

ϕ_3 , or γ

Section Editors

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**4th Workshop on the “Physics of the B-factories” Book
Annecy, 30th June – 1st July**

γ section contents

- Many papers related to γ (variety of methods and channels)
- 14.8. 1. Introduction (including theory) and overview on approaches to measure γ
- Focus on GLW, ADS and GGSZ/Dalitz methods on $B^\pm \rightarrow D^{(*)}K^{(*)\pm}$ decays
 - 14.8.2. GLW $B^\pm \rightarrow DK^\pm$, $B^\pm \rightarrow D^*K^\pm$, $B^\pm \rightarrow DK^{*\pm}$
 - 14.8.3. ADS $B^\pm \rightarrow DK^\pm$, $B^\pm \rightarrow D^*K^\pm$, $B^\pm \rightarrow DK^{*\pm}$
 - 14.8.4. GGSZ/Dalitz $B^\pm \rightarrow DK^\pm$, $B^\pm \rightarrow D^*K^\pm$, $B^\pm \rightarrow DK^{*\pm}$
 - 14.8.4.1. Model dependent
 - 14.8.4.2. Model independent
- 14.8.5. $\sin(2\beta+\gamma)$ measurements (full and partial reco), shorter but complete overview
- 14.8.6. Other channels (e.g. ADS and GGSZ with neutral B decays) that do not bring much information no but that are interesting for future facilities will be briefly review
- 14.8.7. Combination of results (from GLW, ADS and GGSZ methods)
- ~30 pages in total

BaBar papers

Method	Channel	Stat (MBB)	Last publication	Status/ Expected
GLW	$B^\pm \rightarrow DK^\pm$	467	PRD82, 072004 (2010)	Final
GLW	$B^\pm \rightarrow D^*K^\pm$	383	PRD78, 092002 (2008)	Final
GLW	$B^\pm \rightarrow DK^{*\pm}$	379	PRD80, 092001 (2009)	Final
ADS	$B^\pm \rightarrow D^{(*)}K^\pm$	467	PRD82, 072006 (2010)	Final
ADS	$B^\pm \rightarrow DK^\pm, D \rightarrow K\pi\pi^0$	474	arXiv:1104.4472→PRD(R)	Final
ADS	$B^\pm \rightarrow DK^{*\pm}$	379	PRD80, 092001 (2009)	Final
GGSZ model dep.	$B^\pm \rightarrow D^{(*)}K^{(*)\pm}$	468	PRL105, 121801 (2010)	Final
Sin(2 β + γ) full reco	$B^0 \rightarrow D^*\pi^\pm/D\rho^\pm$	232	PRD73, 111101(R) (2006)	Final
Sin(2 β + γ) par reco	$B^0 \rightarrow D^*\pi^\pm$	232	PRD71, 112003 (2005)	Final
r_B for $D^{(*)}\pi$	$B^0 \rightarrow D_s^{(*)}\pi^\pm/\rho^\pm/K^\pm$	381	PRD78, 032005 (2008)	Final
ADS	$B^0 \rightarrow DK^{*0}$	465	PRD80, 031102(R) (2009)	Final
GGSZ model dep.	$B^0 \rightarrow DK^{*0}$	371	PRD79, 072003 (2009)	Final
GGSZ model dep.	$B^\pm \rightarrow DK^\pm$	324	PRL99, 251801 (2007)	Final

Belle papers

Method	Channel	Stat (MBB)	Last publication	Status/ Expected
GLW	$B^\pm \rightarrow D^{(*)}K^\pm$	275	PRD73, 051106(R) (2006)	End 2011
ADS	$B^\pm \rightarrow DK^\pm$	772	PRL106, 231803 (2010)	Final
ADS	$B^\pm \rightarrow D^*K^\pm$			End 2011
GGSZ model dep.	$B^\pm \rightarrow D^{(*)}K^\pm$	657	PRD81, 112002 (2010)	Final
GGSZ model dep.	$B^\pm \rightarrow DK^{*\pm}$	386	PRD73, 112009 (2006)	Final
GGSZ model indep.	$B^\pm \rightarrow DK^\pm$	772	arXiv:1106.4046	End 2011
Sin($2\beta+\gamma$) full reco	$B^0 \rightarrow D^{(*)}\pi^\pm$	386	PRD 73, 092003 (2006)	End 2011
Sin($2\beta+\gamma$) par reco	$B^0 \rightarrow D^*\pi^\pm$	657	arXiv:1102.0888→PRD(R)	Final
r_B for $D\pi$	$B^0 \rightarrow D_s\pi^\pm/K^\pm$	657	PRD 82, 051103(R) (2010)	Final
r_B for $D^*\pi$	$B^0 \rightarrow D_s^*\pi^\pm/K^\pm$	657	PRD 81, 031101(R) (2010)	Final
r_B for $D^*\pi$	$B^\pm \rightarrow D^{*\pm}\pi^0$	657	PRL 101, 041601 (2008)	Final

Contributors

- BaBar
 - GLW, ADS: Matteo Rama, Giovanni Machiori
 - GGSZ/Dalitz: Fernando Martinez-Vidal
 - $\text{Sin}(2\beta+\gamma)$: Abi Soffer

- Belle:
 - GLW,ADS: Karim Trabelsi
 - GGSZ: Anton Poluektov
 - $\text{Sin}(2\beta+\gamma)$: Gagan Mohanty

- Theory: Ikaros Bigi

- Combination of results: relation with HFAG

Inter-correlation

- ❑ Dalitz plot analyses
 - ❑ **Dynamics** for GGSZ/Dalitz analysis (BW, K-matrix, etc.)
- ❑ D mixing and CPV
 - ❑ **Inputs from charm**, other than B factories, e.g. δ_D for $K\pi$ or $K\pi\pi^0$, coherence factor for $K\pi\pi^0$
 - ❑ **Results from $D \rightarrow K_S h^+ h^-$ amplitude models?**
- ❑ Hadronic B decays to charm
 - ❑ **For r_B estimation from $B \rightarrow D_S^{(*)} h, D^{*\pm} \pi^0$**

- ❑ Other
 - ❑ Global CKM fits
 - ❑ Maximum likelihood fits
 - ❑ Tagging and Vertexing (for exclusive and inclusive B reconstruction)
 - ❑ Multivariate discriminants
 - ❑ Blind analysis

Status of the write-up

- Getting familiar with the system
 - svn, symbols, references, etc.
- Very first versions of the following subsections:
 - Introduction
 - GLW
 - ADS
 - GGSZ/Dalitz
 - Model dependent
 - Model independent
- 6/30 pages of text/tables/figures
- Still need to bring I.Bigi into theory discussion

1. fully combined presentation

e.g. γ/ϕ_3 Dalitz analyses; \exists strong consensus throughout

Style Guide,
Bruce Yabsley

