



Progress report DIBOSON Project University of Thessaloniki (AUTH)

Chara Petridou
on behalf of the AUTH GROUP

Thalis-DIBOSON, Chios 28-4-2013

- **Members of the KEO:**

- ▶ I.Gkialas
- ▶ k. Kordas
- ▶ K. Papageorgiou (We made the changes and should appear in KEO)
- ▶ Ch. Petridou
- ▶ D. Sampsonidis

- **Research Activity I**

- Contribution to WP1 : Data Taking (shifts)
 - Realised by I. Gkialas, V. Kouskoura, Ch. Petridou
- Contribution to WP2 : Technical detector aspects:
 - CSC studies by the Univ. of Aegean team (I. Gkialas, K. Papageorgiou): [Service tasks for UoAeg](#)
 - **Task Completed. They are both now ATLAS authors**
 - **A short Internal ATLAS note should be produced**
 - ATLAS-muon upgrade studies on acceptance (addition of small tube MDTs at the feet) by V. Kouskoura



- **Research Activity I**

- Contribution to WP3 : on Lepton performance studies

- Realized by: V. Kouskoura, A. Petridis, I. Nomidis, D. Sampsonidis and currently by D. Bachas

- on muons (performance plots, see Support note on ZZ to 4l (2011))

- performance plots for WZ analysis (see Support note on WZ to 3l+MET (2013))

- on StandAlone muons (work started, by D. Kyrizopoulos -service task)

- on electron reconstruction algorithms (D. Kyrizopoulos, ongoing)

- Muon validation studies started 1 month ago (see presentation by A. Gaitatzis -service task)

- Contribution to WP5 : Dissemination of the results

- Presentations realized in ATLAS WG meetings by members of the KEO (until summer 2012 and on WZ-March 2013)



● **Research Activity II:**

- Work started on MC generators (using HELAC generator for ZZ+jet(s))(WP8)
 - A new MSc student (D.Sampsonidou) started work on MC generator HELAC with K. Papadopoulos (will be her diploma thesis: compare results from NLO generators on ZZ+jets and angular distributions)
 - Also, ZZ results on x-sections were confronted with various MC generators (MCFM, POWHEG, MC@NLO)(by K. Kordas, D. Sampsonidis, D. Kyriazopoulos for both 7 and 8 TeV data) (Support note Nov. 2012 and publication Mar. 2013)
 - WZ results on x-sections, theoretical systematics studied and acceptance factors extracted for 8TeV data, using POWHEG, MC@NLO and MCFM generators (D. Kyriazopoulos, D. Bachas, A. Gaitatzis, Ch. Petridou)(Support and CONF note Mar. 2013)
- Contribution to WP9 : on Background measurements for ZZ decays to 4l and WZ to 3l + MET (both data driven and MC based)
 - On ZZ 7 TeV data: A. Petridis, I. Nomidis, D. Kyriazopoulos, K. Kordas, Ch. Petridou for the 2012 publication (Support notes and publication March 2013)
 - On WZ 8TeV data: D. Bachas, Ch. Petridou (Support and CONF notes, Mar. 2013)



- **Research Activity II:**

- Contribution to WPI 1 : on x-section measurements for ZZ decays to 4l (Coordinator appointed by ATLAS: K. Kordas) and WZ to 3l+MET (Coordinator appointed by ATLAS: D. Bachas)
 - On 2011 data for ZZ: Total and fiducial x-sections (Support note, CONF note and publication) (Participation of the entire AUTh team)
 - On 2012 data (13fb-1) for WZ (D. Bachas, D. Kyriazopoulos, A. Gaitatzis, Ch. Pteridou) Support and CONF notes, Mar. 2013)
- Contribution to WPI 2 : TGC measurements
 - Main responsibility of V. Kouskoura (Contact person from ATLAS for CMS-ATLAS combined results)(Support note and ZZ publication (Mar. 2013))
 - Work to be extended to The Wgamma and WZ channels for TGC's. (D. Bachas, V. Kouskoura, Ch. Petridou)
 - Implement the OO method (work started: S. Tzamarias, K. Kordas, V. Kouskoura, I. Nomidis, D. Bachas, Ch. Petridou)
- Contribution to WPI 3 : on Direct searches
 - Statistical Tools on CL_s method developed by A. Petridis (can be implemented in the 2012 data)



- **Research Activity II:**

- Contribution to WP14 : on the AUTh Grid node to be an official Tier3 center
 - In the process of extending the infrastructure
- Contribution to WP15 : Dissemination
 - Presentations in ATLAS meetings (ZZ, ZW, electroweak and Higgsto4l)
 - Conference talks: LHC@Split (A. Petridis), LaTuille EW (D. Bachas), Moriond EW (V. Kouskoura), Poster@LHCC (V. Kouskoura), EESFYE:V. Kouskoura, D. Bachas
- Plans for the Future
 - Contribute to the WW analysis for the 8TeV data and to the TGC measurements for WZ and Wgamma
 - On 3-lepton states see if there are common interests with the UoAeg work
 - Contribute to the Direct searches



- **Research Activity III:**

- Contribution to WPI 6 :This is one of the activities which concern the design of MM for NSW and the performance of large detectors
 - Contribute in the performance studies of the 1x1 m2 prototype (D. Sampsonidis and a diploma student)
 - Work on the DAQ system for MM in order to take data in ATLAS (A. Leisos and O. Sidiropoulou)
 - On the 1x2 m2 prototype O. Sidiropoulou started studies in the Lab at CERN
 - Simulations for MM in the NSW (A. Leisos and O. Sidiropoulou)
- Contribution to WPI 7 :Test beam activities
 - D. Sampsonidis + 1 diploma student participate in the analysis of the testbeam data in magnetic field
- Contribution to WPI 8 : proposal for sLHC
 - The group is a member of the MM collaboration for NWS which is formed.
- Contribution to WPI 9 :Dessemination
 - Presentations of the results from testbeam data to the MM meetings (D. Sampsonidis, O. Sidiropoulou)

