

Group 2 short summary

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- CKM sides (V_{ub}/V_{cb})
— V. Luth, C. Schwanda, T. Iijima*, P. Gambino, Z. Ligeti, F. Tackmann
- CKM sides (V_{td}/V_{ts})
— K. Flood*, (no name from Belle), T. Hurth
- B leptonic and $B \rightarrow D^{(*)}\tau\nu$
— S. Robertson*, (Y. Kwon*), T. Iijima*
- B radiative/EW penguin decays
— S. Playfer, M. Nakao*, T. Hurth
- Rare, exotic and forbidden decays
— no name?
- Interpretation in terms of benchmark NP models
— no name?
- Tools: Recoil B reconstruction
— P. Jackson, (no name from Belle)
- Tools: Blind Analysis
— A. Roodman, (A. Schwartz*)

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- Rare, exotic and forbidden decays
— no name? *Covered by B leptonic people*
- Interpretation in terms of benchmark NP models
— no name? *More theory oriented*
- Tools: Recoil B reconstruction
— P. Jackson, (no name from Belle) *not discussed*
- Tools: Blind Analysis
— A. Roodman, (A. Schwartz*) *not discussed*

V_{ub} and V_{cb}

- Last time no discussion because of the V_{xb} workshop
- This time only Iijima-san. No discussion between section editor has taken place
- Lot of interaction between experiments and theories are expected
- Main topic will be inclusive $B \rightarrow X_c \ell \nu$, inclusive $B \rightarrow X_u \ell \nu$, exclusive $B \rightarrow D^{(*)} \ell \nu$, exclusive $B \rightarrow \pi \ell \nu$.
- Coverage of the decay modes (and corresponding section structure) has been discussed

(from F.Wilson, 1st meeting)

B->Radiative/EW

Section Radiative & Electroweak Penguin Decays (30 pages)

Subsection Theory (4 pages)

Subsubsection Heavy Quark OPE

Subsubsection Form Factors (sum rules & SCET)

Subsubsection New Physics

Subsection Inclusive b->sgamma (6 pages)

Subsubsection Fully inclusive (+ lepton-tagged)

Subsubsection BRECO tagged

Subsubsection Sum of exclusives

Subsubsection Direct CP and A_1

Subsubsection Spectral shape, moments, extrapolation

Subsubsection World averages

Subsection Exclusive b->sgamma (4 pages)

Subsubsection B->K*gamma (BF, A_{CP} , A_1)

Subsubsection Other exclusive b->sgamma

Subsubsection $B_s \rightarrow \rho \gamma$

Subsection b->dgamma (3 pages)

Subsubsection B-> $\rho(\omega)\gamma$ (BF, A_{CP} , A_1)

Subsubsection Inclusive b->dgamma

~~Subsubsection Extraction of V_{td}/V_{ts} ?~~

Subsection Time-dependent CP violation (3 pages)

Subsubsection B->K $\pi^0\gamma$, B->K $\eta\gamma$

Subsubsection B->K $\rho\gamma$, B->K $\phi\gamma$

Subsubsection B-> $\rho\gamma$

Subsection b->sll (6 pages)

Subsubsection B->K(*)ll (BF, A_{CP} , A_1 , R_L)

Subsubsection B->K*ll angular analysis

Subsubsection b->sll sum of exclusives

Subsection b->svv (2 pages)?

Subsubsection B->K(*)vv, pivv?

Subsection Searches for other decays (2 pages)

Subsubsection B->gammagamma

Subsubsection B->pill

~~Subsubsection Lepton flavour violation~~

- Page length underestimated?
- Theory description needed for most of every subsection

Overview

- Theory details (possibly covered elsewhere)
 - Mixing through $\Delta F=2$ box diagrams
 - V_{td} , V_{ts} from $\Delta F=1$ loop diagrams
- Experimental details (possibly covered elsewhere)
 - Description of a generic mixing/CP analysis
 - Description of inclusive/exclusive $B \rightarrow X_{s,d} \gamma$
- Physics results
 - Babar, Belle: Δm_d ; Tevatron: Δm_s
 - Lattice QCD dependence extracting $V_{td,ts}$ from $\Delta m_{d,s}$
 - Babar, Belle: excl./incl. BFs $B \rightarrow X_{s,d} \gamma$
 - Theory dependence enters in V_{td}/V_{ts} ratio calculation
 - Consistency of mixing and radiative penguin results
- Future prospects

Section Outline



1.1 B physics

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- K. Leptonic Decays and $B^+ \rightarrow D^{(*)} \tau^+ \nu$
 - I. General theory overview and motivation (short)
 - II. $B^+ \rightarrow l^+ \nu$ ($l = e, \mu, \tau$)
 - II.i Theory (2)
 - II.ii $B^+ \rightarrow \tau^+ \nu$ measurements (3)
 - II.iii $B^+ \rightarrow l^+ \nu$ ($l = e, \mu$) measurements (2)
 - II.iv $B^+ \rightarrow l^+ \nu \gamma$ measurements (1)
 - II.v Interpretation of results (2)
 - III. $B^+ \rightarrow D^{(*)} \tau^+ \nu$
 - III.i Theory (3)
 - III.ii Methodology and experimental results (7)
 - IV. Discussion, interpretation and future prospects (2)
- L. Rare, Exotic and Forbidden Decays
 - I. Motivation and theory overview (short)
 - II. Methodology (short)
 - III. $B^0 \rightarrow l^+ l^-$ (also $\tau^+ \tau^-$ and $l^+ l^- \gamma$) (3)
 - IV. $B^0 \rightarrow \gamma \gamma$ (maybe in radiative/EW section?) (1)
 - V. $B^0 \rightarrow$ invisible (1)
 - VI. Lepton number/flavor violating modes (3)

← Radiative/EW section here?