

15th Open LHCtopWG Meeting

May 28-29, 2019

Introduction

Reinhard Schwienhorst (Michigan State)
Michelangelo Mangano (CERN)
Martijn Mulders (CERN)



LHCtopWG : Introduction

- 15th 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) – aim always to allow time for discussion
- Documentation and coordinates
 - Integrated in the LPCC structure at CERN:
<http://lpcc.web.cern.ch/lhc-working-groups>
 - Agendas available at <https://indico.cern.ch/categoryDisplay.py?categoryId=4463>
 - Public summary plots at
<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCTopWGSummaryPlots>
 - Subscribe to main open mailing list lhc-toplhcgw@cern.ch
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- Welcome to the first open session of 2019!

LHCtopWG Contacts

- **Theory:** Michelangelo Mangano
- **ATLAS:** Reinhard Schwienhorst
- **CMS:** Martijn Mulders
- **LHCb:** Steve Farry

- **ATLAS:** Reinhard Schwienhorst replaced Mark Owen

Contacts for on-going combinations / working groups:

- **Top pair cross section:** Veronique Boisvert (ATLAS), Jan Kieseler (CMS)
- **Top mass:** Mark Owen (ATLAS), Steve Wimpenny (CMS)
- **Top pair differential cross sec. 8 TeV:** Francesco Spanò and Riccardo Di Sipio (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)
- **EFT:** Nuno Castro and Alison Lister (ATLAS), Nadjieh Jafari and Alexander Groshjean (CMS)
- **Common MC:** Kyle Cormier (ATLAS), Javier Fernandez Menendez (CMS)

Also contacts for dedicated topics as needed (JES, b-tagging, generators, pseudo-top definitions, etc)

Ongoing Combinations

Ongoing combinations under review within the collaborations:

- ~~Single top cross-section 7 & 8 TeV~~ published!
- **Top quark pair cross-section 7 & 8 TeV** + extraction top pole mass & alpha_s
- **W helicity measurement**

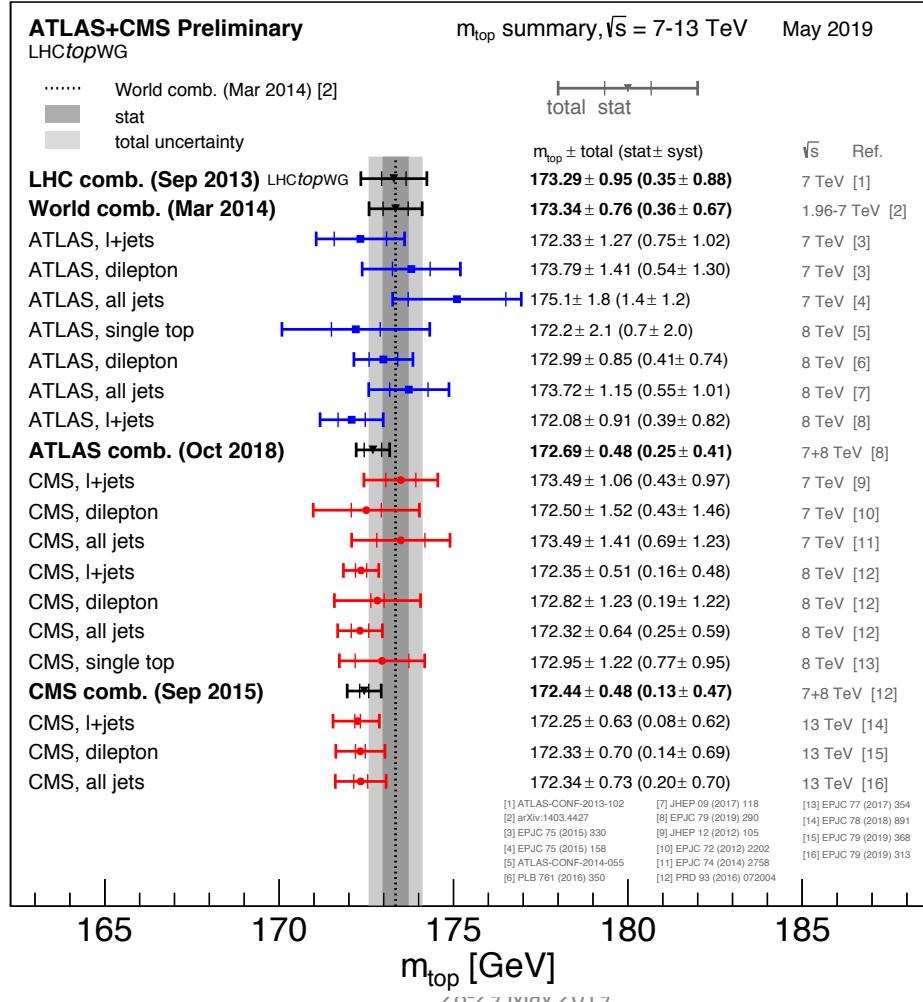
Planned combinations that are a bit further away:

- **Top mass:** preparatory discussions and studies ongoing
- **Differential ttbar distributions** (started with comparisons)

Summary Plots

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

Updated mass plot this time (updated references + new results):



Top 2019

12TH INTERNATIONAL WORKSHOP ON TOP QUARK PHYSICS

TOP
2019



**22 - 27
September 2019
Beijing**

INTERNATIONAL ADVISORY COMMITTEE:

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Alexander Mitov, Cambridge
António Onofre, U. Minho/LIP
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Huajiao Zhang, IHEP
Lei Zhang, NNU
Hongbo Zhu, IHEP

<https://indico.cern.ch/e/top2019>

Tue: 60-6-015 - Room Georges Charpak (Room F)

TUESDAY, 28 MAY

09:00 → 19:00 Tuesday Session		60-6-015 - Room Georges Cha...
09:00	Introduction Speakers: Reinhard Schwienhorst (Michigan State University (US)), Martijn Mulders (CERN), Michelangelo Mangano (CERN)	⌚ 10m 60-6-015 - Room Georges Cha...
09:10	ATLAS Highlight Speaker: Judith Katzy (Deutsches Elektronen-Synchrotron (DE))	⌚ 30m 60-6-015 - Room Georges Cha...
09:40	CMS Highlight Speaker: Giovanni Zevi Della Porta (Univ. of California San Diego (US))	⌚ 30m 60-6-015 - Room Georges Cha...
10:10	LHCb Prospects Speaker: Stephen Farry (University of Liverpool (GB))	⌚ 20m 60-6-015 - Room Georges Cha...
10:30	Coffee Break	⌚ 30m 60-6-015 - Room George...
11:00	ATLAS spin correlations update Speaker: Miriam Watson (University of Birmingham (GB))	⌚ 30m 60-6-015 - Room Georges Cha...
11:30	CMS spin correlations update Speaker: Christian Schwanenberger (Deutsches Elektronen-Synchrotron (DE))	⌚ 30m 60-6-015 - Room Georges Cha...
12:00	Predictions at NLO Speaker: Zongguo Si (Department of Physics, Shandong University, Jinan Shandong 250100, China)	⌚ 30m 60-6-015 - Room Georges Cha...
12:30	Predictions at NNLO Speaker: Alexander Mitov (University of Cambridge (GB))	⌚ 15m 60-6-015 - Room Georges Cha...
13:00	Lunch Break	⌚ 2h 15m
15:15	Towards a Common ATLAS+CMS Monte Carlo sample (TBC) Speaker: Kyle James Read Cormier (University of Toronto (CA))	⌚ 30m 60-6-015 - Room Georges Cha...
15:45	Constraining four-fermion operators in rare top decays Speaker: Michael Chala	⌚ 30m 60-6-015 - Room Georges Cha...
16:15	EFT recent theory progress (overview) Speakers: Gauthier Durieux (Technion- Israel Institute of Technology (IL)), Gauthier Durieux (Technion)	⌚ 30m 60-6-015 - Room Georges Cha...
16:45	Tea Break	⌚ 30m 60-6-015 - Room Georges Cha...
17:15	A discussion of precision top quark mass extraction Speaker: Paolo Nason (Universita & INFN, Milano-Bicocca (IT))	⌚ 30m 60-6-015 - Room Georges Cha...
17:45	Top pole mass extraction -- recent results from CMS Speakers: Oleksandr Zenaikev, Oleksandr Zenaikev (Hamburg University)	⌚ 30m 60-6-015 - Room Georges Cha...
18:15	ATLAS measurement of the top mass using tt+1jet events Speaker: Davide Melini (Univ. of Valencia and CSIC (ES))	⌚ 30m 60-6-015 - Room Georges Cha...

Intro,
highlights

Spin
correlation

Common MC,
EFT theory

Top mass

- TH seminar on Tue at 2pm:
Removing singularities from loop amplitudes
by Charalampos (Babis) Anastasiou

We: 4-3-006 - TH Conference Room – start 9:30

WEDNESDAY, 29 MAY

09:00 → 12:30 Wednesday Session		4-3-006 - TH Conference Room
09:30	ATLAS tt Speaker: Yichen Li (DESY)	⌚ 30m 4-3-006 - TH Conference Ro...
10:00	CMS EFT results Speaker: Alexander Josef Grohsjean (Deutsches Elektronen-Synchrotron (DE))	⌚ 30m 4-3-006 - TH Conference Ro...
10:30	Coffee Break	⌚ 30m
11:00	New method to extract the top-quark width from Non-Resonant Production Speaker: Tomas Jezo (University of Zurich)	⌚ 30m 4-3-006 - TH Conference Ro...
11:30	ATLAS+CMS combination of Run1 single top cross-sections and extraction of Vtb Speaker: Abideh Jafari (Deutsches Elektronen-Synchrotron (DE))	⌚ 30m 4-3-006 - TH Conference Ro...
12:00	Top physics projections for HL/HE-LHC (Yellow Report) Speaker: Otto Heinz Hindrichs (University of Rochester (US))	⌚ 30m 4-3-006 - TH Conference Ro...

EFT exp.,
Top width

Vtb comb. ,
HL-LHC prospects