

B physics @ CMS: topics in coming and future

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Topic	Webpage	Status	CADI	Contacts (one per subgroup)
Heavy Quark Production				
J/psi->mu+mu- x-section/pol.	QuarkoniumStudies	active	BPH-07-002	Zongchang Yang, Aafke Kraan
Upsilon->mu+mu- x-section/pol	UpsilonProduction	starting	BPH-08-006	Aafke Kraan, Lie Liu, Igor Vorobiev
psi(2S)->mu+mu- x-section		planned		Muhammad Ahmad
B+ -> J/psi K+ x-section	BpJpsiKp	active	BPH-08-002	Zheng Wang, Dilson de Jesus Damiao, Stefan König
b -> J/psi X x-section	BJpsiX	active	BPH-07-004	Xiangwei Meng
incl. b production x-section	InclBprod	active	BPH-08-001	Lea Caminada
b-bbar correlations (jets + muon)	BbbarCorrelations	active	BPH-08-003	Mike Ralich
b-bbar correlations (J/psi + muon)	JpsiMuCorrelations	starting	BPH-08-004	Jim Olsen
B decays				
Bd -> K [*] mu+ mu-	BdKstarMuMu	active	BPH-08-007	Jim Olsen
Bd -> KS mu+ mu-	BdKshortMuMu	starting	BPH-08-008	Keith Ulmer
Bs -> mu+mu-	BsMuMu	active	BPH-07-001	Christina Eggel
Bs -> mu+mu-gamma	BsMuMuGamma	active	BPH-08-009	Supreet Pal Singh
Bs -> J/psi phi: phi_s	BsJpsiPhi	active	BPH-08-005	Lotte Wilke
Bs -> phi mu+ mu-	BsPhiMuMu	active	BPH-08-010	Maurizio Biasini
Bc -> J/psi pi: mass, lifetime	BcJpsiPi	starting		Silvia Taroni
Other Analyses				
tau -> 3mu	TauMuMuMu	active		Manuel Giffels
D0 -> mu+mu-		starting		Daniele Pedrini

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Note:

- Flavor tagging is a task that is not yet covered, but would lead to substantial benefits in many analyses. Please consider this as a contribution!
- An analysis of $\text{on } a \rightarrow e^+e^-$ would give you put you at the leading edge of low-ET ECAL analyses!

Topic	Motivation	Remarks and further reading
With J/psi or Upsilon in final state		
Upsilon $\rightarrow e^+e^-$, J/psi $\rightarrow e^+e^-$	early physics, x-check with muons!	QuarkoniumStudies , UpsilonProduction
B0, B+, Bs $\rightarrow$ J/psi X lifetimes and ratio	early physics	2006/11/30
LambdaB $\rightarrow$ Lambda J/psi lifetime	Test of HQE	CDF: 2008/07/24 D0: PRL99142001
Bc $\rightarrow$ J/psi mu nu (sl decay)	Lifetime measurement	CDF
Bs $\rightarrow$ J/psi psi(2S)	branching fraction measurement	PRL96231801
$\sigma(\text{Bc})^* \text{BF}(\text{Bc} \rightarrow \text{J/psi X})$	Bc production x-section	CDF: Note 7649
etaB $\rightarrow$ J/psi J/psi	HQ spectroscopy	clean channel, CDF , BABAR (single photon!)
XiB $\rightarrow$ J/psi Xi, Xi $\rightarrow$ Lambda pi	HQ spectroscopy	PRL99052002
SigmaB $\rightarrow$ LambdaB pi, LambdaB $\rightarrow$ Lambda J/psi	HQ spectroscopy	J/psi final state suppressed wrt hadronic, but triggered PRL99202001
Bc $\rightarrow$ X(3872) pi K, X $\rightarrow$ J/psi pi pi	Nature of X(3872)	0704.2493 (hep-ph)
b-equivalents of X(3872) and Y(4260)	decays into Upsilon(nS) pi pi	see Kai-Feng Chen's ICHEP 2008 plenary talk
B0 $\rightarrow$ J/psi K0S	measurement of $\sin(2\beta)$ b-flavor tagging calibration	AN2006_100 AN2006_101 CDF BABAR Belle
With di muons in final state		
D(s) $\rightarrow$ phi pi $\rightarrow$ mu+ mu- pi	Probe FCNC in the up-quark sector!	D0
LambdaB $\rightarrow$ Lambda mu+ mu-	Search for new physics: BF, Afb, polarization, ...	see PR,D65,074038 and references , or ATLAS
bb $\rightarrow$ mu mu	Inclusive b production cross section correlations	needs impact parameter, CDF: Note 8733
dimuon charge asymmetry	CP asymmetry in sl B decays	needs impact parameter, sys. limited CDF: Note 9016
With single muon in final state		
cobar production cross section	early physics	CDF
B0, B+ lifetime w/ partial reco.	early physics	CDF note 7514
Bs lifetime w/ sl decays	early physics	D0: PRL97,241801(2006) , CDF: Note 7757
D0-D0bar mixing	Measurement of D0 mixing	BABAR: hep-ex/0703020 PR,D70,091102 BELLE: PRL96,151801 CDF: PR,D74,031109
Bs $\rightarrow$ e mu	Search for LFV new physics	CDF: 2008/07/24
Abandoned Analyses		
b, c, s PDFs	inactive	HqPdf
Bs mixing	inactive	BsMixing
CP violation in B decays	inactive	CpViolation

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CMS CSC Commissioning Shift

Global Runs: [CRUZET-4](#) Date: 18-25 August

We join in shift @ p5: 2 shift/week/person

Now only with local run experience! We will
continue and get further familiar with standard
shift's tasks even expert ones step by step!