nu$ (Gianluca Blankenburg)
  - Hadronic form factors in tauola (Pablo Garces)

Luca Martini

Bs → μμ @ CMS

In SM $B_s^0 \to \mu\mu$ and $B^0 \to \mu\mu$ have a highly suppressed rate:

1. **forbidden at tree level** and can only proceed through higher-order loop diagrams
2. **helicity suppressed** by factors of $(m_l/m_B)^2$, where m_l and m_B are the masses of the lepton and B meson
3. **require an internal quark annihilation** within the B meson



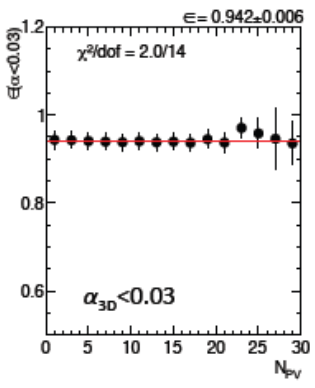
Decay channel	BF SM predictions*
$B^0 \to \mu^+\mu^-$	$(1.1 \pm 0.1) \times 10^{-10}$ (Buras)
$B_s^0 \to \mu^+\mu^-$	$(3.2 \pm 0.2) \times 10^{-9}$ (Buras)
$B_s^0 \to \mu^+\mu^-$	$(3.6\ ^{+0.2}_{-0.3}) \times 10^{-9}$ (CKM fitter)

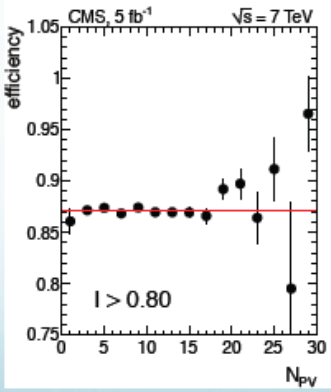
$BF(B_{(s)}^0 \to \mu\mu)$ are potentially sensitive probes for Physics Beyond SM:

- Sensitivity to extended Higgs boson sectors
- Constraints on SUSY parameter regions
- Small theoretical uncertainties

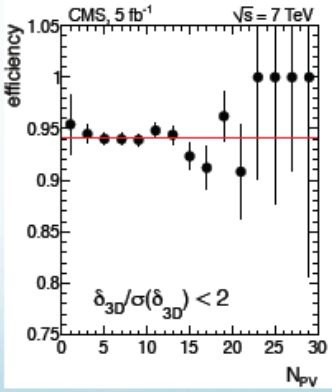
Conditions at LHC not a big prob:

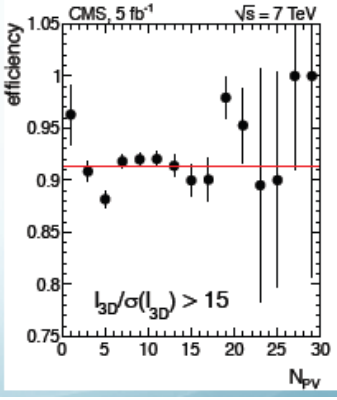
Normalization sample





Control sample

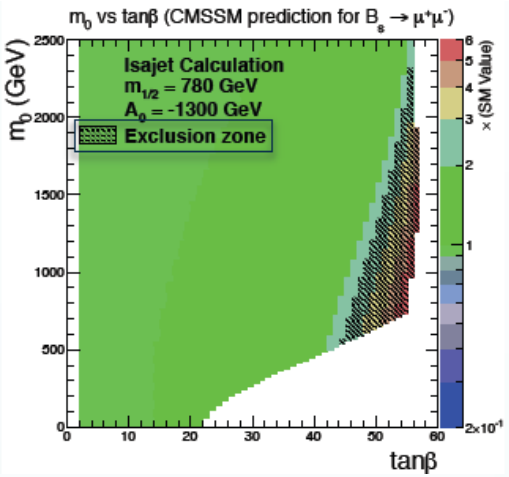


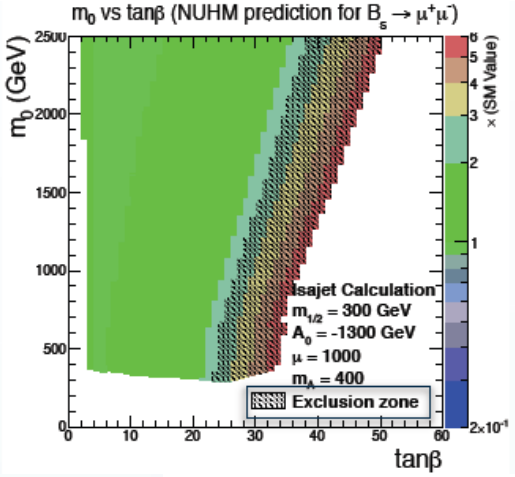


Luca Martini

Bs → μμ @ CMS

Using 5fb^{-1}

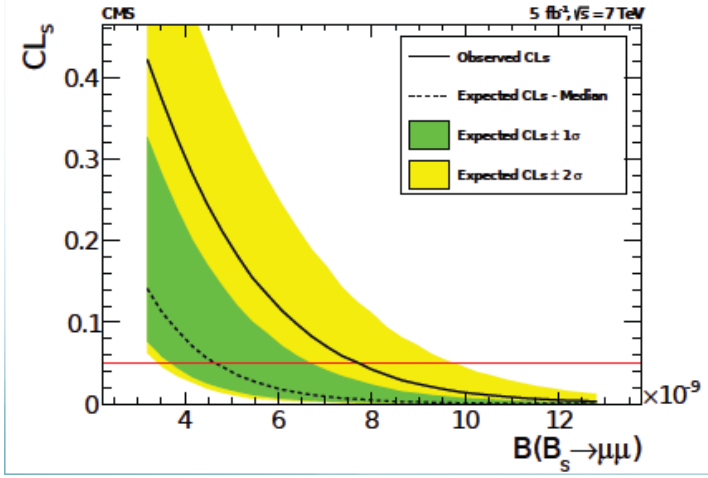




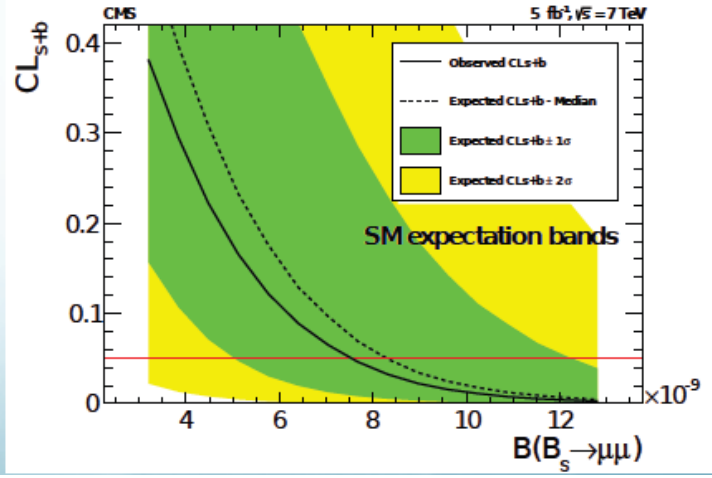
With CLs at 95%CL:

	observed	median expected
BR($B_s^0 \to \mu\mu$)	7.7 x 10^{-9}	8.4 x 10^{-9}
BR($B^0 \to \mu\mu$)	1.8 x 10^{-9}	1.6 x 10^{-9}

Bkg only hypothesis:

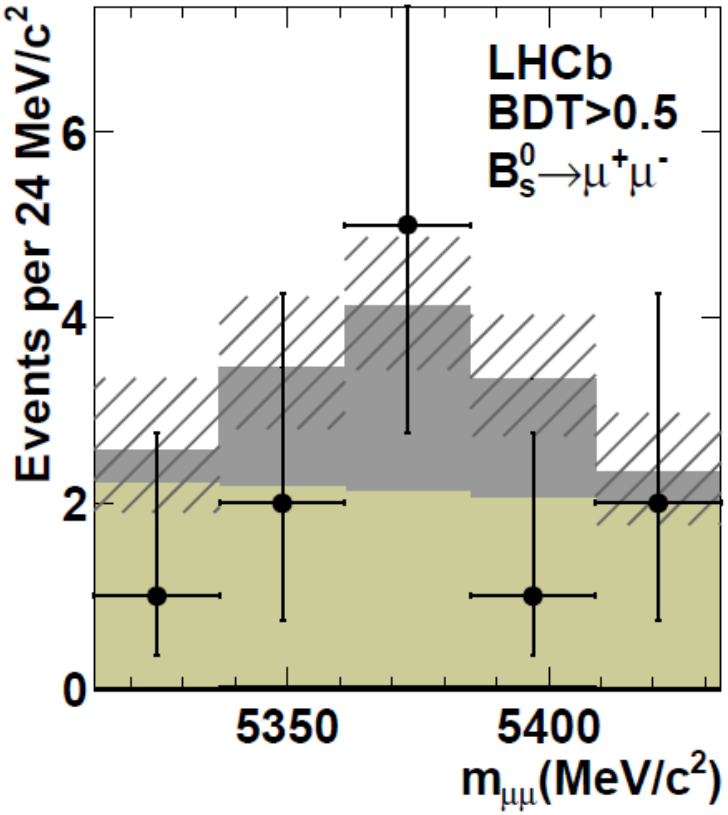


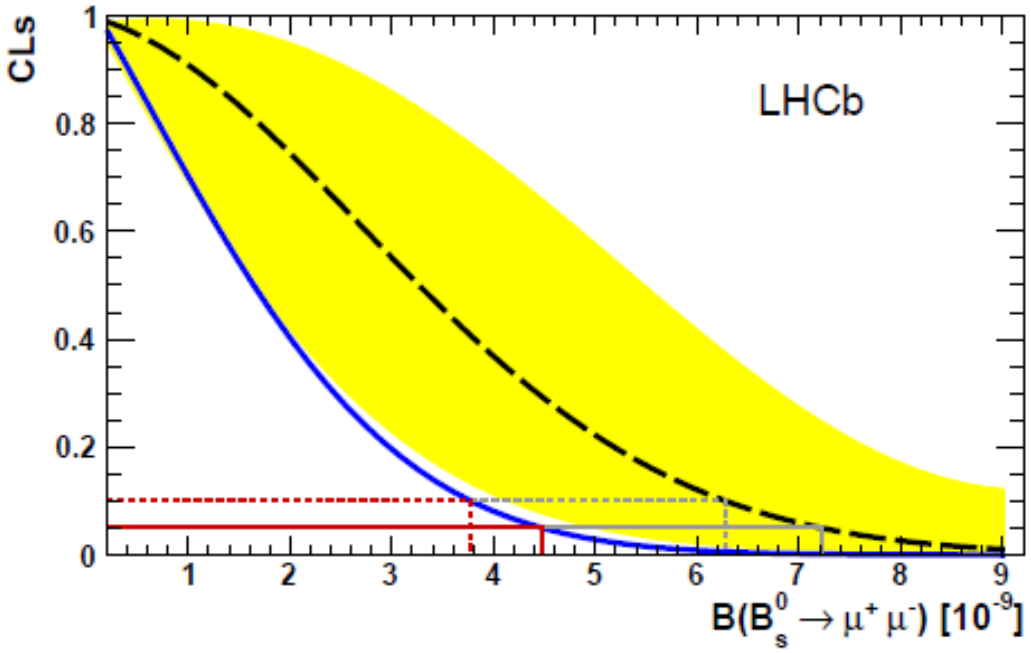
Bkg + SM signal hypothesis:



Improvements on the way, including MVA

Bs → μμ @ LHCb





	$B_d \to \mu\mu$	$B_s \to \mu\mu$
Expected limit assuming bkg only (95%)	$1.1 \cdot 10^{-9}$	$3.4 \cdot 10^{-9}$
Expected limit assuming bkg+SM (95%)		$7.2 \cdot 10^{-8}$
Observed limit (95%)	$\mathbf{1.0 \cdot 10^{-9}}$	$\mathbf{4.5 \cdot 10^{-9}}$
p-value of background only hypothesis	60%	18%

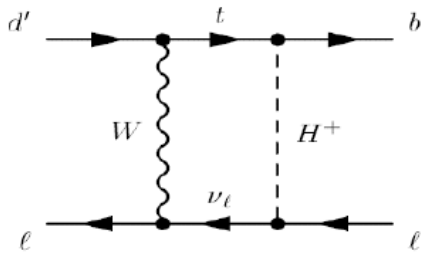
Bs → μμ vs. B → τν

2HDM vs MSSM

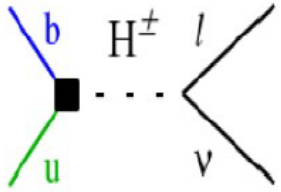
Observing the SM in B → μ μ is it possible to observe deviations in B → τ ν ?

2HDM-II

H^+ → new source of charged FC current at tree level



tanβ⁴



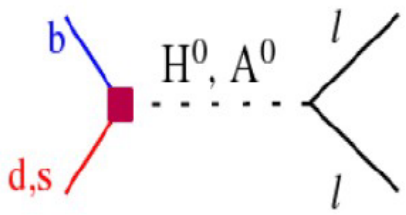
tanβ⁴

Which is the parameter space allowed after B → μ μ accessible throught B → τ ν ?

MSSM-MFV

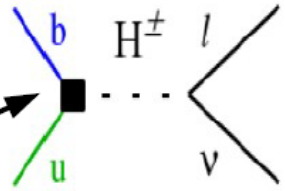
Addictional contribution from $U(1)_{PQ}$ breaking → new source of FCNC at loop level

→ proportional to susy parameters



tanβ⁶

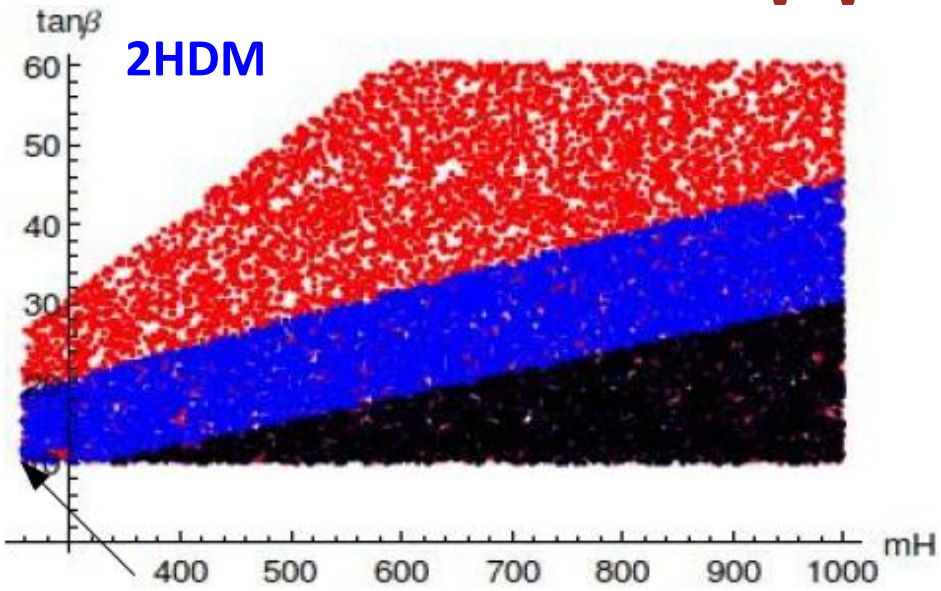
vertex corrections

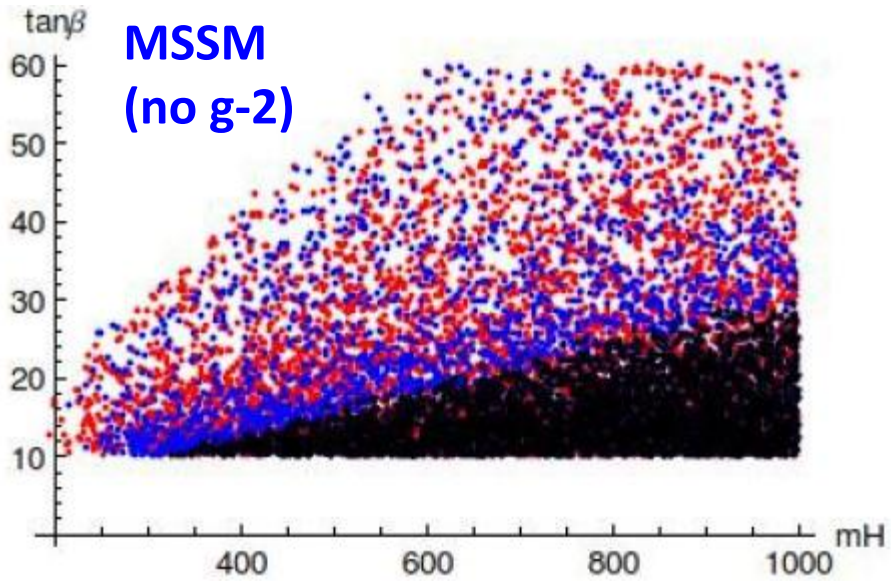


tanβ⁴

Red: pres LHCb
Blue: LHCb 10 fb^{-1}
Black: SuperB 75 ab^{-1}

Bs → μμ vs. B → τν





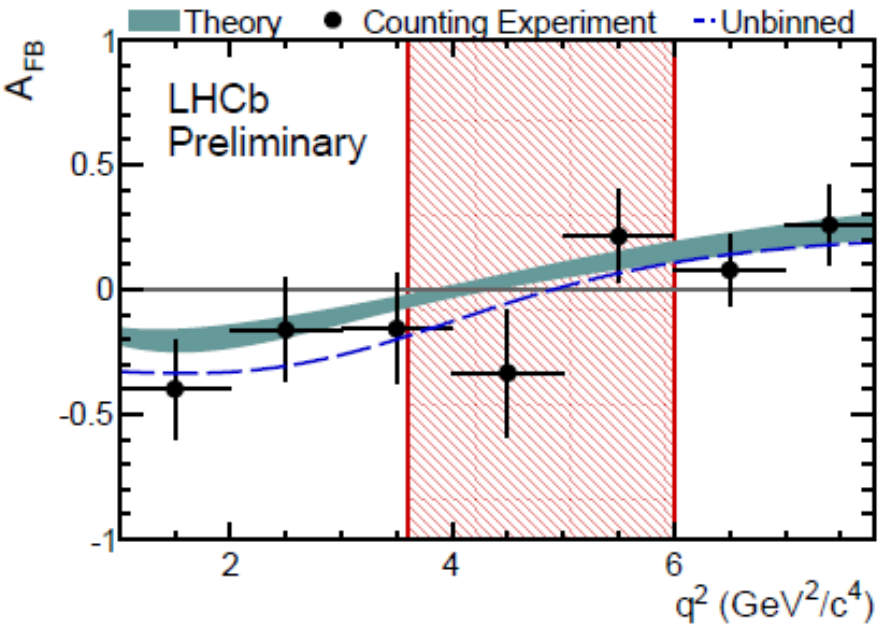
2HDM-II

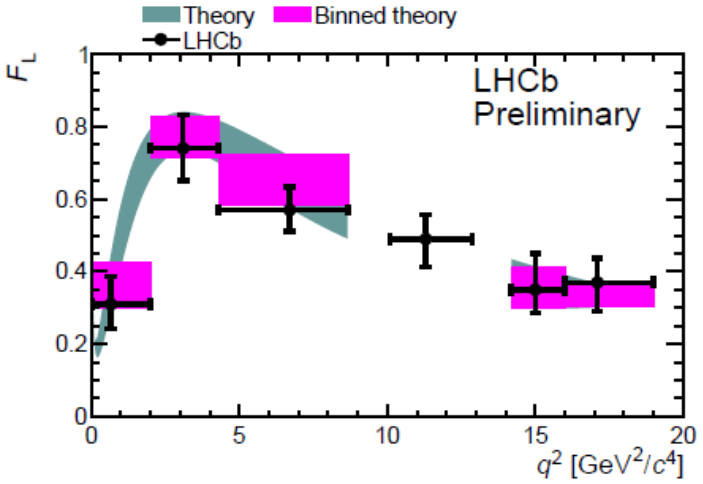
- detectable deviations can be found in B → τν (B → μμ is loop process μ $\tan\beta^4$ while B → τν is tree level μ $\tan\beta^4$)
- but only a suppression is possible

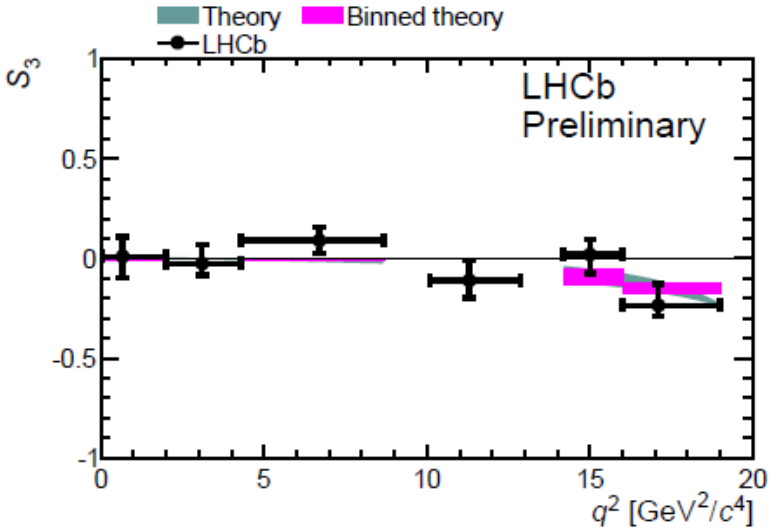
MSSM-MFV

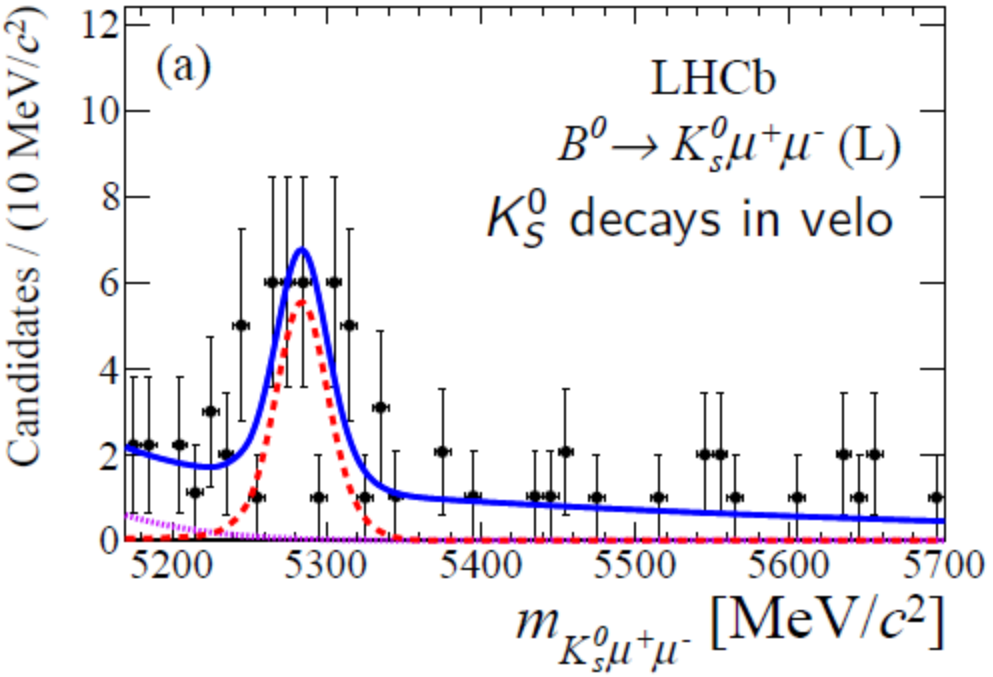
- B → μμ can be more enhanced than in 2HDM (loop process μ $\tan\beta^6$)
- detectable deviations in B → τν is possible, for
  - μ small → chargino bound
  - A small → mh measurement
  - M_s large → 2HDM-like
- again only a suppression is possible

$B^{(*)} \to K^{(*)}\mu\mu$ at LHCb









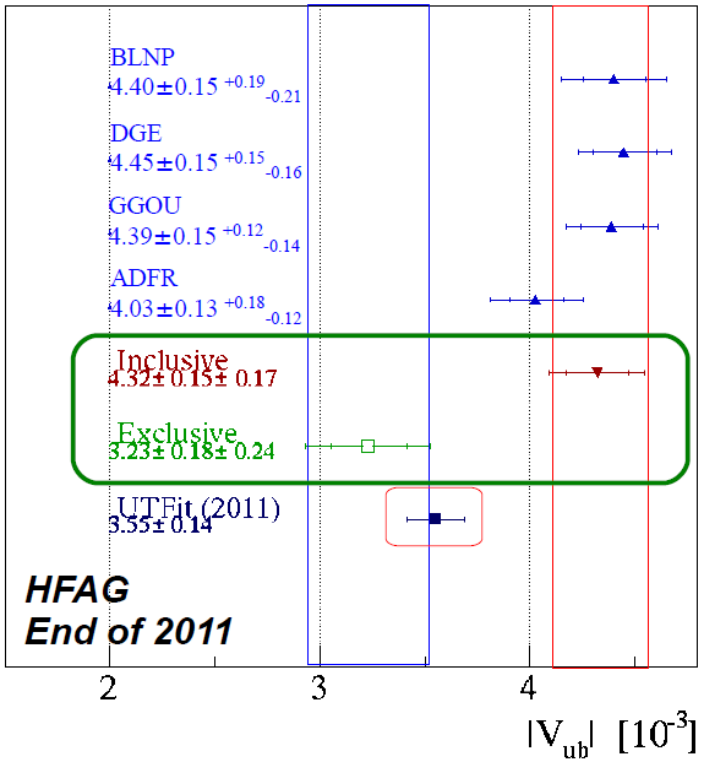
Session II: Vub

- **Theory**
  - Overview (Paolo Gambino)
  - V_{ub} and $B \rightarrow X_s\gamma$ from global fits (Kerstin Tackmann)
  - V_{ub} and CKM fits (Marco Ciuchini)
  - Right-handed effects in Vub (Andreas Crivellin)
- **Experiment**
  - Overview (Marcello Rotondo)

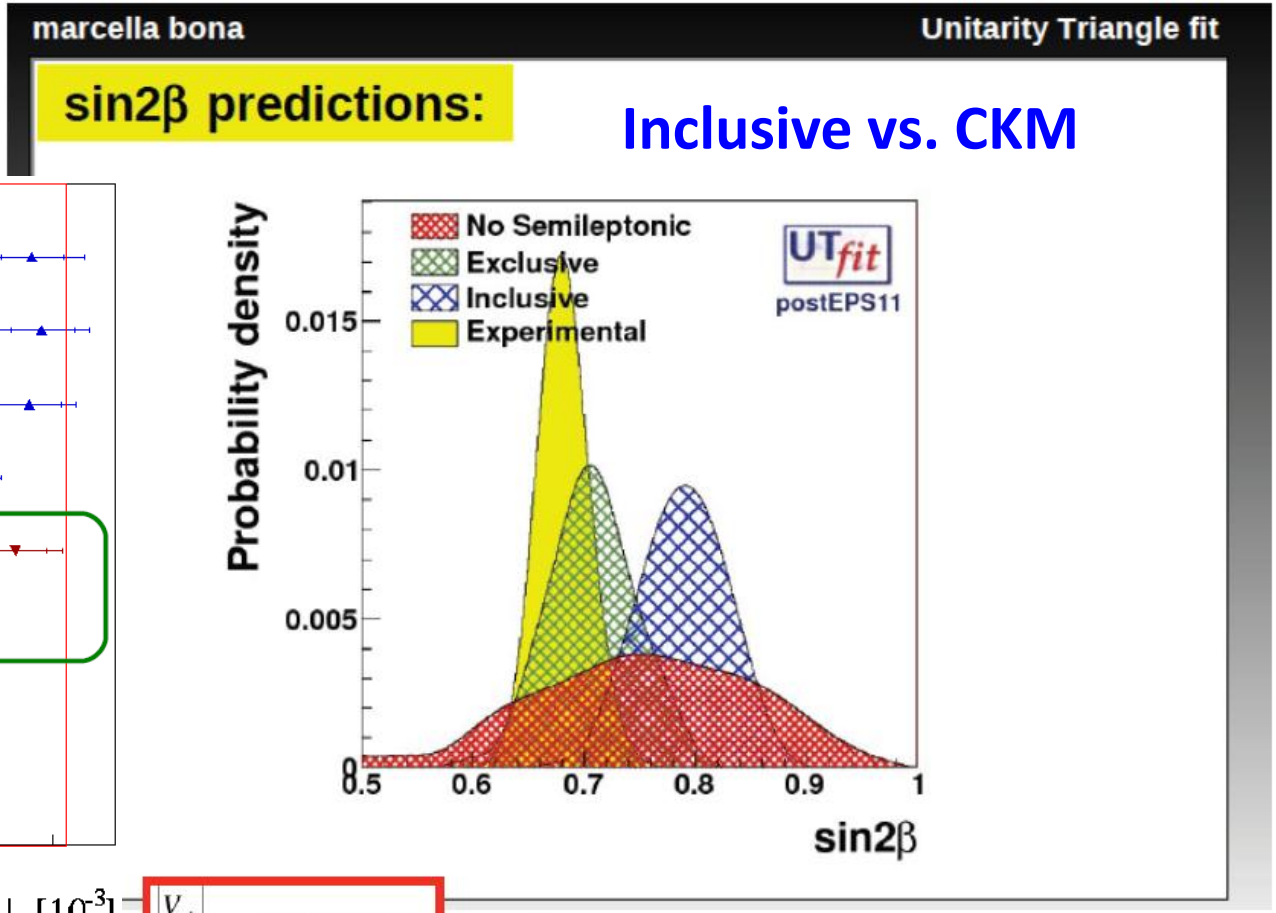
Paolo Gambino (+ M. Bona) + Marcello Rotondo

Vub: Tension^2

Inclusive vs. Exclusive



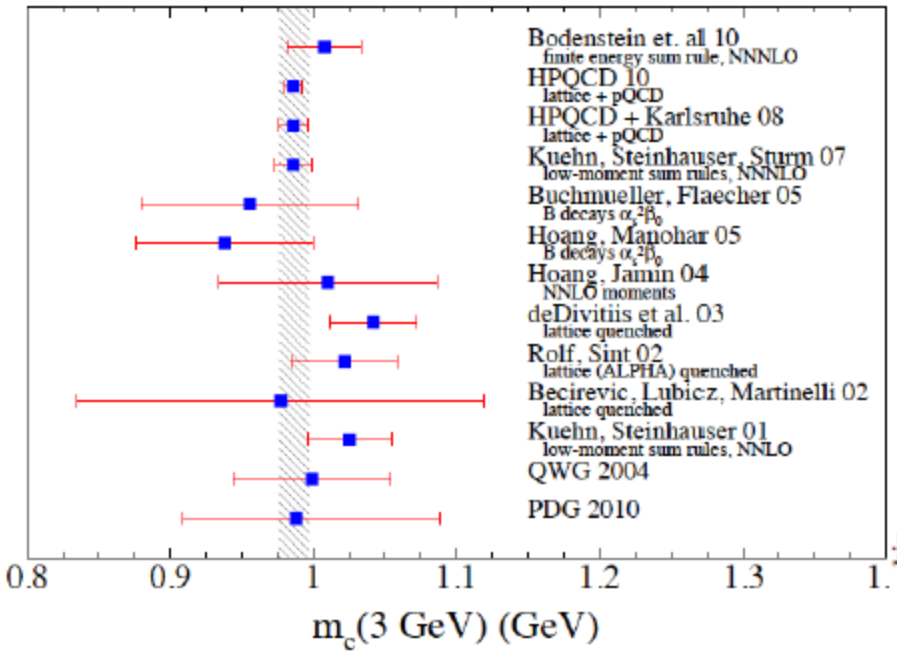
Inclusive vs. CKM

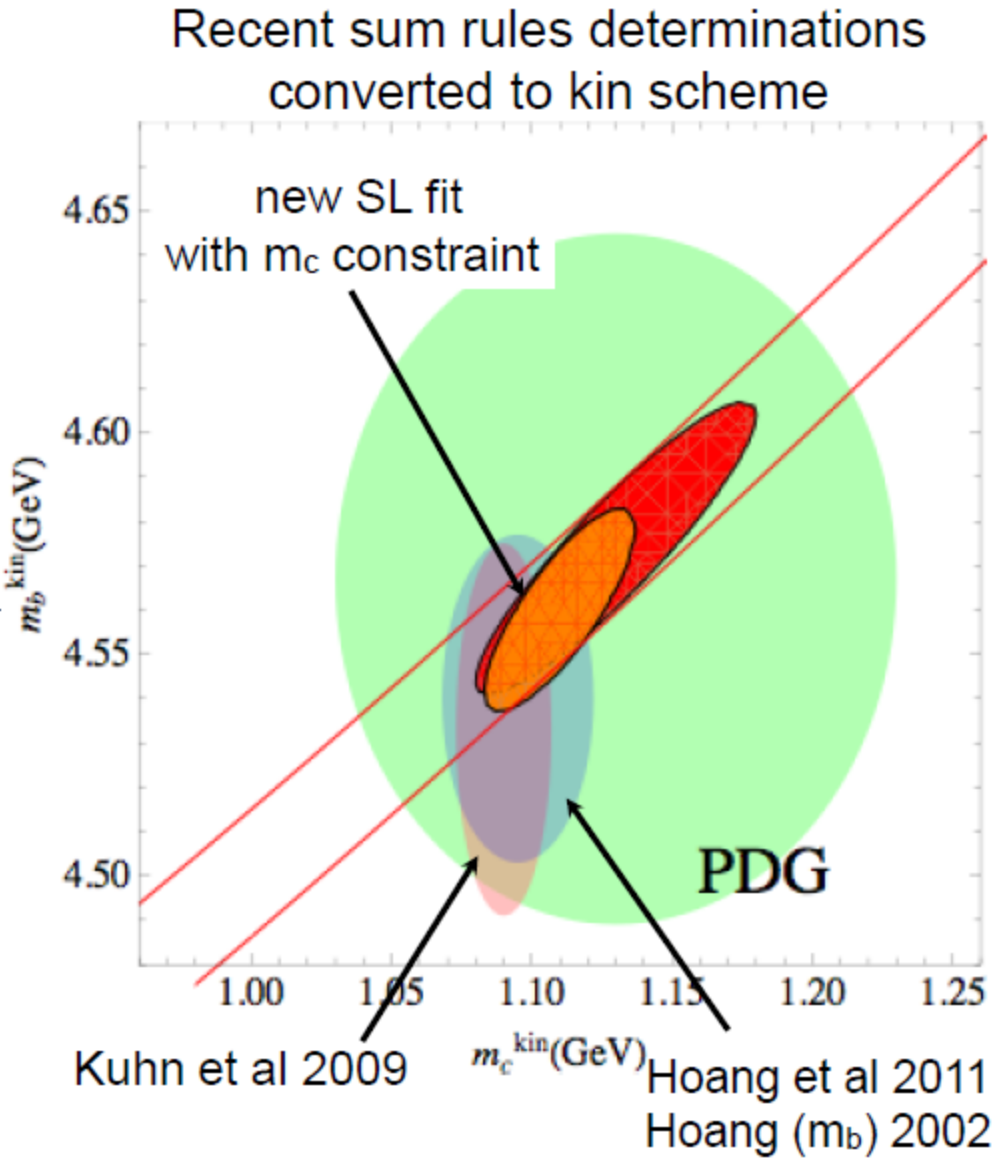


$$\left|\frac{V_{ub}}{V_{cb}}\right|_{incl} = 0.101 \pm 0.006 \rightarrow \sin 2\beta_{UTfit} = 0.791 \pm 0.041$$

$$\left|\frac{V_{ub}}{V_{cb}}\right|_{excl} = 0.084 \pm 0.008 \rightarrow \sin 2\beta_{UTfit} = 0.706 \pm 0.041$$

Charm Enhances Beauty





Comparison and combination of $m_{b,c}$ penalized by changes of scheme.

New fit with Hoang et al
$m_c(3\mathrm{GeV})=0.998(29)\mathrm{GeV}$ leads to

$m_b^{kin}=4.56(2)\mathrm{GeV}$ ➡
$m_b(m_b)=4.19(4)\mathrm{GeV}$

$|V_{ub}|$ in the kinetic scheme - GGOU

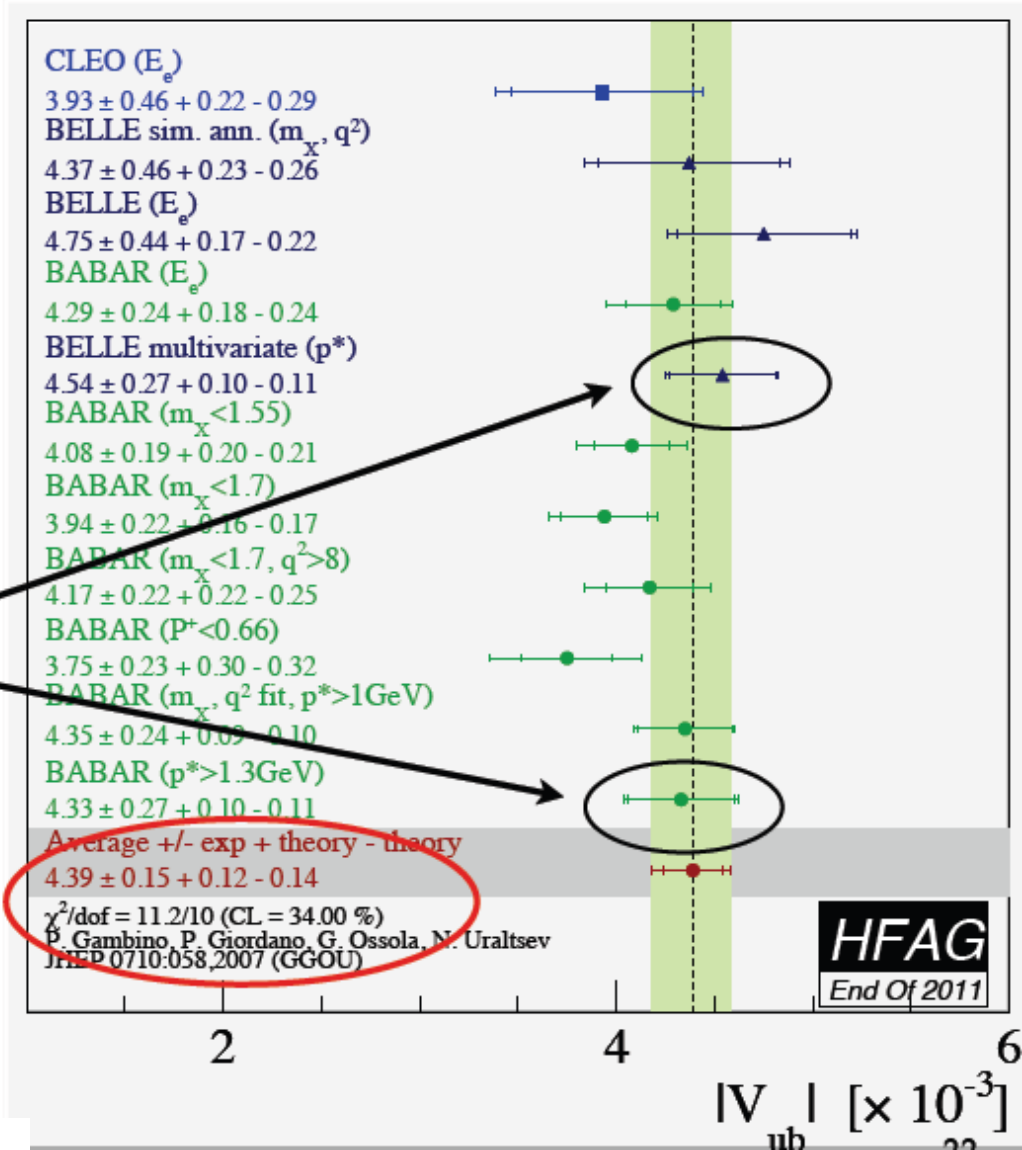
PG,Giordano,Ossola,Uraltsev

Good consistency & small th error.

4.7% total error

very strong dependence on m_b

recent *multivariate results* are theoretically cleanest but signal simulation relies on theoretical models



Global Fit Approach to $|V_{ub}|$ and $B \to X_s\gamma$

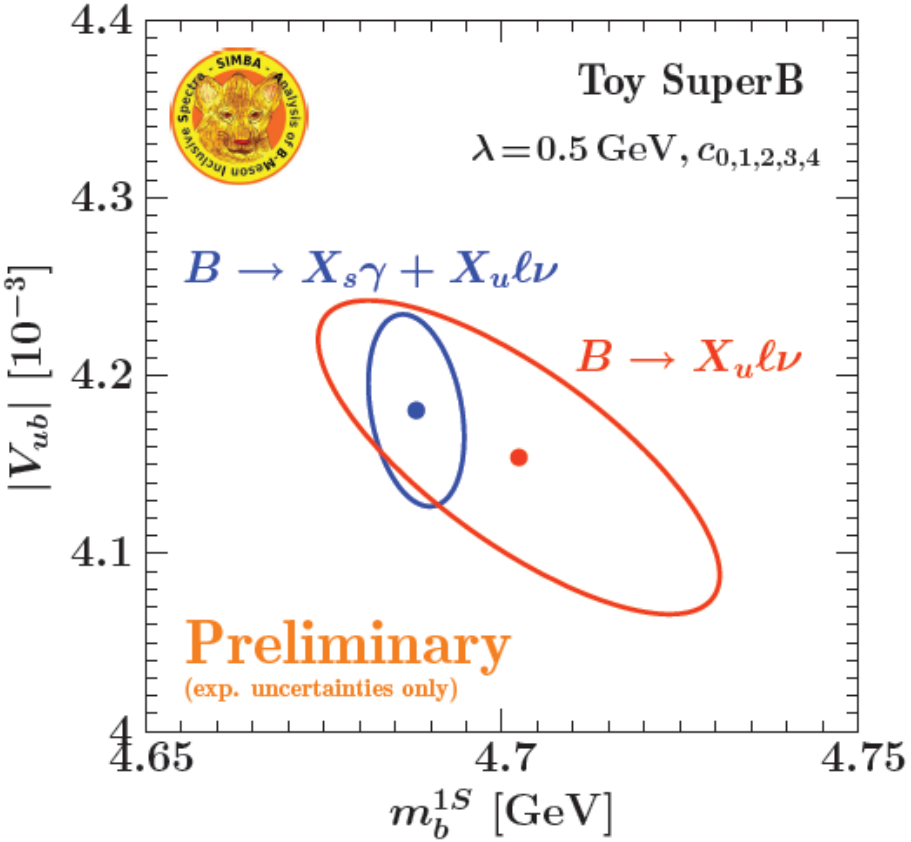
Employ strategy that proved successful for $|V_{cb}|$

- Determine $|V_{ub}|$, m_b and shape function (SF) simultaneously
- Combine different decay modes, measurements and experiments
  - ⋆ Different $B \to X_s\gamma$ spectra
    - Information about shape function, m_b and C_7
  - ⋆ Different $B \to X_u\ell\nu$ partial BFs (or spectra)
    - Information about $|V_{ub}|$, shape function and m_b
    - Differential spectra would be more powerful
  - ⋆ External constraints on m_b and shape function moments (from $B \to X_c\ell\nu$ or other) could also be incorporated

What we gain from a global fit

- Minimize uncertainties by making maximal use of all available data
- Consistent treatment of correlated uncertainties (experimental, theoretical, input parameters)

Potential Impact of Super B



Use $B \to X_u\ell\nu$ alone to determine m_b and shape function along with $|V_{ub}|$

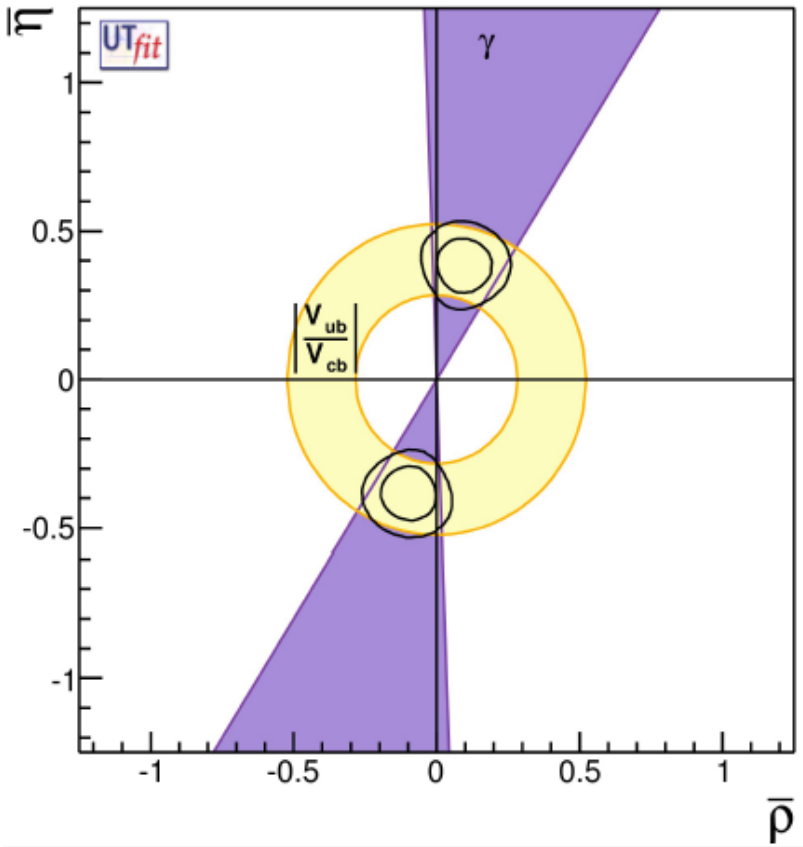
- Eliminates sensitivity to different subleading effects in $B \to X_s\gamma$ and $B \to X_u\ell\nu$

- Large amount of data can be used to push analyses to the limits, on the experimental as well as the theoretical side
- High precision data should be used to disentangle subleading effects between $B \to X_s\gamma$ and $B \to X_u\ell\nu$ (no attempt here!)

Checking the Unitarity Clock

Assumptions: (1) 3-generations unitarity
(2) no new physics in tree-level processes

Using only tree-level constraints:



$\gamma = (-103.9 \pm 9.2)°$
$(75.7 \pm 9.2)°$

$|V_{cb}| = (41.0 \pm 1.0) \times 10^{-3}$

$|V_{ub}| = (3.82 \pm 0.52) \times 10^{-3}$

$\bar{\rho} = \pm 0.089 \pm 0.061\ (69\%)$

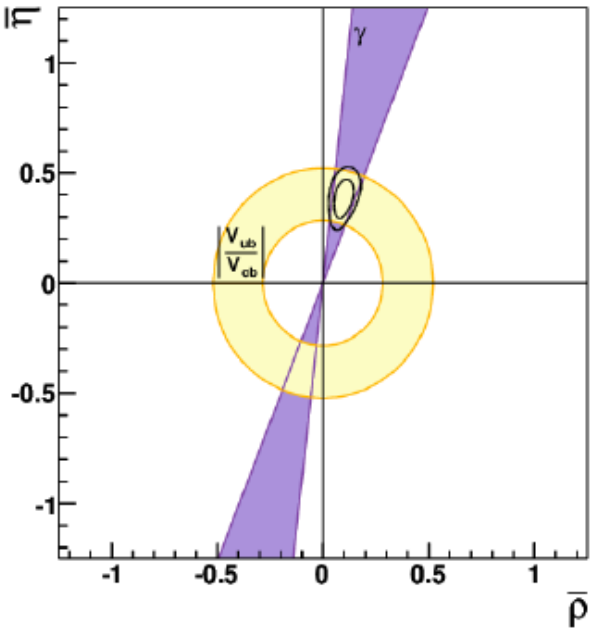
$\bar{\eta} = \pm 0.385 \pm 0.057\ (15\%)$

These constraints must be satisfied in any NP model

The future of the clock

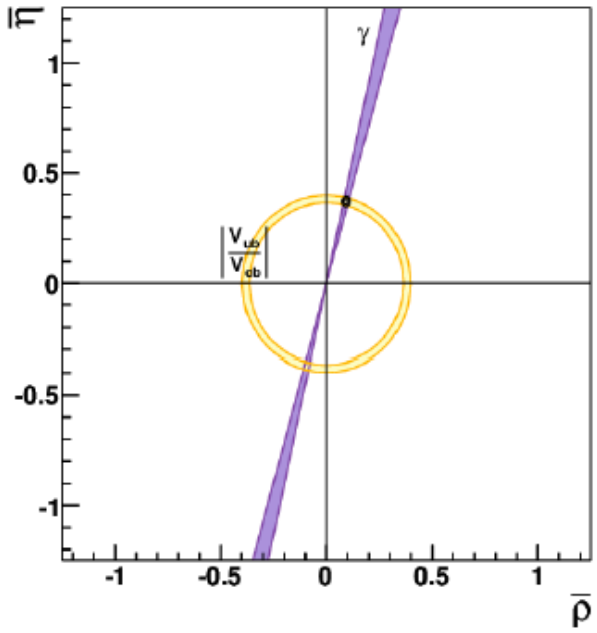
post-LHCb: $\delta\gamma \sim 4°$, $|V_{cb,ub}|$ unchanged

$$\bar{\rho} = \pm 0.098 \pm 0.031\,(32\%)$$
$$\bar{\eta} = \pm 0.386 \pm 0.056\,(15\%)$$



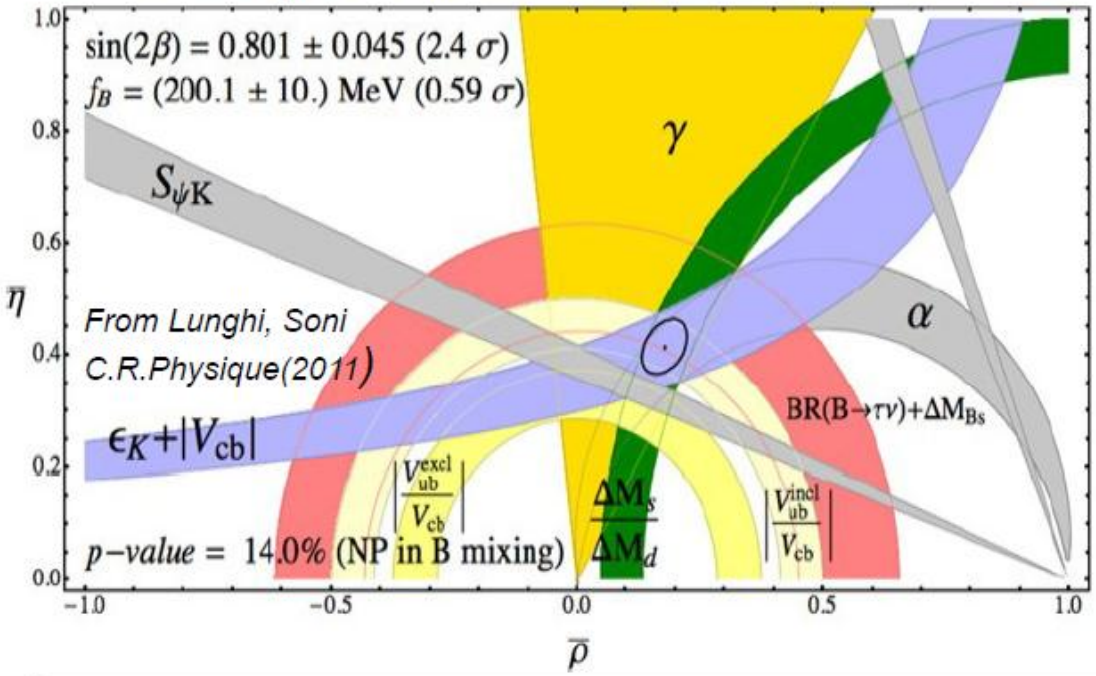
post-SuperB: $\delta\gamma \sim 1°$, $\delta|V_{cb}|/|V_{cb}| \sim 1\%$
$\delta|V_{ub}|/|V_{ub}| \sim 2\%$

$$\bar{\rho} = \pm 0.093 \pm 0.007\,(8\%)$$
$$\bar{\eta} = \pm 0.371 \pm 0.009\,(2.5\%)$$



Conclusions

- *Despite progresses from BFactories, the inclusive-exclusive discrepancy still present: 2.0-3.0σ differencies*
- *Crucial impact on UT constraints*



Will stay with us for a long time!?
Do we understand the QCD at (few)% level?
New Physics in the b->u transitions?

SuperB

- tagged sample: cleaner
- full understanding of the background composition / dynamics
- precise measurements of spectra

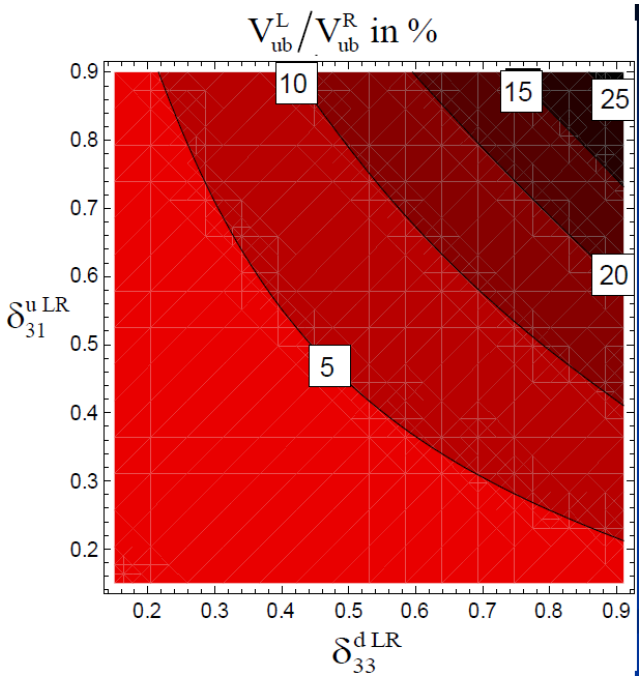
BUT:
Exclusive: Progress in QCD calculations, LQCD and LCSR
Inclusive: Require advanced QCD calculation and precise m_b

Andreas Crivellin

Right-handed Currents in Vub?

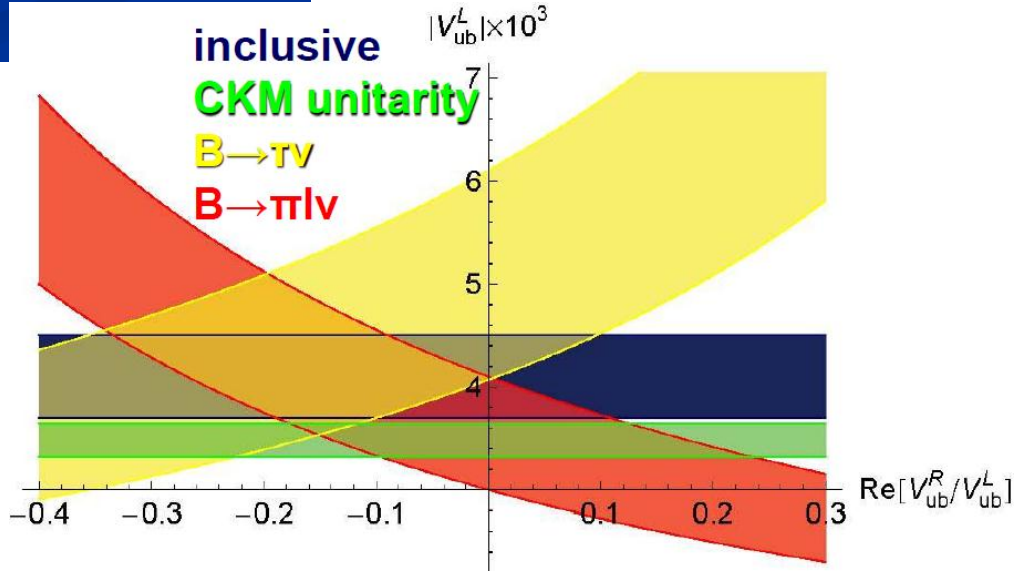
- 2.2 σ discrepancy between the inclusive and exclusive determination of V_{cb}
- 2.5 - 2.8 σ deviation from the SM expectation in $B \to \tau\nu$ UTfit, CKMfitter
- Tree-level processes. Commonly believed to be free of NP. (Charged Higgs contribution to $B \to \tau\nu$ is destructive.)

➡ Notoriously difficult to explain the deviations from the SM



Conclusions

- The MSSM can generate such a sizeable right-handed W-coupling
- A right-handed W-coupling changes the determination of the CKM elements.
- A right-handed W-coupling can enhance $B \to \tau\nu$ and solve the V_{ub} problem



Session I: Charm

- **Theory**
  - Hadronic uncertainties in ΔA_{CP} (Luca Silvestrini)
  - Lattice and charm (Cecilia Tarantino)
- **Experiment**
  - ΔA_{CP} in charm from LHCb (Benoit Viaud)
  - Rare charm decays at BES III (Xiao-Rui Lu)

Benoit Viaud

ΔA_{CP} @ LHCb

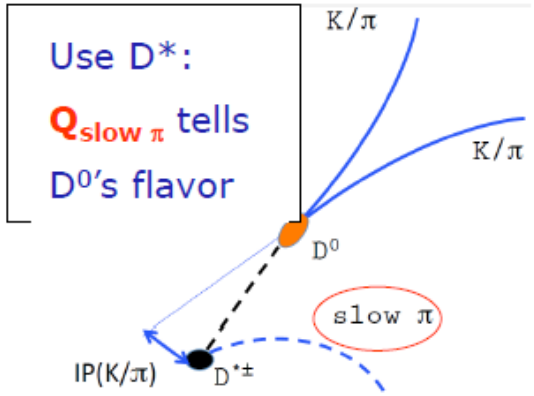
Analysis Strategy

- **Measure a time-integrated asymmetry**

$$A_{raw}(f) = \frac{N(D^{*+} \to D^0(f)\pi_s^+) - N(D^{*-} \to \overline{D}^0(\overline{f})\pi_s^-)}{N(D^{*+} \to D^0(f)\pi_s^+) + N(D^{*-} \to \overline{D}^0(\overline{f})\pi_s^-)}$$

Use D*:

$Q_{slow\ \pi}$ tells D⁰'s flavor



- **First order Taylor Expansion:**

$$A_{RAW}(f)^* = A_{CP}(f) + A_D(f) + A_D(\pi_s) + A_P(D^{*+})$$

physics CP asymmetry

$$A_{CP}(f) = \frac{\Gamma(D^0 \to f) - \Gamma(\overline{D}^0 \to f)}{\Gamma(D^0 \to f) + \Gamma(\overline{D}^0 \to f)}$$

Detection asymmetry of D⁰

Detection asymmetry of soft pion

Production asymmetry

When $f=\pi^+\pi^-$ or K^+K^-: no detection asymmetry between D and D
→ $A_D(f)=0$

Similar for $f=\pi^+\pi^-$ and K^+K^-

$$\Delta A_{RAW} = A_{RAW}(K^+K^-) - A_{RAW}(\pi^+\pi^-) = \Delta A_{CP}$$

ΔA_{CP} @ LHCb

- **In 216 bins**

  54 bins in $P_{T,D^*} \times \eta_{D^*} \times P_{slow\,\pi} \times$ left/right

  $\times$ 2 Mag Up / Mag Down

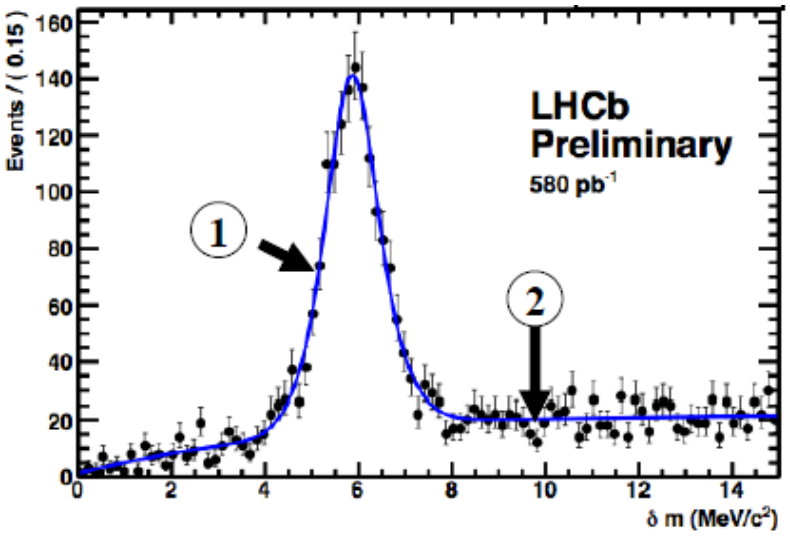
  $\times$ 2 Before/After an LHC technical stop

- **Fit to δm distributions**

  (1) *Signal: double gaussian convolved with a function describing a asymmetric tail.*

  D+ and D*- parameters float separately.*

  (2) *Background: B[1 - exp(-(δm- δm_0)/C)]*

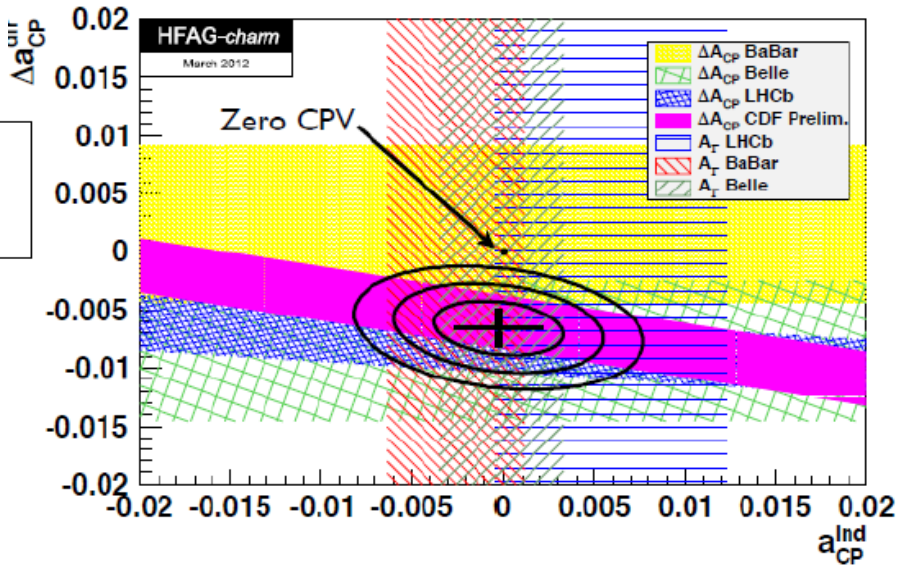


$$\Delta A_{CP} = (-0.82 \pm 0.21_{stat} \pm 0.11)\%$$

3.5 σ from no CPV.

Phys.Rev.Lett. 108 (2012) 111602

~50 citations since end of 2011



SM or NP ??

- **Predictions are difficult with D mesons**
  - *Too light (heavy) for the techniques that work in B (K) physics*
- **Present consensus**
  - *Difficult for the SM to generate more than $O(10^{-4}\text{-}10^{-3})$ (canonic point of view till 2011)*
  - *But possible: one can think of Hadronic enhancements pushing it up to O(1%)*
  - *Would help: Individual asymmetries*
  - *Would help: Several decay modes should be affected by the same NP, but not the same strong effects: compare A_{CP} measured in each mode to distinguish enhanced contributions of higher order standard model diagrams from NP effects*

INTRODUCTION II

- Can we envisage a mechanism to enhance the SM prediction for CPV by one order of magnitude to reproduce the exp result $\Delta a_{CP}^{dir} = a_{CP}^{dir}(K^+K^-) - a_{CP}^{dir}(\pi^+\pi^-) = (-6.6 \pm 1.6)\ 10^{-3}$?
- Can anything analogous to the $\Delta I = 1/2$ rule take place in SCS charm decays?

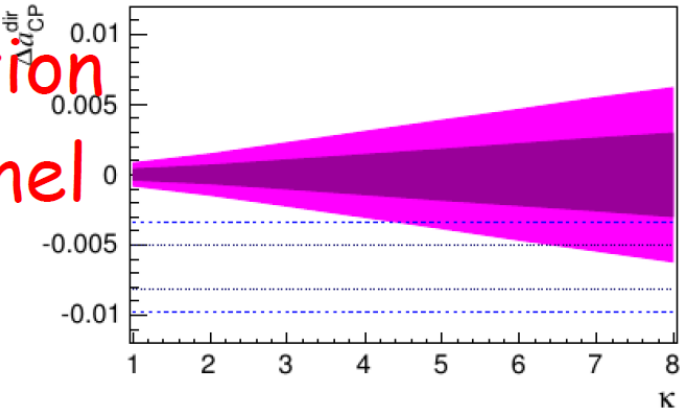
Golden & Grinstein, '89; Brod, Kagan & Zupan '11; Pirtskhalava & Uttayarat '1
Bhattacharya, Gronau & Rosner '12; Cheng & Chiang '12;
Brod, Grossman, Kagan & Zupan '12

- One can study the CP asymmetries as a function of the upper bound on the size of CPV contributions in the two- and three-channel scenarios. We write

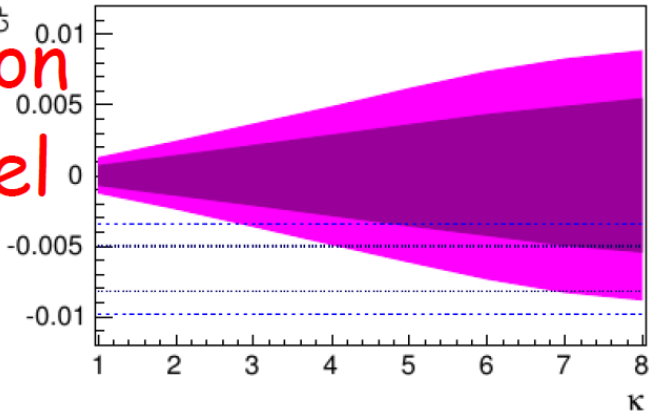
$$|\mathcal{B}_0^\pi| < \kappa |\mathcal{A}_0^\pi| \,,$$
$$|\mathcal{B}_0^K - \mathcal{A}_0^K| < \kappa |\mathcal{A}_0^K| \,,$$
$$|\mathcal{B}_{11}^K - (\mathcal{A}_{11}^K - \mathcal{A}_{13}^K)| < \kappa |\mathcal{A}_{11}^K - \mathcal{A}_{13}^K| \,,$$

and consider predictions and fit results for CP asymmetries

Prediction 2-channel



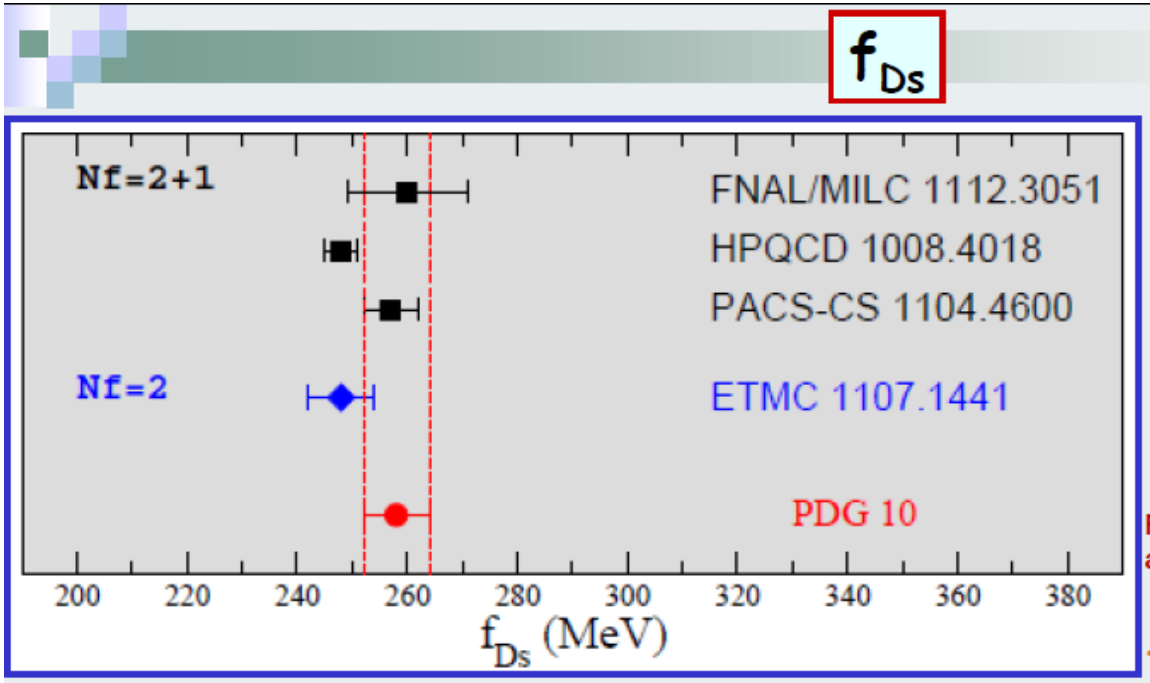
Prediction 3-channel



CONCLUSIONS II

- In the most conservative scenario (no constraints from unitarity), values of $\kappa > 5$ are needed to reach at 2σ the experimental result
- We cannot find any reasonable dynamical origin for such a large value of $|P_1|$
- If the central value stays with improved errors, we have strong indications of NP

LQCD: Releasing some Tension



From the exp. BR (CLEO+BaBar+Belle) and V_{cs} from CKM unitarity

New preliminary result from Belle @ CHARM2012

The past (2008) f_{Ds} puzzle has been solved!

Tension between lattice determination and experimental measurement, mainly due to the 3 σ deviation between:

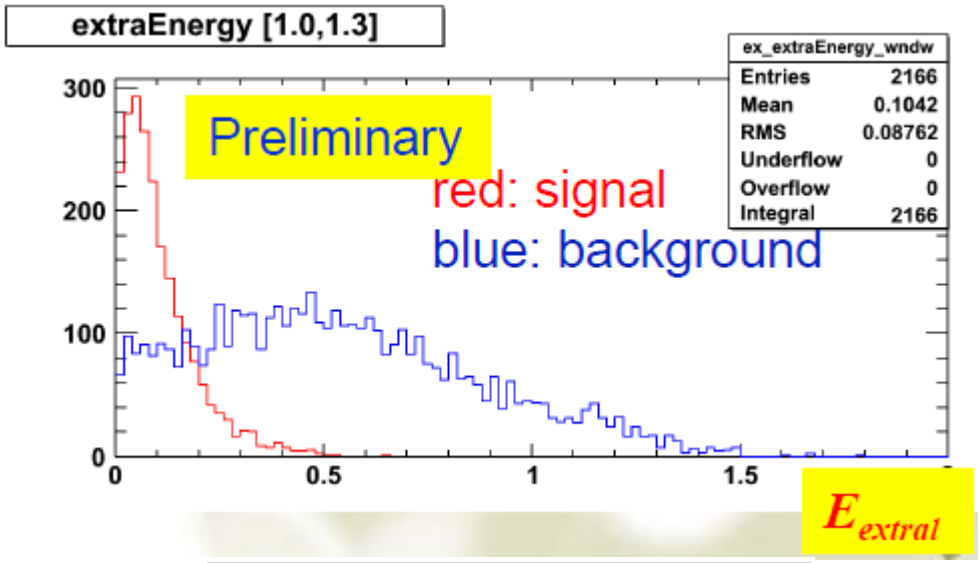
HPQCD 2007 f_{Ds} = 241± 3 MeV ↑ (by 2.3 σ)

PDG 2008 f_{Ds} = 273 ±10 MeV ↓ (by 1.5 σ)

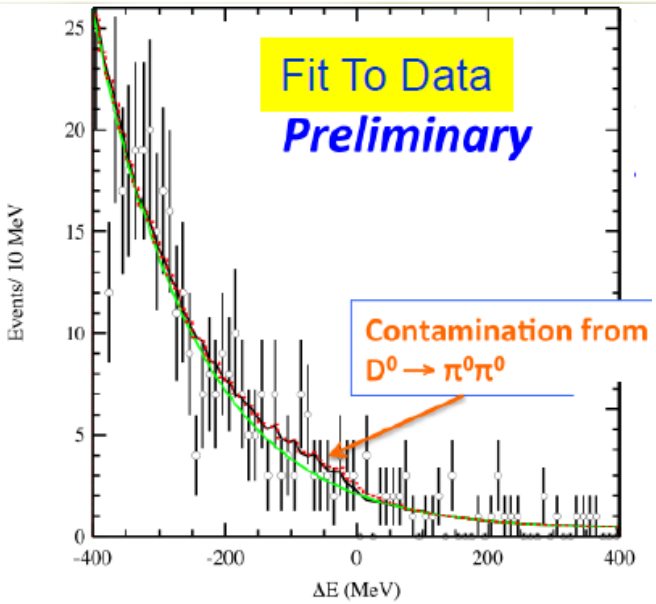
Update on Charm Results from BES III

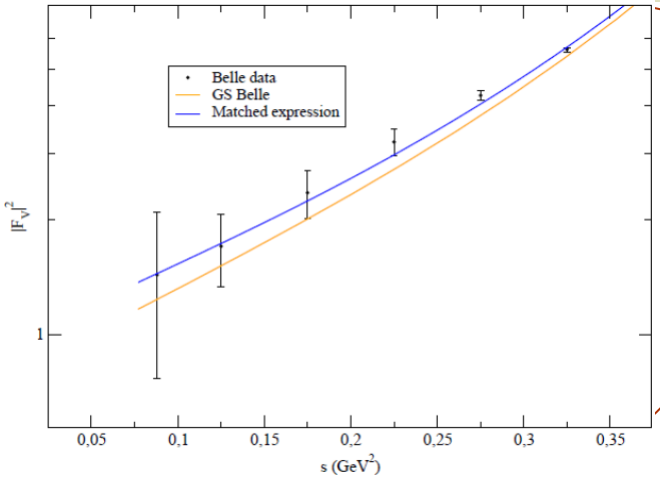
Xiao-Rui Lu

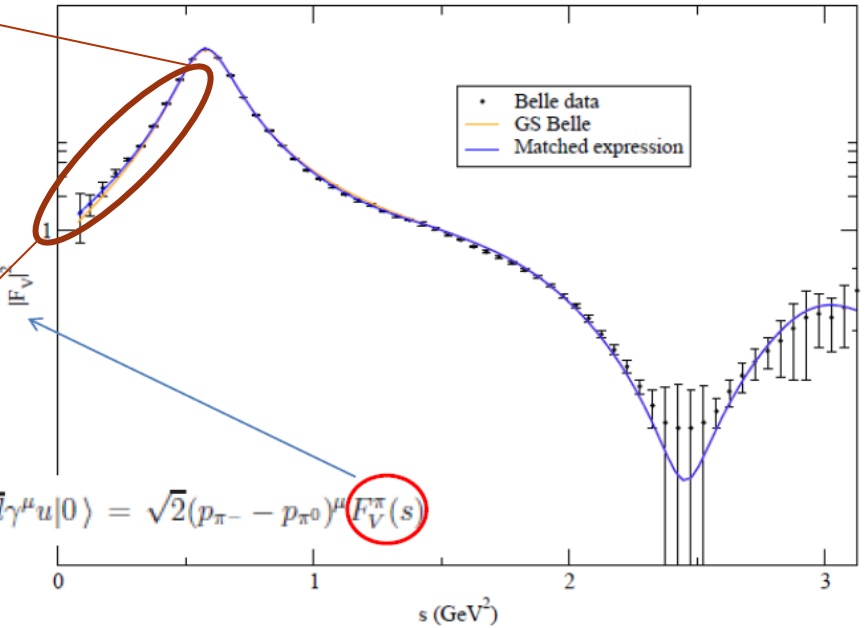
BF($D^0 \to \pi^0 \nu\bar{\nu}$): 1.4×10^{-3}@90% C.L.



$B(D^0 \to \gamma\gamma) < 4.6 \times 10^{-6}$ UL @ 90% CL.







$\langle \pi^-(p_{\pi^-})\pi^0(p_{\pi^0})|\bar{d}\gamma^\mu u|0\rangle = \sqrt{2}(p_{\pi^-} - p_{\pi^0})^\mu F_V^\pi(s)$

State of the art in Tauola

Pablo Roig Garces

Workshop Summary

- An efficient overview of several important topics
- Great speakers, great audience, lively discussion
- I learned a lot!

SuperB

CABIBBO LAB
Laboratorio Nicola Cabibbo

SuperB Collaboration Meeting

La Biodola, Isola d'Elba

May 31 - June 4, 2012

Meeting Registration Desk : Thursday, May 31, 17:00 - Hotel Hermitage

Welcome Reception: Thursday, May 31 at 20:00 - Hotel Hermitage - Swimming pool area

All Plenary Sessions will be held in Sala Maria Luisa

	Thursday, May 31		Friday, June 1		Saturday, June 2		Sunday, June 3		Monday, June 4
		8.00	REGISTRATION						
9.00		8.30	PLENARY	8.30	PARALLEL 3	8.30	PARALLEL 7	8.30	PLENARY
		SML	Introduction and status						Accelerator Summaries
SML	Physics meeting			SML	SVT	SA	COMP: Fullsim+Backgrounds	30	Accelerator Design
		10	Welcome	SA	DCH	SML	ETD 3	30	MDI, IR and Backgrounds (E. Paoloni)
		30	Meeting Goals (M. Giorgi)	SB1	PID	SE	Integration	30	Accelerator Organization
		30	Computing (F. Bianchi)	SB2	EMC	SML	ETD	30	Cabibbo Lab Status (R. Petronzio)
		30	Detector (B. Ratcliff)	SE	IFR	SB1+2	Accel		
10.30	*Coffee Break*	10.30	*Coffee Break*	10.30	*Coffee Break*	10.30	*Coffee Break*	10.30	*Coffee Break*
11.00		11.00	PLENARY	11.00	PARALLEL 4	11.00	PARALLEL 8	11.00	PLENARY
		SML	Introduction and status						Detector Summaries
SML	Physics meeting			SML	ETD1	SML	ETD + Backgrounds	15	SVT
		40	Physics	SE	Det: Integration and IR Hall	SE	COMP: R&D	15	DCH
		40	BELLE-II and SuperKEKB Status	SB1	COMP: Report from CHEP	SA	Physics	15	PID
						SB1+2	Accel	15	EMC
								15	IFR
								15	Integration
12.30	*Lunch - Fuoco di Bosco*	12.30	*Lunch - Fuoco di Bosco*	12.30	*Lunch - Fuoco di Bosco*	12.30	*Lunch - Fuoco di Bosco*	12.30	*Lunch - Fuoco di Bosco*
				15.00	Exec Board (restricted)	15.00	Council (restricted)		
16.00		16.00	PARALLEL 1	16.00	PARALLEL 5	16.00	PARALLEL 9	15.30	PLENARY
									Summaries
SML	Physics meeting	SML	SVT	SE	COMP+Physics: Physics tools			20	ETD
		SA	DCH	SML	Det + Acc: MDI/Backgrounds	SML	Det+Phys: Physics performance in	20	Computing
SB1+2	Technical Board (restricted)	SB1	PID				presence of background	20	Physics
		SB2	EMC			SB1+2	COMP: Planning	20	Project outlook
		SE	IFR			SE	Accel		
									Adjourn
17.30	*Coffee Break*	17.30	*Coffee Break*	17.30	*Coffee Break*	17.30	*Coffee Break*	17.30	*Coffee Break*
18.00		18.00	PARALLEL 2	18.00	PARALLEL 6	18.00	PARALLEL 10	17.30	CLOSED MEETINGS
SML	Physics meeting								
SB1+2	Technical Board (restricted)	SML	SVT	SE	Det: ETD 2	SB1+2	Joint Integration Group (restricted)		Technical Board (restricted)
		SA	DCH	SML	Det + Acc: MDI/Backgrounds	SA	Physics		
	REGISTRATION	SB1	PID	SA	Physics				
		SB2	EMC	SB1+2	COMP: Distributed Computing				
		SE	IFR						
19.30		19.30		19.30		19.30			
20.00	*Welcome cocktail*	20.00	*Dinner at one's own hotel*	20.00	*Social Dinner*	20.00	*Dinner at one's own h*		
		21.00	*Concert*						

Meeting Room	
SB1	*Sala Bonaparte 1 - Hotel Hermitage*
SB2	*Sala Bonaparte 2 - Hotel Hermitage*
SE	*Sala Elena - Conference Center*

Meeting Room	
SML	*Sala Maria Luisa - Conference Center*
SA	*Sala Ajaccio - Conference Center*

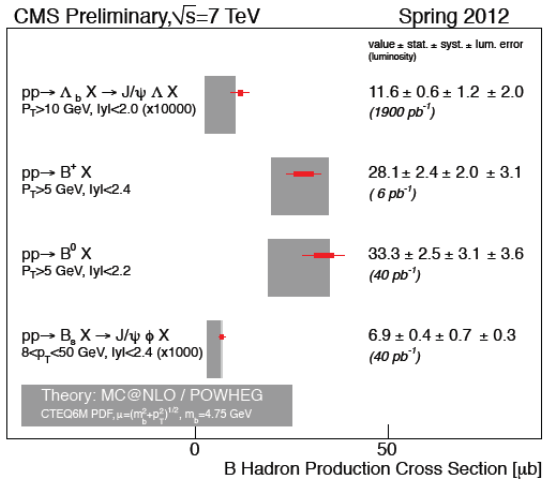
PARALLEL 9	15.30
Det+Phys: Physics performance in presence of background	20
COMP: Planning	20
Accel	20
	20

More

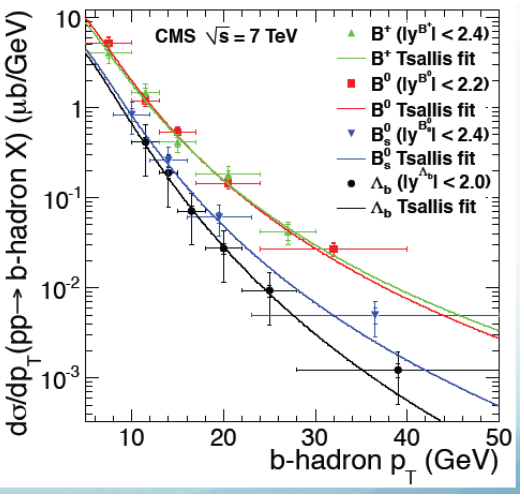
Luca Martini

B Physics @ CMS

Branching Fractions

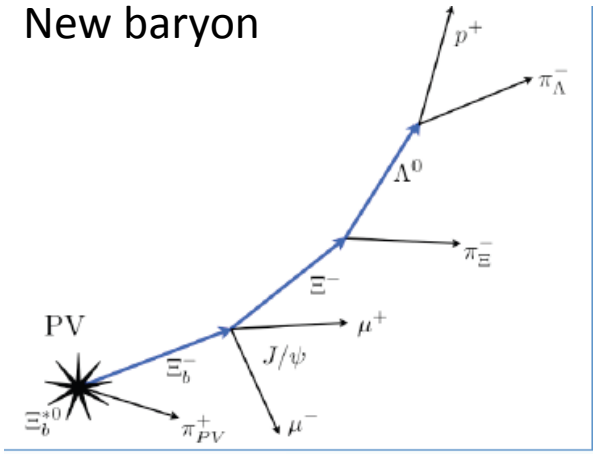


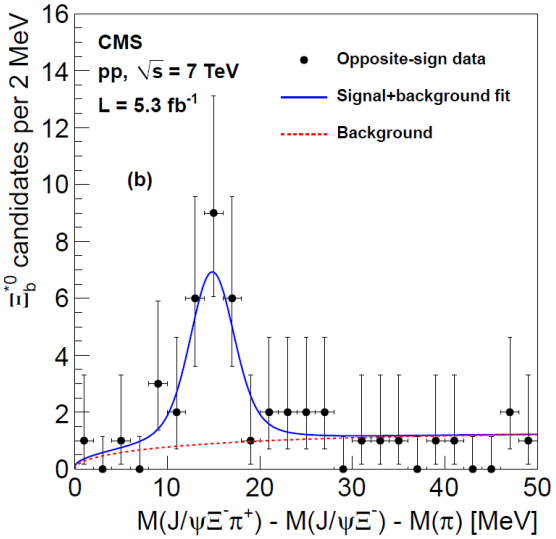
Production Cross Sections



Very active program in B physics, despite the trigger challenge

New baryon





Search for D0 → μμ