8th Open LHC*Top*WG Meeting

November 17-18, 2015

Introduction



María José Costa (IFIC-Valencia) Michelangelo Mangano (CERN) Martijn Mulders (CERN)

LHC*Top*WG : Introduction

- 8th open session of the LHC Top Working Group
 - Forum for public discussions (ATLAS+CMS+LHCb+TH) on combination and interpretation of top physics measurements at the LHC
 - Open sessions (twice per year) organized in a way that allows ample time for discussion
- Documentation and coordinates
 - Integrated in the LPCC structure at CERN
 - Agendas available at https://indico.cern.ch/categoryDisplay.py?categId=4463
 - Twiki page and link to public plots and documents at http://lpcc.web.cern.ch/LPCC/index.php?page=top_wg
 - Subscribe to main open mailing list <u>lhc-toplhcwg@cern.ch</u>
- Welcome to the second open session of 2015 !

LHC*Top*WG Contacts

Contact person for Theory:Michelangelo ManganoContact person for LHCb:Victor CocoContact person for CMS:Martijn MuldersContact person for ATLAS:Maria Costa(Alison Lister will replace Maria after this WG meeting)

- **Top pair cross section:** Elizaveta Shabalina (ATLAS), Maria Aldaya $[\rightarrow ?]$ (CMS)
- Single top cross sections: Reinhard Schwienhorst (ATLAS), Nadjieh Jafari (CMS)
- Top mass: Giorgio Cortiana (ATLAS), Steve Wimpenny (CMS)
- W helicity: Kevin Kröninger (ATLAS), Mara Senghi (CMS)
- Charge asymmetry: Frederic Deliot (ATLAS), Thorsten Chwalek (CMS)
- Top pair differential cross sections: Francesco Spanò (ATLAS), Maria Aldaya (CMS)
- ttV : Markus Cristinziani (ATLAS), Andrew Brinkerhoff (CMS)

Task forces for dedicated topics:

- Jet/MET: Steven Schramm and Dimitris Varouchas (ATLAS), Mikko Vitoulainen and Henning Kirschenmann (CMS)
- Common acceptance / Pseudo Top: Kevin Finelli and Dominic Hirschbühl (ATLAS), Junghwan Goh, Orso Iorio and Mara Senghi (CMS)
- Radiation and Generators: James Ferrando and Dominic Hirschbühl (ATLAS), Benedikt Maier and Markus Seidel (CMS)

b-Tagging: Martin zur Nedden and Liza Mijovic (ATLAS), Luca Scodellaro (CMS)
LHC*Top*WG open meeting, CERN 17-18 Nov, 2015

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We would like to thank very much the outgoing contacts, for their contributions and efforts (Maria Costa, Caterina Doglioni, Bogdan Malescu) and welcome the new contacts

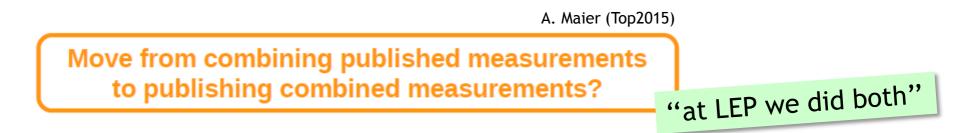
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Run I activities: combinations

- In most cases we plan to wait for final Run I results (at least in the main channel(s)) before performing the 'legacy' combination
- Started discussing the first publications of combined results, eg for the measurements of ttW/Z and the ttbar charge asymmetry



 One important ingredient: ATLAS-CMS Jet energy scale uncertainty correlations at 8 TeV → public Note in preparation, and 8 TeV CMS jet publication to appear soon. Will be discussed at this meeting.

Run I activities: combinations

- Ongoing combinations (more details in talks at this meeting):
 - Charge asymmetry at 8 TeV, inclusive and differential
 - ttW/Z cross-section combination and limits on anomalous couplings
 - Inclusive ttbar and single top (t, tW, s-channel) cross-sections
 - **Differential ttbar** distributions (starting with comparisons)
- Other combinations still a bit further away
 - Top mass: preparatory discussions and studies ongoing ... focus of today's morning session with experimental and theory inputs
 - Wtb vertex constraints and combined limits on anomalous couplings \rightarrow experimental and theory talks tomorrow morning

Towards Run II combinations

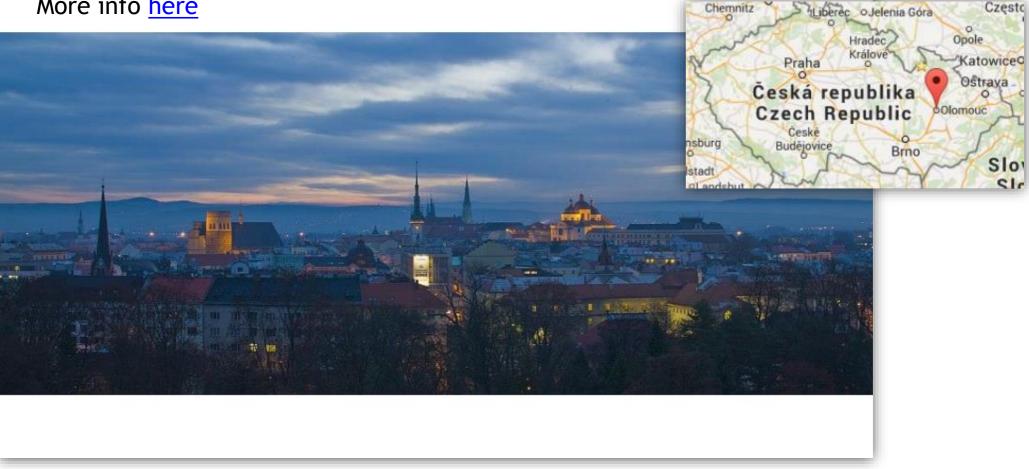
- Work ongoing in various areas to achieve further improvements in harmonization and synchronization between ATLAS and CMS for Run II
 - Comparisons of new Monte Carlo setups for Run II and first results of validation with data will be presented tomorrow, to be followed by further internal discussions and common studies
 - Particle objects, fiducial volume definitions and pseudo-top: internal discussions and studies ongoing; more results expected in the next meeting
 - Jets and b-tagging: new contacts appointed (for Jets) and discussions ongoing for final Run I and first Run II agreements. More details tomorrow.

Announcement:

TOP2016 in Olomouc, CZ

Dates: 19th -- 23th September 2016 (Mon -- Fri).

More info here



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Tuesday, 17 November 2015

09:00

09:00 - 13:15	Тор М	lass	2-			ASCII
	09:00	Introduction 15' Speakers: Martijn Mulders (CERN), Michelangelo Mangano (CERN), Maria Jose Costa (IFIC Valencia (ES))	Wedne	esday,	18 No	vember 2015
	09.15	New top quark mass measurements from CMS 30'	09:00 -	12:00	Probin	ig top quark couplings and c
		Speaker: Markus Seidel (CERN)			09:00	Single top production an Speaker: Alberto Orso Maria
	09:45	Impact of fragmentation modelling on the jet energy and the top-quark mass measurement using the ATLAS detector 30' Speaker: Tancredi Carli (CERN)			09:30	Ideas for combinations overtex 30'
	10:15	ATLAS and CMS pole mass measurements 30' Speaker: Efe Yazgan (Ghent University (BE))				Speaker: Nuno Filipe Castro (PT))
	10:45	Coffee break 30'			10:00	Determination of the top theoretical aspects 30'
	11:15	4-loop corrections M_pole vs M_ms <i>30'</i> Speaker: Matthias Steinhauser (KIT)				Speaker: Fabio Maltoni (Un
	11.45	Theoretical considerations on top mass observables 30'			10:30	Coffee break 30'
		Speaker: Paolo Nason			11:00	ATLAS and CMS Run1 ttb Speaker: Tamara Vazquez S
	12:15	Precision determinations of the top-quark mass 30' Speaker: S. Moch (UHH)			11:30	ATLAS and CMS 8 TeV ch
	12:45	Thoughts about precision top mass observables 30' Speaker: Kirill Melnikov (Karlsruhe Institute of Technology, Germany)				Speaker: Thorsten Chwalek Universitaet Karls
13:15 - 15:15	Lunch	a break	12:00 -	13:00	Run 2	results, Monte Carlo and tee
15:15 - 18:15	Top q	uark pair production			12:00	Overview of Run2 result Speaker: Otto Heinz Hindrid
	15:15	Update on systematics of mtop extraction from b energy peak (TBC) 30' Speaker: Roberto Franceschini (CERN)			12:30	PDF4LHC recommendation Speaker: Pavel Nadolsky (S
	15:45	ATLAS and CMS inclusive top quark pair cross section measurements from Run1 30'	13:00 -	15:30	Lunch	break
		Speaker: Carmen Diez Pardos (Deutsches Elektronen-Synchrotron Hamb and Zeuthen (DE))	15:30 -	17:00		
	16:15	ATLAS and CMS 8 TeV differential top quark pair cross section measurements 30' Speaker: Francesco Spano (Royal Holloway, University of London (GB))			15:30	Monte Carlo comparisons definitions 30' Speaker: Ben Nachman (SL
	16:45	Coffee break 30'			16:00	ATLAS and CMS jet calib
	17:15	Sub-leading shower effects on top quark distributions 30' Speaker: Peter Richardson (Durham University)			16:30	Speaker: Steven Randolph ATLAS and CMS b-taggin Speaker: Liza Mijovic (Univ
	17:45	Summary of ttbar differential Top2015 session 30' Speaker: Alexander Dimitrov Mitov (University of Cambridge (GB))	17:00 -	17:30	Conclu	Iding remarks

Agenda

k couplings and charge asymmetry	2-
p production and Vtb combination plans <i>30'</i> Alberto Orso Maria Iorio (Universita e INFN, Napoli (IT))	Q-
combinations of measurements constraining Wtb	Q -
Nuno Filipe Castro (LIP, University of Minho and University of (PT))	Porto
nation of the top EW couplings via an EFT approach: al aspects 30'	Q-
Fabio Maltoni (Universite Catholique de Louvain (UCL) (BE))	
reak 30'	
nd CMS Run1 ttbarV production 30' Tamara Vazquez Schroeder (McGill University (CA))	2-
nd CMS 8 TeV charge asymmetry measurements 30' Thorsten Chwalek (Institut fuer Experimentelle Kernphysik, Universitaet Karlsruhe)	Q =
onte Carlo and techniques	Q.+
v of Run2 results 30' Otto Heinz Hindrichs (University of Rochester (US))	Q-
Pavel Nadolsky (Southern Methodist University)	Q-
onte Carlo and techniques	Q-
arlo comparisons and particle level and pseudo-top ns 30'	Q
Ben Nachman (SLAC National Accelerator Laboratory (US))	

- ration and uncertainties 30' Schramm (Universite de Geneve (CH))
- g calibration and uncertainties 30' ersitaet Bonn (DE))

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