

# Electroweak Precision Measurements: Introduction

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# Topics discussed in Mon-Wed working meetings

- Agenda: <https://indico.cern.ch/event/661915/timetable/>
- Modeling of W and Z  $p_T$  distributions
  - Treatment of uncertainties (scale variations and possible alternatives)
  - Heavy-flavor related issues in PDF evolution
  - Detailed summary in talk later this morning
- Technical details of MC Reweighting for ATLAS  $M_W$  measurement

# Topics discussed in Mon-Wed working meetings

- Electroweak corrections to W/Z production
  - Implementation in POWHEG
  - Fermion pair production and interplay with Photos and/or Pythia (further study of Pythia  $\gamma^* \rightarrow f\bar{f}$  behaviour needed)
  - Technical usage of POWHEG with EWK corrections by experiments: Some streamlining/standardization of interface with Pythia/Photos possible, technical efforts underway to correctly integrate with pythia interfaces in ATLAS/CMS
  - Talk from Fulvio later today
- Weak mixing angle measurement/extraction
  - Alternate parameter input scheme in POWHEG Z/W production with EWK corrections for  $\sin^2 \theta_w$ , allows better defined usage of Monte Carlo for the weak mixing angle measurement
  - Dedicated talk from Aleko on CMS measurement later today
- All of the above are ongoing topics for discussion today/tomorrow and in future meetings

- Desire to revive official activities of LHC Electroweak Working Group in the context of the LPCC
- Expand scope beyond recent focus on  $M_W$  measurements, and incorporate existing activities on Diboson production/anomalous couplings
- Theory Contacts: Alessandro Vicini, Doreen Wackeroth, Stefan Dittmaier (joining)
- Experimental contacts to be refreshed/renewed for next year
- Planning a 1-2 day (re-)kickoff meeting at CERN to summarize ongoing topics, plan future activities, evolution of WG structure, and attract interested persons
- Likely dates: Week of Nov. 27

- Desirable to have a written report summarizing the activities/studies on  $W$  mass, weak mixing angle, and other developing topics
- Timescale:  $\sim 1$  year
- Content and document organisation to be defined (but agenda of this meeting is a strong hint)
- Dedicated discussion on Friday, and a more detailed proposal to be presented at the Nov. meeting

# Upcoming Meetings

- 1-2 day kickoff meeting for LHC EWK Working Group at CERN  $\sim$  end of November (dates to be finalised)
- 3-4 meetings and/or workshops next year (feedback on format/length/frequency based on previous meetings and workshops is welcome)