

7th TOPLHCWG OPEN MEETING INTRODUCTION

Michelangelo Mangano (CERN)
Martijn Mulders (CERN)
María José Costa (IFIC-Valencia)
TOPLHCWG meeting 20th May 2015

TOPLHCWG COORDINATES

- Forum for discussions (ATLAS, CMS, LHCb and Theorists) on combinations, discuss strategies/methods (in particular systematic uncertainties) and interpretations of top physics measurements at the LHC.
- Typically two open sessions per year, and several topical meetings in between
- Integrated in the LPCC structure at CERN
- Documentation and coordinates:
 - LPCC web page:
http://lpcc.web.cern.ch/LPCC/index.php?page=top_wg
 - TWiki:
<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/TopLHCWG>
 - If interested, subscribe to lhc-toplhwcwg@cern.ch

TOPLHCWG CONTACTS

- **Contact person for CMS:** Martijn Mulders
- **Contact person for ATLAS:** Maria Costa
- **Contact person for LHCb:** Victor Coco
- **Contact person for TH:** Michelangelo Mangano

- **Top pair cross section:** Elizaveta Shabalina (ATLAS), Maria Aldaya (CMS)
- **Single top cross section:** 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)
- **Differential distributions:** Francesco Spano' (ATLAS), Maria Aldaya (CMS)

Tasks forces for specific activities:

- **Jet/MET:** Caterina Doglioni, Bogdan Malescu (ATLAS), Henning Kirschenmann, Mikko Voutilainen (CMS)
- **Common acceptance and pseudo-tops:** Kevin Finelli and Dominic Hirschbuhel (ATLAS), Junghwan Goh and Orso Iorio (CMS)
- **Radiation and generators:** James Ferrando and Dominic Hirschbuhel (ATLAS), Benedikt Maier (CMS)
- **B-tagging:** Liza Mijovic and Martin zur Nedden (ATLAS), Luca Scodellaro (CMS)

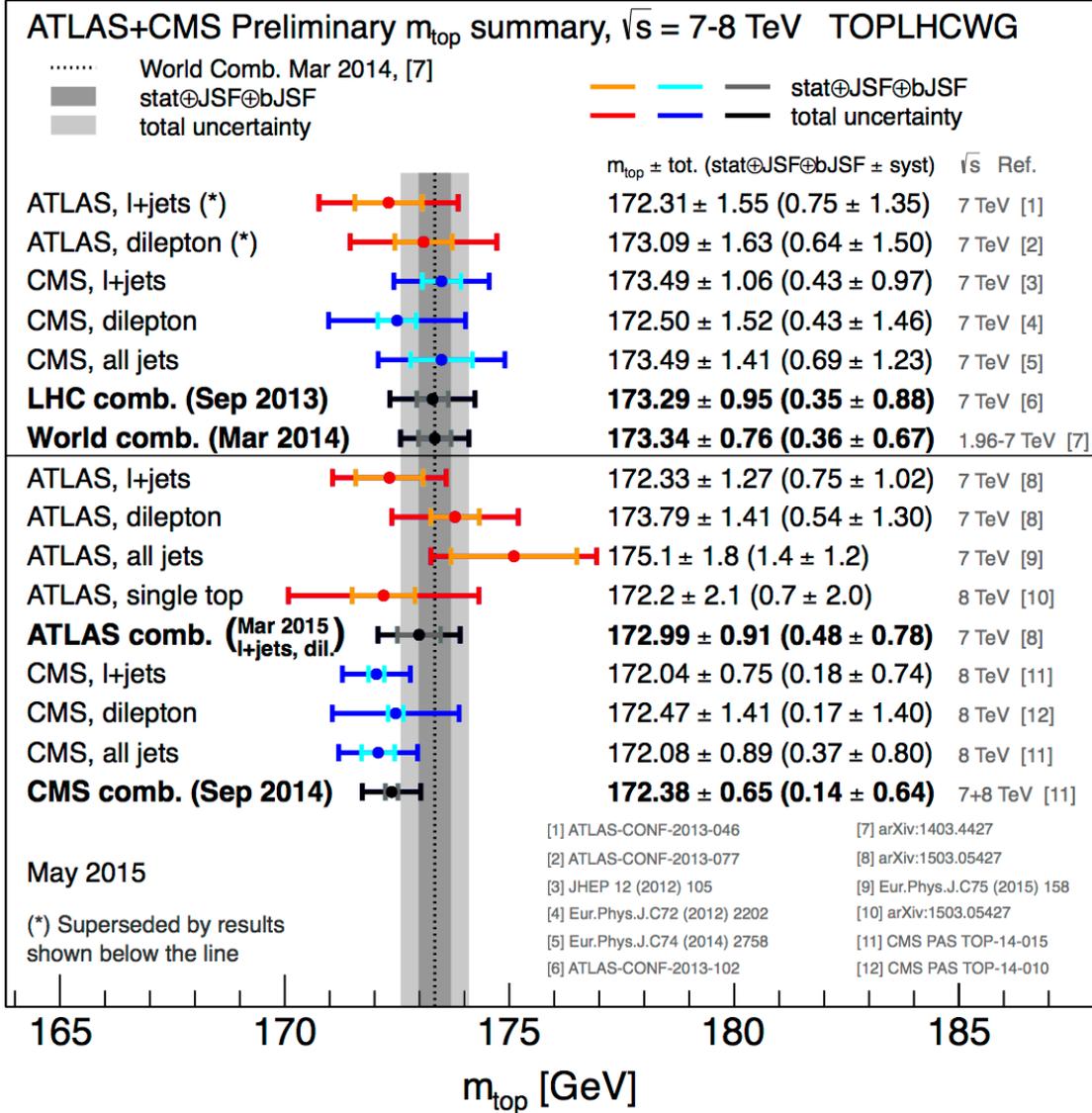
We would like to thank the outgoing contacts, who were initiators of these activities (R.Chierici, W.Bell, J.Donini, L.Lista, A.Grohsjean) and welcome the new contacts.

RUN 1 ACTIVITIES – SUMMARY PLOTS

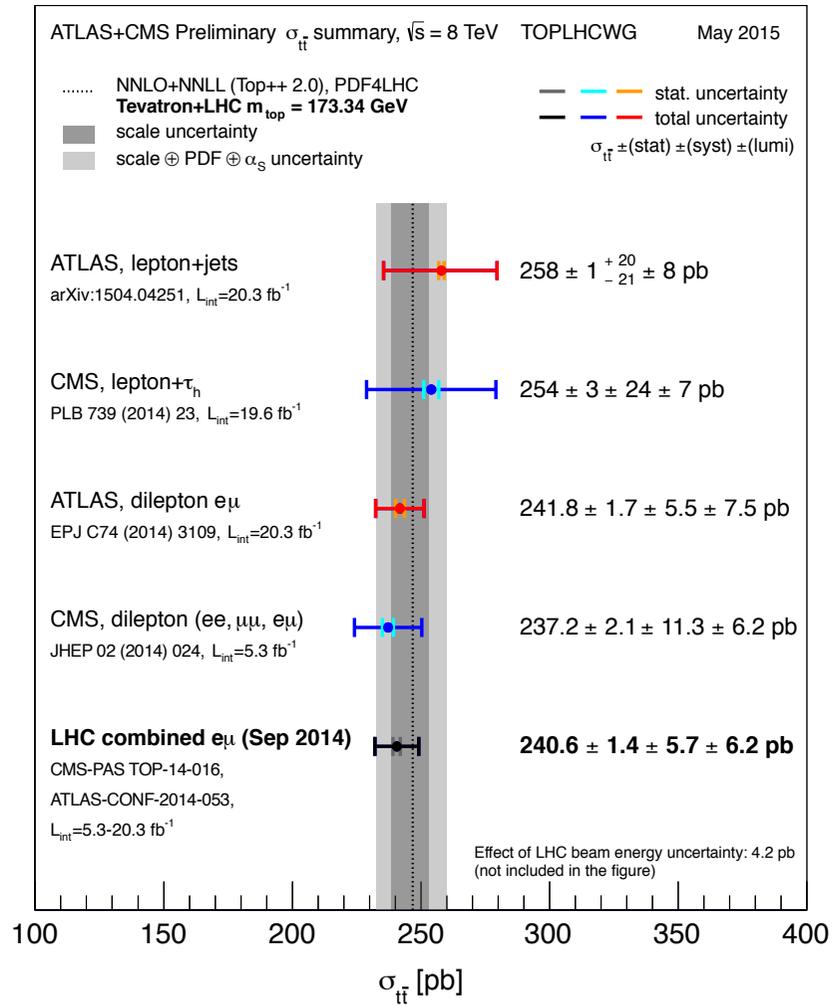
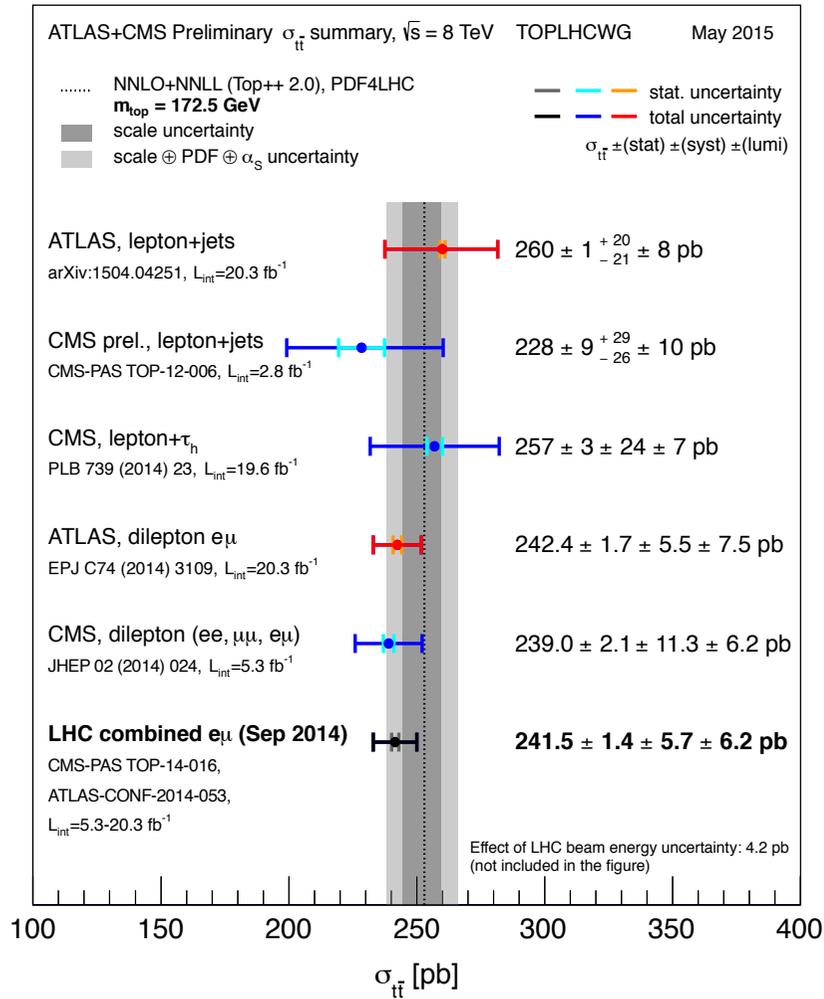
- An update of the TOPLHCWG summary plots have been done for this workshop in order to include the latest measurements (top mass, top quark pair cross sections, charge asymmetry)
- A new summary plots also provided: V_{tb}
- Aim at updating summary plots more regularly
- All plots can now be found at:

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

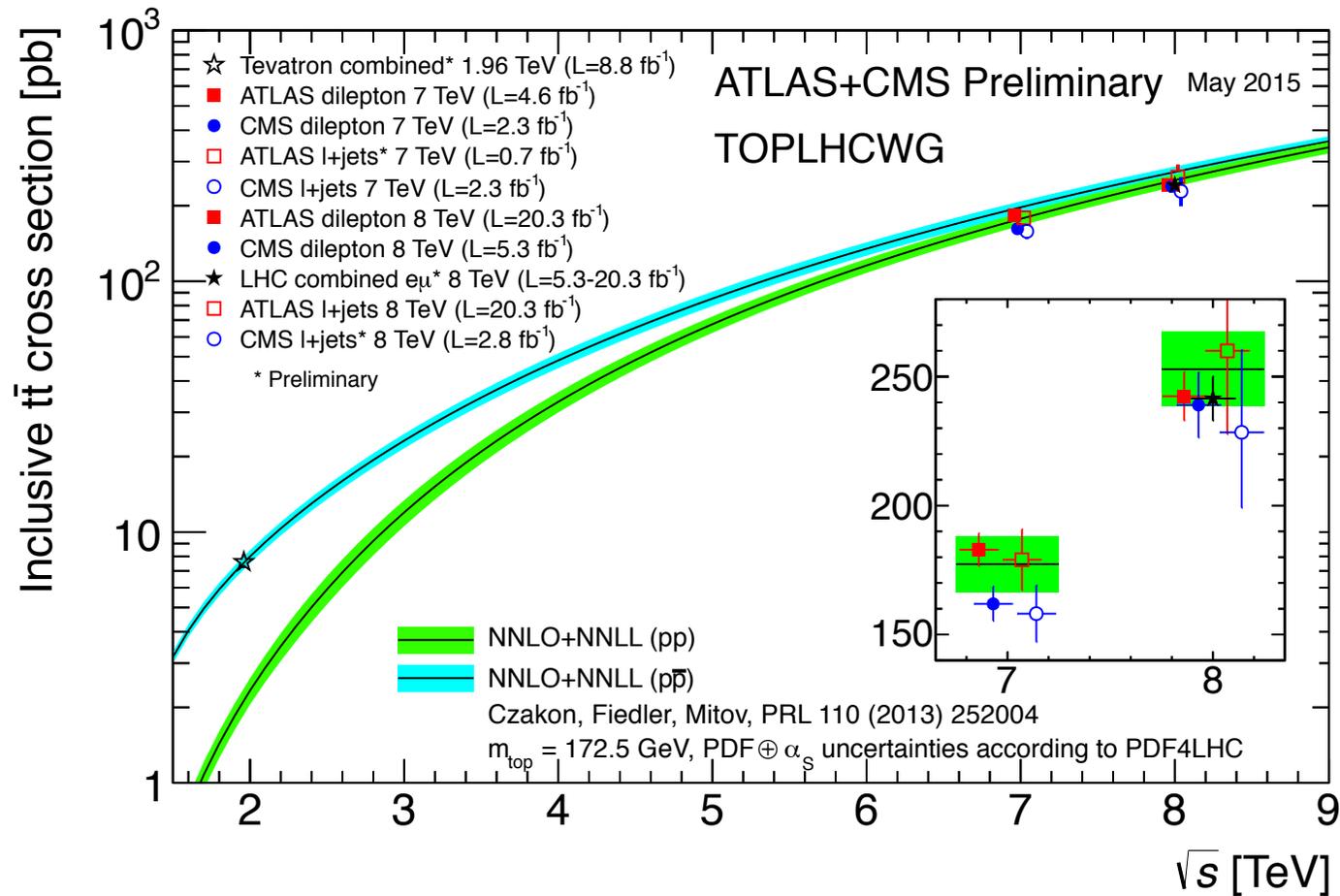
RUN 1 ACTIVITIES – SUMMARY PLOTS



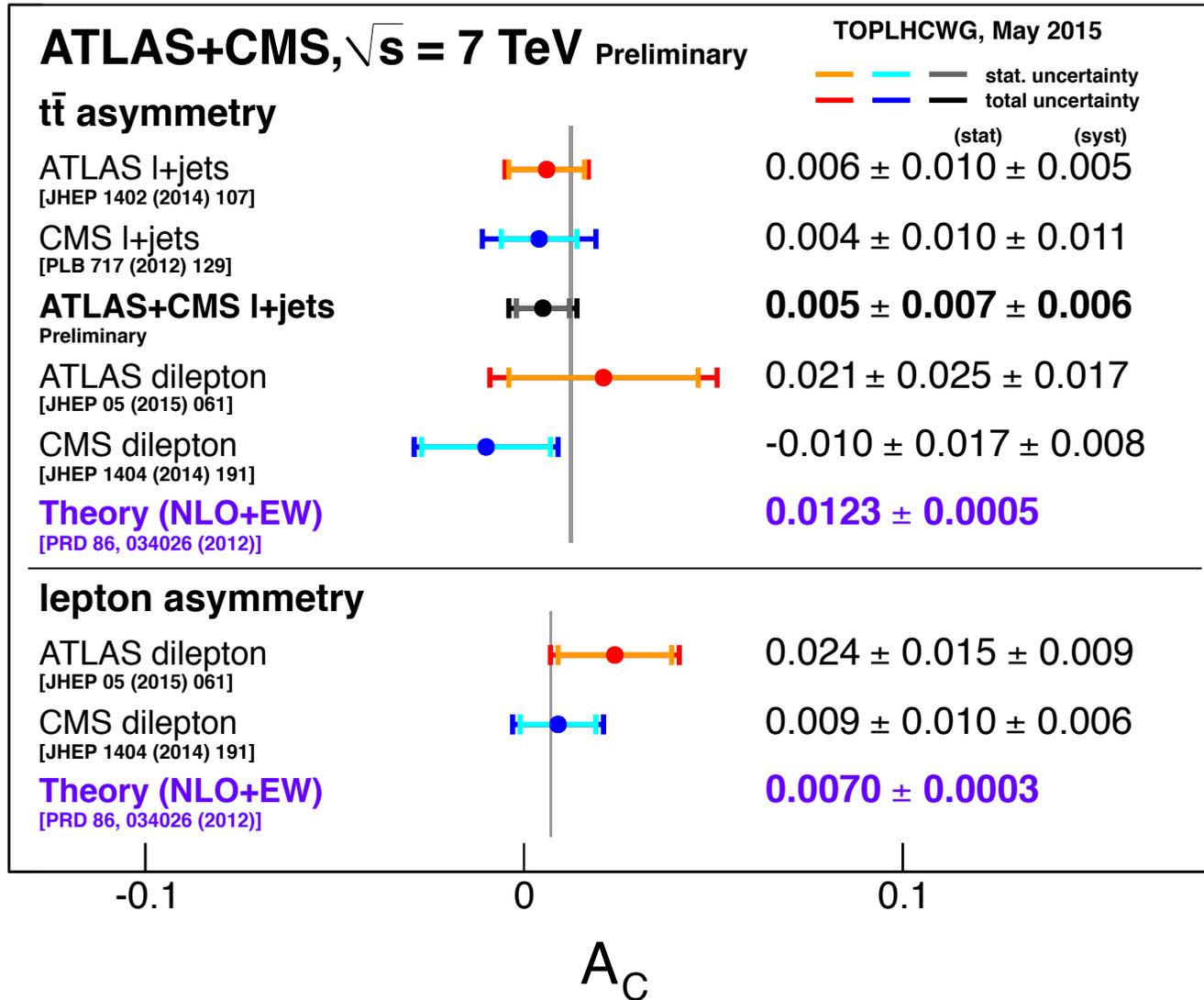
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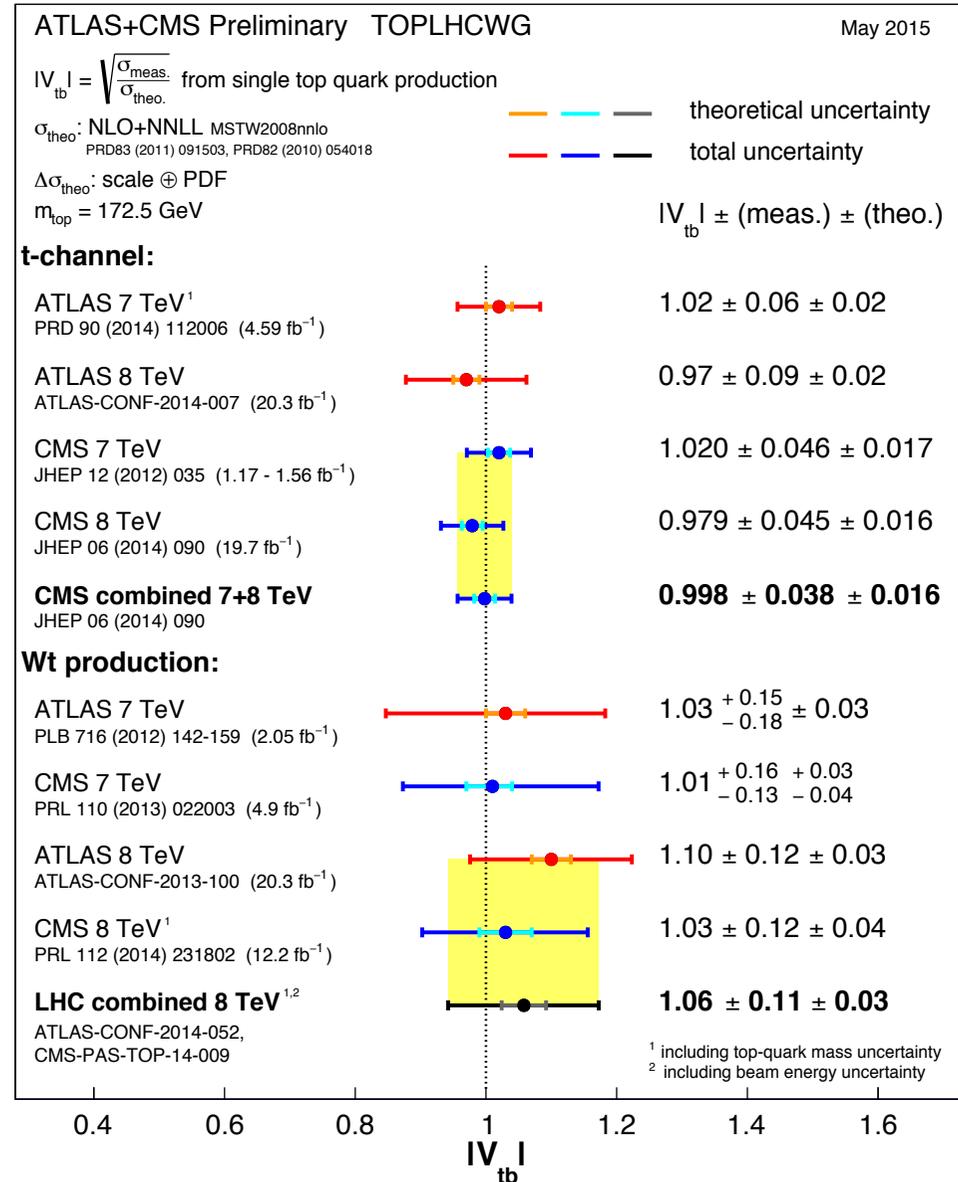
RUN 1 ACTIVITIES – SUMMARY PLOTS



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RUN 1 ACTIVITIES – SUMMARY PLOTS



RUN 1 ACTIVITIES – COMBINATIONS

- In most cases, considered important to wait for the “final” Run1 results before starting the combination effort (e.g. ttV, single top t-channel XS, W helicity).
- Considering releasing for the first time publications (e.g. charge asymmetry combination).
- Ongoing combination activities:
 - Charge asymmetry @ 8 TeV: being done in a confidential way with the aim of releasing it right after the inputs become available.
 - Top mass combination:
 - Plan is to go directly for a World Average combination.
 - Inputs under discussion now.

RUN 2 ACTIVITIES

- Work ongoing in various activities to allow for the first combinations to happen by Moriond/summer 2016 conferences:
 - Particle objects, fiducial, pseudo-top definitions: after internal discussions a first proposal will be discussed today
 - Monte Carlo setups and associated uncertainties: ATLAS and CMS plans will be presented today, to be followed by internal discussions.
 - Jets and b-tagging: Appointing contacts to start discussions in summer to aim at reaching an agreement around fall.

ANNOUNCEMENTS

- LHCb seminar

LHC Seminar

Observation of top-quark production in the forward region with LHCb

by Victor Coco (CERN)

Tuesday, 26 May 2015 from **11:00** to **12:00** (Europe/Zurich)
at CERN (500-1-001 - Main Auditorium)

Organised by C. Lourenco, M. Mangano, G. Unal..... ****Tea and Coffee will be served at 10h30****

- Registration for Top 2015 is open



8th International Workshop
on Top Quark Physics

Ischia, Italy
14-18 September 2015
Contact: top2015@infn.it



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AGENDA

Wednesday, 20 May 2015

- 09:00 - 09:15 **Introduction 15'**
Speakers: Michelangelo Mangano (CERN), Martijn Mulders (CERN), Maria Jose Costa (IFIC Valencia (ES))
- 09:15 - 13:35 **Preparations for Run2**
- 09:15 **Developments in the PDF4LHC recommendations 30'**
Speaker: Albert De Roeck (CERN)
- 09:45 **Introduction particle-level based measurements in Top physics 15'**
Speaker: Tancredi Carli (CERN)
- 10:00 **ATLAS and CMS proposal on particle objects, fiducial and pseudo-top definitions for Run2 30'**
Speaker: Alberto Orso Maria Iorio (Universita e INFN, Napoli (IT))
- 10:30 **Feedback from SM@LHC workshop on particle object definitions 15'**
Speaker: Tancredi Carli (CERN)
- 10:45 **Coffee break 30'**
- 11:15 **ATLAS Monte Carlo plans for Run2 30'**
Speaker: Andrea Helen Knue (University of Glasgow (GB))
- 11:45 **CMS Monte Carlo plans for Run2 30'**
Speaker: Efe Yazgan (Ghent University (BE))
- 12:15 **ATLAS Monte Carlo tuning of Pythia 8 in top quark pair events 20'**
Speaker: Simone Amoroso (Albert-Ludwigs-Universitaet Freiburg (DE))
- 12:35 **CMS jet reconstruction plans for Run2 30'**
Speaker: Philip Coleman Harris (CERN)
- 13:05 **ATLAS jet reconstruction plans for Run2 30'**
Speaker: Dimitris Varouchas (Centre National de la Recherche Scientifique (FR), LPNHE-Paris)

AGENDA

- 15:15 - 17:45 **Top quark production**
- 15:15 **CMS ttV production update 30'**
Speaker: Andrew Brinkerhoff (University of Notre Dame (US))
 - 15:45 **Theoretical overview on ttV 30'**
Speaker: Markus Christian Schulze (CERN)
 - 16:15 **NNLO calculations for the t-channel cross section 30'**
Speaker: Fabrizio Caola (CERN)
 - 16:45 **Top production in Heavy Ions collisions 30'**
Speaker: Krisztian Krajczar (CERN)

Thursday, 21 May 2015

- 09:00 - 09:45 **Overview of BSM interpretations from Run1 precision top measurements and Run2 perspectives 45'**
Speaker: Roberto Franceschini (CERN)
- 09:45 - 11:30 **Top quark mass**
- 09:45 **Summary of the top mass workshop in Frascati 40'**
Speaker: Gennaro Corcella (INFN - LNF)
 - 10:25 **ATLAS Top mass update 30'**
Speaker: Giorgio Cortiana (Max-Planck-Institut fuer Physik (Werner-Heisenberg-Institut) (D))
 - 10:55 **Towards the next LHC and Tevatron top mass combinations 30'**
Speaker: Benjamin Stieger (CERN)
- 11:25 - 11:40 **Concluding remarks 15'**