

10th Open LHC*Top*WG Meeting

November 21-23, 2016

Introduction

Alison Lister (UBC)
Michelangelo Mangano (CERN)
Martijn Mulders (CERN)



LHC*Top*WG : Introduction

- 10th 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 lhc-toplhwcwg@cern.ch
- Welcome to the second open session of 2016 !

LHC TopWG Contacts

Contact person for **Theory**:

Michelangelo Mangano

Contact person for **LHCb**:

Victor Coco [→ ?]

Contact person for **CMS**:

Martijn Mulders

Contact person for **ATLAS**:

Alison Lister / Mark Owen

- **Top pair cross section:** Barbara Alvarez (ATLAS), Jan Kieseler (CMS)
- **Single top cross sections:** Carlos Escobar (ATLAS), Nadjieh Jafari (CMS)
- **Top mass:** Andreas Wildauer [→ ?] (ATLAS), Steve Wimpenny (CMS)
- **Charge asymmetry:** Frederic Deliot (ATLAS), Thorsten Chwalek (CMS)
- **ttV :** Markus Cristinziani (ATLAS), Andrew Brinkerhoff (CMS)
- **Top pair differential cross sections:** Francesco Spanò (ATLAS), Maria Aldaya (CMS)
- **W helicity:** Kevin Kröninger (ATLAS), Mara Senghi (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)

Ongoing Combinations / Run 1 legacy

- **Ongoing combinations**
 - Discussed in Tuesday afternoon's session
 - **Charge asymmetry** at 8 TeV, inclusive and differential
 - **ttW/Z** at 8 TeV xsec combination and limits on anomalous couplings
 - **Inclusive ttbar** at 7 and 8 TeV
 - **Single top channels + Vtb** and combined limits on anomalous couplings
- **Other combinations** still a bit further away
 - **Top mass**: preparatory discussions and studies ongoing ...
 - Discussed in Tuesday morning's session
 - **Differential ttbar** distributions (started with comparisons)
 - Some new plots shown this afternoon

Towards Run 2 combinations

- Work ongoing in various areas to achieve further improvements in harmonization and synchronization between ATLAS and CMS for Run 2
 - **Comparisons of new Monte Carlo setups** for Run 2 to data: new results will be discussed this afternoon
 - **Particle** objects, fiducial volume definitions and **pseudo-top**: internal discussions and studies ongoing; some new particle-level results in 13 TeV results shown this afternoon
 - **Jets and b-tagging**: prescriptions for Run 1 exist. Revisit for Run 2 once new calibrations established. JES discussions Tuesday morning

EFT mini-workshop

- Tuesday late afternoon + Wednesday morning
- Goal is to bring together experimentalists and theorists to present and discuss
 - EFT motivation and observables
 - EFT models in MCs
 - Strategy for measurements and interpretation
 - Most useful ways of presenting the data, current results
 - FCNC's role in EFT
 - Lessons from Higgs experience
 - EFTs in boosted Top regime
- Speakers: please stick to your allocated time so we have plenty of time for the important discussions

Agenda

MONDAY, 21 NOVEMBER

Charpak

- 14:00** → 14:20 **Introduction** 🕒 20m

Speakers: Alison Lister (University of British Columbia (CA)), Martijn Mulders (CERN)
- 14:20** → 14:55 **Differential Distributions: new ATLAS and CMS results** 🕒 35m

Speaker: Veronique Boisvert (Royal Holloway, University of London)
- 14:55** → 15:30 **Differential Distributions: comparison to MCs and interpretation** 🕒 35m

Speaker: Efe Yazgan (Ghent University (BE))
- 15:30** → 16:00 **Tea Break**
- 16:00** → 16:30 **Latest Developments in POWHEG** 🕒 30m

Speaker: Tomas Jezo (Milano Bicocca)
- 16:30** → 17:00 **User experiences with latest MC NLO codes** 🕒 30m

A few slides from ATLAS and CMS to scaffold a discussion

Speakers: Ben Nachman (SLAC National Accelerator Laboratory (US)), Markus Seidel (CERN)

To be announced

- 15:00** → 15:20 **Single Top and Vtb : brief update on combination** 🕒 20m

Speaker: Carlos Escobar Ibanez (University of Pittsburgh (US))
- 15:20** → 15:40 **New statistical tool for combinations** 🕒 20m

Speaker: Jan Kieseler (CERN)
- 15:40** → 16:00 **W helicity: latest LHC results** 🕒 20m

Speaker: Maria Moreno Llacer (Georg-August-Universitaet Goettingen (DE))
- 16:00** → 16:30 **Tea Break**
- 16:30** → 16:50 **Associated top pair and heavy boson production: latest 13 TeV results and combination** 🕒 20m

Speaker: Illia Khvastunov (Ghent University (BE))
- 16:50** → 17:20 **Top EFT lessons from the Higgs experience** 🕒 30m

Speaker: Francesco Riva (CERN)
- 17:20** → 17:50 **EFT for Boosted Tops** 🕒 30m

Speaker: Liam Moore (University of Glasgow)

TUESDAY, 22 NOVEMBER

Theory conf room

- 09:00** → 09:30 **Top mass from threshold in di-photon invariant mass** 🕒 30m

Speaker: Hiroshi Yokoya (KIAS, QUC)
- 09:30** → 10:00 **Update on LHC top quark mass results** 🕒 30m

Speaker: Steve Wimpenny (University of California Riverside (US))
- 10:00** → 10:30 **Update on Jet Energy Scale systematics at 13 TeV** 🕒 30m

Speaker: Steven Randolph Schramm (Universite de Geneve (CH))
- 10:30** → 11:00 **Coffee Break**
- 11:00** → 11:20 **Fragmentation Uncertainties in Hadron Observables for Top Quark Mass Measurements** 🕒 20m

Speaker: Doojin Kim (CERN)
- 11:20** → 11:50 **Top quark mass definition in POWHEG** 🕒 30m

Speaker: Silvia Ferrari Ravasio
- 11:50** → 12:20 **Top quark mass definition and calibration** 🕒 30m

Speaker: Andre Hoang (University of Vienna)

Theory conf room

WEDNESDAY, 23 NOVEMBER

- 09:00** → 09:30 **Top quark EFT introduction** 🕒 30m

Speaker: Fabio Maltoni (Universite Catholique de Louvain (UCL) (BE))
- 09:30** → 10:00 **EFT in top physics: facts, remarks and proposals** 🕒 30m

Speaker: Juan Antonio Aguilar Saavedra (LIP Laboratorio de Instrumentacao e Fisica Experimental de Part)
- 10:00** → 10:30 **LHC results on EFTs from top quark measurements (couplings)** 🕒 30m

Speaker: Clement Helsens (CERN)
- 10:30** → 11:00 **Coffee Break**
- 11:00** → 11:30 **Status of Top EFT in MCs and its applications for top pair production** 🕒 30m

Speaker: Celine Degrande (UIUC)
- 11:30** → 12:00 **Top EFT in MCs: the case of ttV and ttH** 🕒 30m

Speaker: Eleni Vryonidou (Nikhef)
- 12:00** → 12:30 **EFTs for top quark FCNC** 🕒 30m

Speaker: Gauthier Durieux (DESY)
- 12:30** → 13:00 **LHC results and prospects for EFTs from FCNC** 🕒 30m

Speaker: Eric Conte (Laboratoire de Physique Corpusculaire (LPC))

23 Nov, 2016