

Implications of LHCb measurements and future prospects

Welcome and Introduction

J. Ellis, T. Gershon, G. Isidori, P. Koppenburg,
G. Perez, F. Teubert, A. Weiler, G. Wilkinson

14 October 2013

Purpose of the workshop

- Follow on from successful previous workshops, [Nov.10-11, 2011](#) & [Apr.16-18, 2012](#)
 - discuss latest results and strategies for exploitation of the Run 1 dataset
- Develop new ideas for future analysis
 - further refine physics case for LHCb upgrade

Structure of the workshop

- Similar to previous workshops, with four “streams”, each with theory and LHCb conveners
 - charm mixing and CP violation:
 - Paride Paradisi, Angelo di Canto, Hamish Gordon, Patrick Spradlin
 - B mixing and CP violation:
 - Monika Blanke, Yasmine Amhis, Alvaro Gomes, Moritz Karbach
 - rare decays:
 - Javier Virto, Tom Blake, Albert Puig, Fatima Soomro
 - “forward exotica”
 - Jernej Kamenik, Phil Ilten, Stephane Tourneur
- Plus introductory, interplay and closing sessions

Timetable

Monday 14 October 2013

Welcome and introductory talk - Filtration Plant (09:00-09:45)

time	title	presenter
09:00	Welcome	
09:15	Flavour Physics beyond the SM	ZUPAN, Jane

CPV in the B system - Filtration Plant (09:45-10:50)

- Conveners: Blanke, Monika; Ambik, Yasmine Sam; Gomes Dos Santos Neto, Alvaro; Karbach, Till Moritz		
time	title	presenter
09:45	B mixing and CP violation	LEGETH, Zoltan
10:10	Measurements of the CP-violating phase $\phi_{1,3}$ at LHCb	VAN LEERDAM, Jeroen
10:35	Phenomenology with B_s effective lifetime	KNEGJENS, Rob

Rare decays - Filtration Plant (11:15-13:00)

- Conveners: De Vries, Javier; Blake, Thomas; Puig Navarro, Albert; Soomro, Fatima		
time	title	presenter
11:15	Rare Decays at LHCb	VAZQUEZ GOMEZ, Ricardo
11:45	Photon polarisation in $b \rightarrow s \gamma$ decays	KOU, Emi
12:00	Theory implications from rare D decays	KOSNIK, Nejc
12:31	$B \rightarrow K^* \mu^+ \mu^-$ optimized observables and MFV	MAHMOUDI, Nadia

Charm mixing and CP violation - Filtration Plant (14:00-15:45)

- Conveners: Paradisi, Paride; Spradlin, Patrick; Gordon, Hamish; Di Canto, Angelo		
time	title	presenter
14:00	Theory overview on charm physics: present status and future prospects	GROSSMAN, Yuval
14:35	Charm mixing and indirect CPV	THOMAS, Christopher
15:10	Mixing and CP violation in $D^0 \rightarrow K^0 S^0$	GARRATICO, Jordi

Forward exotica - Filtration Plant (16:15-18:00)

- Conveners: Kamnik, Jernej; Toumeur, Stéphane; Iliesiu, Philip James		
time	title	presenter
16:15	Translating complementary searches for new physics with LHCb	COCO, Victor
16:30	Phenomenology: other measurements with LHCb	GAULD, Rheny Graham
16:50	Theory: top physics at LHCb	DILAUNAY, Cedric
17:15	Experiment: current and future jet measurements with LHCb	BARTER, William James
17:35	Theory: heavy flavour jet physics and LHCb	RODRIGO, German

Tuesday 15 October 2013

CPV in the B system: CPV in the B system - Filtration Plant (09:00-10:45)

- Conveners: Blanke, Monika; Karbach, Till Moritz; Gomes Dos Santos Neto, Alvaro; Ambik, Yasmine Sara		
time	title	presenter
09:00	Theory uncertainty of γ from tree decays	BROD, Joachim
09:25	The CKM unitarity triangle angle γ at LHCb (Experiment)	GANDINI, Paolo
09:50	The Full $B \rightarrow D^* \tau \nu$ Angular Distribution and CP violating Triple Products	DUBAISAMY, Murugeswaran
10:15	$B \rightarrow D^* \tau \nu$ (expt)	CIEZAREK, Gregory Max

Interplay session - Filtration Plant (11:15-13:00)

time	title	presenter
11:15	Interplay between flavour and LHC highT physics	SHADMI, Yael
11:50	Flavoured Higgs physics	HARNIK, Roni
12:25	Flavour physics on the Lattice	JUETTNER, Andreas

Rare decays: Rare decays - Filtration Plant (14:00-15:45)

- Conveners: De Vries, Javier; Soomro, Fatima; Blake, Thomas; Puig Navarro, Albert		
time	title	presenter
14:00	$B \rightarrow (K, K^*) \ell^+ \ell^-$ from LHCb: Angular analyses and isospin asymmetries	LANGENBRUCH, Christoph Michael
14:25	Isospin asymmetries in radiative and semi-leptonic $b \rightarrow s$ decays	ZWICKY, Roman
14:45	Theory implications and New Physics from $B \rightarrow K^* \ell^+ \ell^-$	Dr. MATIAS, Juaquin
15:00	Bayesian constraints on Wilson coefficients from radiative and semi-leptonic $b \rightarrow s$ decays	VAN DYK, Danny
15:15	New Physics models facing $b \rightarrow s$ data	STRAUB, David
15:30	Discussion	

Charm mixing and CP violation: Charm mixing and CP violation - Filtration Plant (16:15-18:00)

- Conveners: Paradisi, Paride; Spradlin, Patrick; Gordon, Hamish; Di Canto, Angelo		
time	title	presenter
16:15	Direct CP: charmed and un-charmed	SONI, Amarjit
16:50	SU(3) anatomy of hadronic charm decays	JUNG, Martin
17:25	Searches for CPV in charm decays	COMBES, Mat

Wednesday 16 October 2013

Forward exotica: Forward exotica - Filtration Plant (09:00-10:45)

- Conveners: Kamnik, Jernej; Toumeur, Stéphane; Iliesiu, Philip James		
time	title	presenter
09:00	Experiment: current and future searches for long-lived particles	DAVID, Peter
09:20	Theory: long-lived particles	Prof. STRASSLER, Matthew
09:45	Experiment: current and future Higgs searches at LHCb	MATTEUZZI, Clara
10:05	Theory: light and/or dark Higgs	Dr. DOMINGO, Florian
10:30	Discussion	

CPV in the B system: CPV in the B system - Filtration Plant (11:15-13:00)

- Conveners: Blanke, Monika; Ambik, Yasmine Sam; Gomes Dos Santos Neto, Alvaro; Karbach, Till Moritz		
time	title	presenter
11:15	New Physics with $B_{s,1} \rightarrow VV$	BIHATTACHARYA, Bhubarjyoti
11:40	Charmed three-body B decays	NASTEVA, Irina
12:00	Final state interaction effect on CP asymmetry in charmed three-body B decays	FREDEERICI, Tobias
12:25	Charmed two-body B decays	DIERKACH, Denis
12:45	More Flavor SU(3) Tests for CP Violating B Decays	ROBINSON, Dean

Rare decays: Rare decays - Filtration Plant (14:00-15:15)

- Conveners: De Vries, Javier; Blake, Thomas; Puig Navarro, Albert; Soomro, Fatima		
time	title	presenter
14:00	Update on Lattice QCD results relevant for Rare Decays at LHCb	Dr. WINGATE, Matthew
14:29	Status of Lepton Flavour Violation	PARADISI, Paride
14:52	Correlations between Flavor Observables in Models with tree-level FCNCs	GERRACCHI, Jennifer

Summary and closing - Filtration Plant (15:15-15:45)

time	title	presenter
15:15	Summary & outlook	Prof. STONE, Sheldon

Welcome drink this evening
18:30 Glassbox

A busy agenda:
speakers please stick to time!
preserve opportunities for discussion during breaks

Discussion of latest results

- Previous meeting was characterised by
 - excellent talks
 - lively discussion
 - excitement over new results
- We hope for the same this time
 - enjoy the workshop and the opportunities for discussions
 - please respect the informality of the meeting
- Thanks to CERN for support