Christine Kourkoumelis

Professor of Physics, Physics Department, Section of Nuclear and Particle Physics, National and Kapodistrian University of Athens (NKUA).

Education:

- Bachelor of Science in Physics (cum laude), Rensselaer Polytechnic Institute, Troy, N.Y.,
- M.Phil. (1974) and Ph.D.(1977), Yale University, New Haven, Conn,
- Docent of the School of Physics and Mathematics of the NKUA

***Teaching experience*:** Teaching of undergraduate and graduate physics courses to the Physics, Mathematics and Chemistry departments of the University of Athens since 1978.
Supervision of Ph.D. students: nine completed; one in progress

Research activities: Since 1974 I have been working in various high energy physics experiments at CERN, Fermilab and Jeffersonlab.
Initially, I have participated in experiments in the ISR (CERN) where as a graduate student took part in the development of novel detectors: the liquid argon calorimeter, uranium calorimeter and the transition radiation detectors (thesis advisor W.J.Willis). I also participated in neutrino experiments (BEBC and NESTOR) and in the DELPHI experiment at LEP. Since 1995 I have joined the ATLAS experiment.I have participated in all stages of the experiment from: construction/installation/commissioning/ operations to reconstruction and detector performance, to the discovery of the Higgs boson, the study of its properties, and searches for new heavy Higgs and W/Z like bosons.
I was responsible for the wiring of 30,000 monitored drift tubes, (MDTs) which were used for the construction of the BIS (Barrel Inner Small chambers for the Muon Spectrometer). The NKUA construction site was the first out of twelve construction sites internationally to pass the site review and - in collaboration with NTUA and AUTh –to construct the first ATLAS muon chamber which passed all the very strict specifications for the construction precision.
Following my investment on the Muon system, my physics interests have turned – since 2001 – to searches for final states which involve muons. Already in 2002 (well before the start of the data taking and the Higgs discovery), I joined the ATLAS Higgs group. My studies focused on ways to fully exploit the Higgs discovery potential, namely: to improve the muon reconstruction, to study the influence of the alignment of the muon chambers on the Higgs width, to optimize the selection criteria, to create background determination tools etc. I contributed heavily to the group which first observed the Higgs→4l decays. After the Higgs discovery I have contributed to studies of the different production mechanisms and searches for additional higher mass Higgs decaying to four leptons or two leptons and two jets. I have also contributed with three students' thesis work on the searches for high mass W/Z like bosons decaying to lepton+neutrino or two leptons.
During the last three years, I have contributed to the Micromegas detector development participating in test beams data-taking or analysis.
Moreover, since 2005 my group became member of the Glue Excitations Experiment (GlueX) which started taking data in 2016 in the new Hall D at the Jefferson National Lab, USA. The group designed, constructed (in collaboration with the Greek industry) and commissioned the monitoring and calibration system of the Lead-Fiber Barrel Calorimeter and the Pb-glass forward calorimeter.

Outreach activities:I have developed, and named, the ATLAS interactive event analysis program, the so-called HYPATIA (HYbrid Pupil's Analysis Tool for Interactions in ATLAS). The HYPATIA Event display has won the 2016 Global Online Laboratory Consortium award for the best "Visualized experiment". HYPATIA is used since 2011 by thousands of students participating to the International Masterclasses as one of the main programs for analysis of the LHC events. I have been member of six European outreach projects (FP6/FP7/Horizon2010) and the coordinator of two of them. I have been the ATLAS Outreach Coordinator for a two-year term (2014-2016) during the Higgs discovery. I have also been the laureate of the 2011 Outreach Prize of the EPS High Energy Physics Division.

Publications

Around **1110 publications** in international physics journals. Six have over 1,000 citations, 15 have more than 500 citations.

Internal reports

I am the co-author of 48 ATLAS Internal reports on Higgs boson and its properties. I have been member of the analysis team for 17 ATLAS supporting notes and 9 conference notes
I am the co-author of 14 ATLAS Internal notes on the Muon Spectrometer.

Conference talks (only the most recent cited)

- An **invited** talk related to the European program CREATIONS at the IONS2017 conference in Chania, Crete
- A talk in the parallel session on the European outreach projects in EPS 2017 conference in Venice, Italy.
- A talk in the parallel session on the European outreach projects in EPS 2015 conference in Vienna Austria.
- A talk in the parallel session on the European outreach projects in ICHEP 2014 in Valencia, Spain.
- Four talks related to ATLAS outreach activities in ICNFP2014, ICNFP2015 and ICNFP 2016 in Kolymbari, Crete
- An **invited plenary** talk related to Greek outreach activities at CONF12 in Thessaloniki, August 2016
- An **invited overview talk** at the Charged-2014 (Prospects for Charged Higgs Discovery at Colliders) conference in Uppsala, Sweden, September 2014, on «ATLAS+CMS review of SM Higgs searches: bosonic and fermionic decays»
- An **invited** talk at the International Conference on particle Physics in Memorial of Engin Arik, Istanbul, Turkey, October 2008 on « Search for Higgs boson at LHC»
- An **invited** talk at the 13th Lomonosov Conference on Elementary Particle Physics, Moscow, 23-29 August 2007, «Measuring the Higgs Boson(s) at ATLAS»

Awards/honors

- HYPATIA Event Display was recipient of the 2016 Global Online Laboratory Consortium award for the best "visualized experiment"
- Recipient of the 2011 Outreach Prize of the EPS High Energy Physics Division
- Leigh Page Fellow and University Fellow at Yale University.
- Recipient "The Class of 1902 Research Prize" and "the G. Howard Carragan Award" for best undergraduate thesis

Membership of committees, organizational activities etc

- Chairperson for the selection of the Muon Upgrade Project Leader (Nov 2017-Febr 2018)
- ATLAS Outreach coordinator (March 2012-February 2016)
- Member of the Muon ATLAS Publication and Conference Committee (2006-present)
- Chairperson of the ATLAS Publication Committee (Mar 2005 – Feb 2006)
- Member of the ATLAS Publication Committee (Mar 2004 – Feb 2006)
- Chairperson of the Muon ATLAS Publication and Conference Committee (2006-2010)
- Member of the ATLAS Collaboration Board Advisory Committee (Jan 2006- Dec 2009)
- Member of the Search Committee for the ATLAS Spokesperson election (2008)
- Referee of the "Performance Chapter" of the ATLAS Detector Paper, submitted to JINST (Journal of Instrumentation), Dec 2007.
- Greek National representative at RECFA (Restricted European Committee for Future Accelerators) -- 1986 to 2005.

Organization of conferences etc:

- Member of the organizing committee of the CONF12 conference, August 2016, Thessaloniki, Greece
- Member of the organizing committee of the 6th ICNFP conference, July 2016, Kolymbari, Cete, Greece
- Chairperson of the organization of the 4rd ATLAS Physics workshop in the University of Athens, May 2003
- Member of the organizing committee of the CERN Accelerator School in Greece in Rhodes 1993 and Loutraki 2000.
- Member of the advisory committee for the organization of several international conferences (Siena Conference, ATLAS physics Workshops etc).
- I organized three RECFA visits in Greece.