

12th Open LHC*Top*WG Meeting

Nov 2-3, 2017

Introduction

Mark Owen (Glasgow)
Michelangelo Mangano (CERN)
Martijn Mulders (CERN)



LHC*Top*WG : Introduction

- 12th 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, see [new web page](http://lpcc.web.cern.ch/lhc-working-groups) at <http://lpcc.web.cern.ch/lhc-working-groups>
 - Agendas available at <https://indico.cern.ch/categoryDisplay.py?categId=4463>
 - Public summary plots at <https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCTopWGSummaryPlots>
 - Subscribe to main open mailing list lhc-toplhwcwg@cern.ch
- Welcome to the second open session of 2017 !

LHC*Top*WG

Contacts

Contact person for Theory :	Michelangelo Mangano
Contact person for LHCb :	Steve Farry
Contact person for CMS :	Martijn Mulders
Contact person for ATLAS :	Mark Owen

- **Top pair cross section:** [Veronique Boisvert](#) (ATLAS), Jan Kieseler (CMS)
- **Single top cross sections:** Carlos Escobar (ATLAS), [Jeremy Andrea](#) (CMS)
- **Top mass:** Mark Owen (ATLAS), Steve Wimpenny (CMS)
- **Charge asymmetry:** Frederic Deliot (ATLAS), Thorsten Chwalek (CMS)
- **ttV :** Markus Cristinziani (ATLAS), Andrew Brinkerhoff (CMS)
- **Top pair differential cross sec. 8 TeV:** Francesco Spanò (ATLAS), Maria Aldaya (CMS)
- **Top pair differential cross sec. 13 TeV:** James Howarth (ATLAS), Otto Hindrichs (CMS)
- **W helicity:** [Mohammad Kareem](#) (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 and Orso Iorio (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

More detail in talks today/tomorrow

- Submitted for publication (!) [arXiv:1709.05327](https://arxiv.org/abs/1709.05327)
 - Charge asymmetry at 7 and 8 TeV, inclusive and differential
- Ongoing combinations
 - Single top channels + V_{tb} and combined limits on anomalous couplings
 - Inclusive $t\bar{t}$ at 7 and 8 TeV
- Other combinations still a bit further away
 - Top mass: preparatory discussions and studies ongoing
 - Differential $t\bar{t}$ distributions (started with comparisons)
 - 8 TeV at parton level
 - 13 TeV at particle level

Towards Run II combinations

- Work continues 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 presented last time. Today an update on top modelling in ATLAS and CMS (baseline and systematic variations)
 - Preparations started to create common samples, for exact comparisons of benchmark MC setups between ATLAS and CMS
 - Particle objects, fiducial volume definitions and pseudo-top: internal discussions and studies ongoing - stay tuned

EFT Follow Up

- Very interesting EFT session in last year's November meeting + follow up discussion in last meeting (June)
- Continue discussions at this meeting with aim to converge on theoretical recommendations, aiming for a public document.

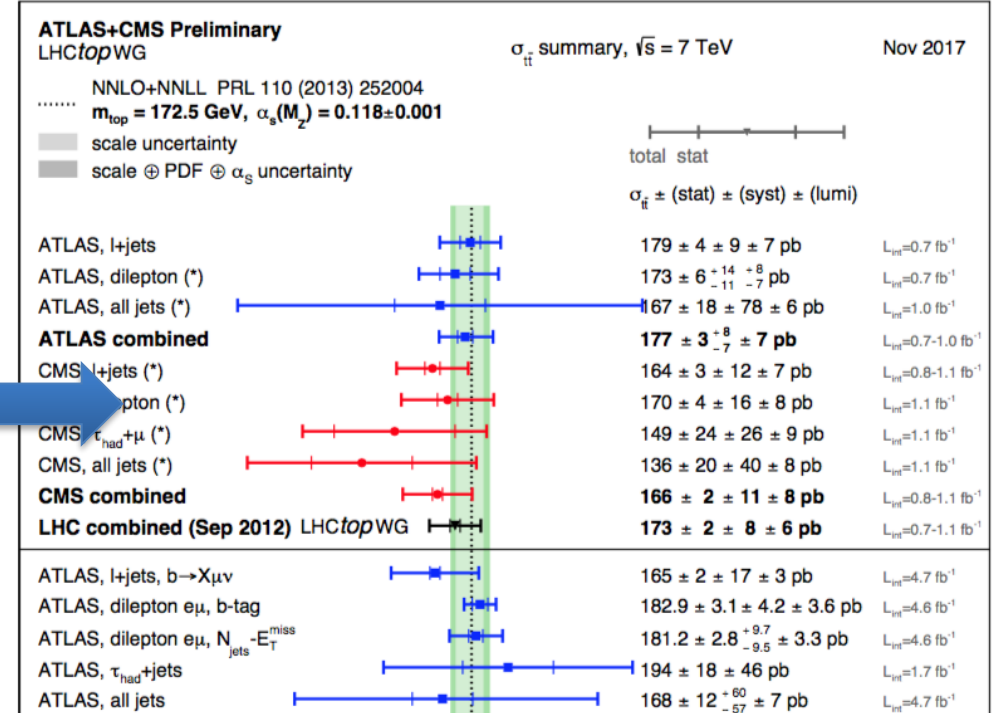
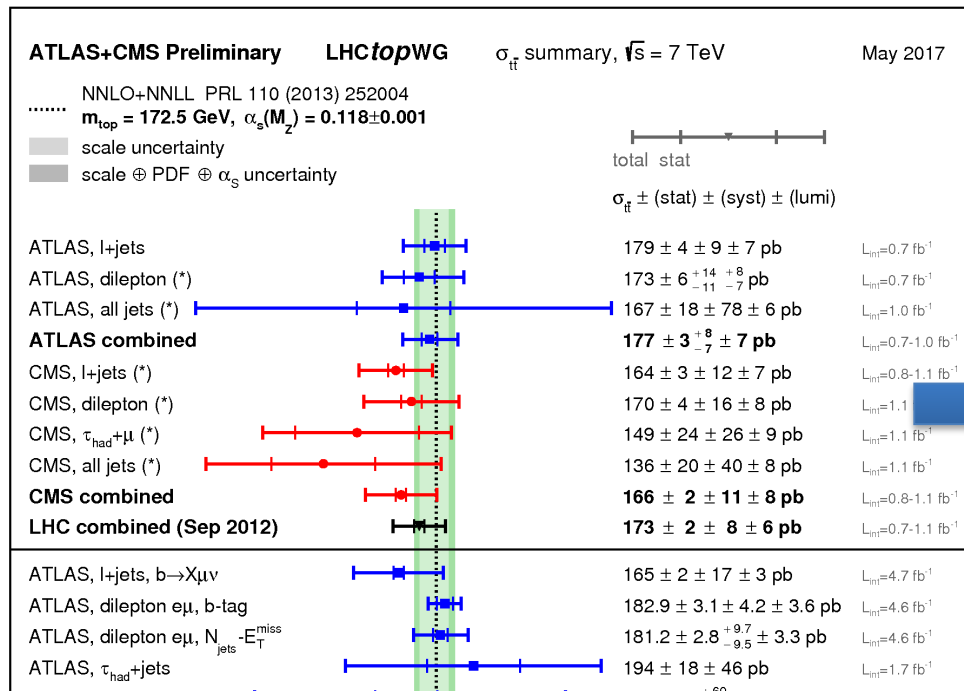
Preview of latest draft:

https://indico.cern.ch/event/672140/attachments/1551163/2436985/eft_note-submitted-to-readers-2.pdf

- Experimental EFT contacts:
 - Oliver Maria Kind and Nuno Castro (ATLAS); Alexander Grohsjean and Nadjieh Jafari (CMS).

Summary Plot Updates

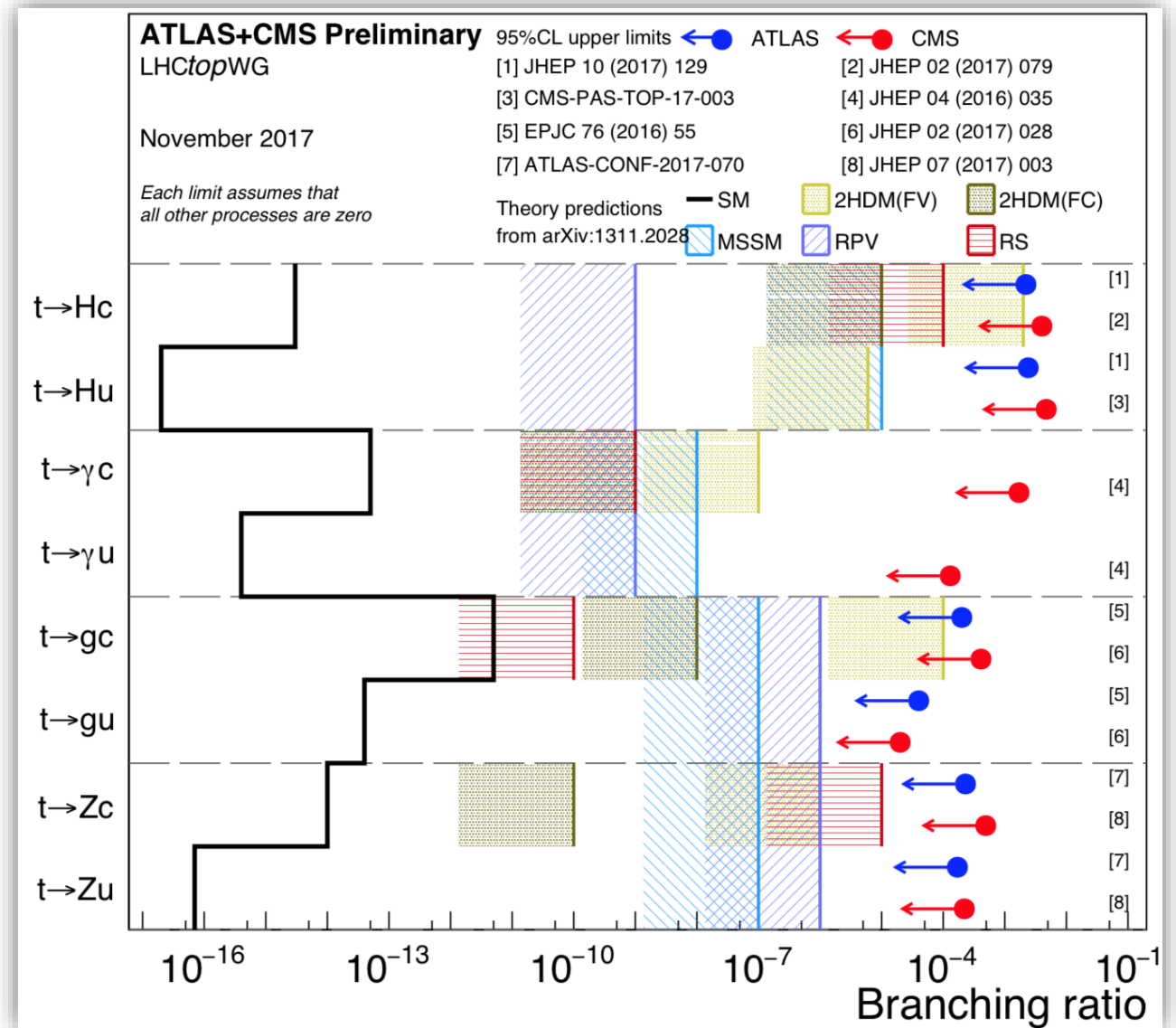
- Campaign to update summary plots with new style of labeling, following agreement reached with Ac publication:



Updated Summary plots

<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCTopWGSummaryPlots>

- 22 plots updated
- 1 has more than just a label change:



Council Chamber

THURSDAY, 2 NOVEMBER

- 09:00** → 09:20 **Introduction**
Speakers: Mark Andrew Owen (University of Glasgow (GB)), Martijn Mulders (CERN), Michelangelo Mangano
- 09:20** → 09:50 **LHC combination of top-quark pair charge asymmetry measurements**
Speakers: Frederic Deliot (Université Paris-Saclay (FR)), Thorsten Chwalek (Institut fuer Experimentelle Kernphysik, L)
- 09:50** → 10:20 **Observation of top production in p-Pb collisions at CMS**
Speaker: Mr. Georgios Krintiras (Universite Catholique de Louvain (UCL) (BE))
- 10:30** → 11:00 **Coffee break**
- 11:00** → 11:40 **New top mass results and prospects for run 1 combination**
Speakers: Andrea Helen Knue (Albert-Ludwigs-Universitaet Freiburg (DE)), Hartmut Stadie (Hamburg University (DE))
- 11:40** → 12:10 **Top mass measurement from boosted tops**
Speaker: Dr. Aditya Pathak (University of Vienna)
- 12:10** → 12:40 **Top Mass extraction studies using NLO+PS generators with increasing accuracy**
Speaker: Paolo Nason (Universita & INFN, Milano-Bicocca (IT))
- 13:00** → 15:00 **Lunch**
- 15:00** → 15:30 **Uncertainties in top modelling in run 2 analyses**
Speakers: Emyr Clement (University of Bristol (GB)), Steffen Henkelmann (University of British Columbia (CA))
- 15:30** → 16:00 **Introduction to Top EFT document**
Speaker: Gauthier Durieux (DESY)
- 16:00** → 16:30 **Top EFT document discussion**
Speaker: Gauthier Durieux (DESY)
- 16:30** → 17:00 **Top-quark pair production with additional heavy flavour jets (Higgs LHC XS WG)**
Speaker: Maria Moreno Llacer (CERN)

Highlights

Top mass

Top modeling

EFT

Agenda

Theory conf room

FRIDAY, 3 NOVEMBER

- 09:00** → 09:30 **Status of other ongoing combinations** ⌚ 30m
Speakers: Jeremy Andrea (Institut Pluridisciplinaire Hubert Curien (FR)), Veronique Boisvert (Royal Holloway, Univ)
- 09:30** → 10:00 **Comparison of ATLAS and CMS $t\bar{t}$ +photon results and definition**
Speakers: Daniel Noonan (Florida Institute of Technology (US)), Yichen Li (Universitaet Siegen (DE))
- 10:00** → 10:30 **Comparison of ATLAS and CMS tW results**
Speakers: Rui Zhang (University of Bonn (DE)), Sergio Sanchez Cruz (Universidad de Oviedo (ES))
- 10:30** → 11:00 **Comparison of ATLAS and CMS tZ results and definition**
Speakers: Lidia Dell'Asta (Boston University (US)), Mara Senghi Soares (Centro de Investigaciones Energéticas M)

Combinations + comparisons