

CURRICULUM VITAE

Prof. Konstantinos Fountas

Physics Department

High Energy Physics Group

University of Ioannina

Ioannina, 45110 Greece

Tel: +30-26510-08750

Fax: +30-26510-08688

e-mail: Costas.Fountas@cern.ch

POSITION: Professor of Physics, University of Ioannina, Greece.

BIRTH: January 14, 1958

NATIONALITY: GREEK

EDUCATION:

Ph.D. Physics, Columbia University, New York, 1989.

Thesis: Neutrino Production of Opposite Sign Dimuon Events
at the FNAL Tevatron. Advisor: Prof. M. Shaevitz

M.Phil. Physics Columbia University, New York, 1986.

M.A. Physics Columbia University, New York, 1984.

Diploma Physics University of Ioannina Greece, 1981.

EMPLOYMENT:

2009– : **Professor of Physics - Head of HEP Group at the Univ. of Ioannina.**

2000–2010: **Reader in HEP**, Imperial College London (tenured - June 2001).

1991–2000: **Assistant Scientist (staff)**, Physics Department, University of Wisconsin.

1989–1991: **Research Associate**, Physics Department, University of Wisconsin.

1984–1989: **Graduate Research Assistant**, Nevis Laboratory, Columbia University.

1982–1984: **Teaching Assistant**, Columbia University.

1981–1982: **Teaching Assistant**, Hunter College, CUNY.

Fellowships:

2011 : **CERN Corresponding Associate**

2013 : **CERN Corresponding Associate**

2014–2015: **CERN Scientific Associate**

2017 : **CERN Corresponding Associate**

PHYSICS:

- **Jet Cross Sections at the LHC**
- **Searches for Fundamental Interactions at the LHC**
- **Jet Physics and pQCD in ep and γp deep Inelastic Scattering**
- **Neutrino-Nucleon Deep Inelastic Scattering**

TEACHING:

1019– : **Programmable Electronics**, 3^d/4th year, University of Ioannina, Greece

2019– : **Statistics**, Master, University of Ioannina, Greece

2017– : **Electricity**, Physics, first year, University of Ioannina, Greece

2015– : **Microcontrollers**, Physics, Master, University of Ioannina, Greece

2014–2015: **Introduction to VHDL**, Physics, Master, University of Ioannina, Greece

2012–2016: **Modern Physics II**, 2nd year, University of Ioannina, Greece.

2010– : **Standard Model**, 1st year PhD, University of Ioannina, Greece.

2010– : **Digital Electronics**, Physics, Master, University of Ioannina, Greece.

- 2010–2013: **Modern Physics I**, Physics, 2nd year, University of Ioannina, Greece.
 2010–2014: **Optics Lab**, Physics, 2nd year, University of Ioannina, Greece
 2006–2007: **Advanced Particle Physics**, MSci, 4th year, Imperial College, London.
 2002–2005: **Standard Model**, 1st year PhD, Imperial College, London.
 2001–2006: **Microprocessors and Electronics**, 3^d year, Imperial College, London.
 2002–2009: **21 MSci Theses Students**, Imperial College, London (**21 complete**).
 2001–2009: **Physics Tutorials** at Imperial College, London.
 1985–1987: **Physics Labs**, Columbia University, New York.
 1983–1984: **Physics and Mathematics**, Fordham University, New York.
 1982–1984: **Physics Labs**, Columbia University, New York.
 1981–1982: **Physics Labs**, Hunter College, CUNY, New York.

PhD STUDENTS (2002-Present):

- 1) **Maiko Takahashi-Imperial College:** *CMS Potential for discovering the Higgs Boson Produced in Vector Boson Fusion and Decaying via $H^0 \rightarrow \tau^+ \tau^- \rightarrow e + \text{jet}$* , (**completed**).
- 2) **Stefanos Dris-Imperial College:** *Performance of the CMS Tracker Optical Links and Future Upgrade Using Bandwidth Efficient Digital Modulation, Common Supervision with Dr. J. Troska, CERN.* (**completed**).
- 3) **Andrew Rose-Imperial College:** *The Level-1 Trigger of the CMS Experiment at the LHC and the SuperLHC* (**completed**).
- 4) **Jad Marrouche-Imperial College:** *A study of $W + \text{Jet}$ -Production at the LHC using the CMS Jet and Missing Transverse Energy Triggers* (**completed**).
- 5) **Anastasios Papageorgiou-Imperial College:** *Applications of Jet Trigger Algorithms in discovering the Higgs Boson from the decay, $H^0 \rightarrow \tau^+ \tau^- \rightarrow e + \text{jet}$* , (**completed**).
- 6) **Dimitris Kolotouros-Ioannina:** *Development of a new TTC system for LHC experiments, common supervision with Dr. Sophie Baron, CERN.* (**completed**).
- 7) **Panagiotis Katsoulis-Ioannina,** *Studies of signatures from theories beyond the Standard Model and development of new detector systems for the CMS experiment at the HL-LHC at CERN* (**ongoing**).
- 8) **Kosmas Adamidis-Ioannina,** *Development of trigger algorithms and systems for the CMS Experiment at the HL-LHC at CERN* (**ongoing**).
- 9) **Christos Kamtsikis-Ioannina,** *Measurements of inclusive dijet cross sections in pp collisions at centre of mass energy 13 TeV and development of detector systems for the CMS experiment at the HL-LHC at CERN* (**ongoing**).
- 10) **Ioannis Bestintzanos-Ioannina,** *Development of trigger systems for the CMS detector at the HL-LHC at CERN and studies of signatures from theories beyond the standard Model* (**ongoing**).

MASTER STUDENTS (2015-Present):

- 1) **Dimitrios Tsitsonis-Ioannina,** *Measurement of the double differential inclusive jet cross section in proton-proton collisions at centre of mass energy $\sqrt{s}=13$ TeV from the CMS experiment at the LHC,* (**completed**).
- 2) **Maria Prapa-Ioannina,** *A Jet finder using boosted decision tree algorithm and a Xilinx Virtex-7 FPGA* (**completed**).
- 3) **Panagiotis Katsoulis-Ioannina,** *Development of Triggering Systems and Searches for Signatures from Theories beyond the Standard Model with the CMS detector at the LHC* (**completed**).
- 4) **Christos Kamtsikis-Ioannina,** *Measurements of cross sections of 2, 3, 4 and 5 jets during proton collisions at a center of mass energy of 13TeV at CMS experiment at CERN* (**completed**).
- 5) **Ioannis Bestintzanos-Ioannina,** *A demonstrator system using a Xilinx ZYNQ FPGA and 6.6 Gbps optical links,* (**completed**)

- 6) **Kosmas Adamidis-Ioannina**, *High speed optical links for the Phase-II Level-1 trigger of the CMS experiment at CERN (completed)*

ELECTRONICS - PROJECTS:

- 2019– : Development of an **ATCA trigger processor** based on Xilinx VU13P FPGA and 28 Gbps links for the CMS experiment at CERN (HL-LHC).
- 2017– : Development of a **Trigger demonstrator** based on Xilinx Kintex Ultra Scale 040 FPGA and 16 Gbps optical links for the CMS experiment at CERN (HL-LHC).
- 2017– : Validation and commissioning of the **KALMAN algorithm** for the CMS Barrel Muon Track Finder (LHC-RUN-III).
- 2016– : Development of the CMS **Barrel Muon Trigger** (CMS Phase-II Upgrades, LHC RUN-II).
- 2012–2016: Development of the CMS **Barrel Muon Track Finder** using Virtex-7 690 FPGAs and 10 GBps optical links (CMS Phase-I Upgrades, LHC RUN-II)
- 2007–2010: Development of a generic trigger system for CMS at LHC and SLHC based on **uTCA technology**, Xilinx-V5 FPGAs and 3.2 GBps optical links (CMS Phase-I Upgrades).
- 2005–2010: Design and implementation of the CMS **Global Calorimeter Trigger (GCT)** using Xilinx Virtex-II-Pro FPGAs and 1.2 Gbps optical links. Responsible for the GCT project (CMS Construction, LHC RUN-I).
- 2003– 2008: R&D towards a First Level Tracking Trigger for CMS at Super-LHC; First proposal for a **CMS stacked tracker and track trigger**.
- 2004–2005: Design of testing and zero suppression algorithms for the **CMS Silicon Tracker Front End Driver (FED)**.
- 2003–2004: Testing and integration of the **CMS Tracker FED S-LINK64** Interface.
- 2002–2003: Design of a prototype **FED Tester Card** for testing the CMS FEDs.
- 2000–2003: Member of the **CMS Tracker FED Design** team.
- 2001–2002: Participation in the design of the **CMS APV25 Emulator** Trigger Card.
- 1991–1993: Design of **Fast Trigger Electronics** using ECL and biCMOS devices for **ZEUS** at HERA.
- 1992–1994: Responsible for **Testing and Commissioning** of the Calorimeter Level-1 Trigger for the **ZEUS** Experiment at HERA.
- 1989–1991: Design of several 9U **VME Cards** for **Trigger Card test set-ups**.
- 1984–1987: Responsible for testing and Commissioning of the **FADC Data Acquisition Electronics** for the **CCFR** experiment at FNAL.

PROFESSIONAL POSITIONS:

- 2018– 2020: **CMS Experiment Trigger Project Resource Manager**
- 2014–2016: **CMS Experiment Trigger Project Manager**
- 2014–2016: **Member of the CMS Management Board**
- 2014–2016: **Member of the CMS Executive Board**
- 2007–2011: **Leading the CMS Trigger Upgrade Programme (SLHC)**
- 2007–2011: **Member of the CMS Upgrades Management Board**
- 2006–2010: **CMS Global Calorimeter Trigger Project Manager**
- 2005–2009: **Member of the CMS Tracker Institution Board**
- 2003–2009: **Member of the UK CMS steering committee**
- 2001–2005: **Head CMS Internal referee for Trigger and DAQ**
- 1995–1998: **Convener of the ZEUS Jets and High E_T Phenomena Physics Group**
- 1991–1995: **ZEUS Calorimeter First Level Trigger Coordinator**

COMMITTEES:

- 2022– : **Vice President of the CERN council**
- 2021– : **CERN Working Group for DG selection and appointment**
- 2021– : **CERN Audit Committee**
- 2020– : **CERN Council Working Group on CERN Governance** – Rep. Greece
- 2018–2019: **CERN Council Working Group on CERN Enlargement** – Rep. Greece
- 2016– : **CERN Council** – Greek Scientific Delegate
- 2013– : **Resource Review Board (RRB)** at CERN – Rep. Greece
- 2013– : **CERN-Greece Working Group** – Monitors Greece-CERN relations
- 2012–2017: **ECFA** (European Committee for Future Accelerators) – Rep. Greece
- 2012– : **Greek Committee for CERN - Finance Agency (GSRT)**
- 2017– : Member of the **Scientific Advisory Panel of the region Epirus, Greece.**
- 2016–2017: Member of the **CMS Track Trigger Panel.**
- 2012–2016: Member of the **CMS Finance Subcommittee for Upgrades.**
- 2012–2013: Heading the **CMS Cost-Book Review Panel for Pixel, HCAL and CSC detector upgrades.**
- 2012–2013: Member of the **CMS Pub. Subcommittee for Standard Model Physics.**
- 2010– : Representing Ioannina at the **CMS Trigger Institution Board.**
- 2010– : **CMS Finance Board** – Rep. Greece
- 2010– : Representing Ioannina at the **CMS Collaboration Board.**
- 2010– : Member of **US CMS HCAL-RCT Review Panel.**
- 2010–2009: **ATLAS-UK Detector Upgrades Review Panel (PPRP).**
- 2004–2007: **UK Particle Physics Grants Panel (PPGP).** PPGP reviews the Particle Physics Grants (Rolling Grants) for the various departments in the UK.
- 2001–2007: **Particle Physics Advisory Committee (PPUAC).** PPUAC advised PPARC on particle physics resource as well as laboratory user issues.
- 2002–2003: Member of the **CMS Global Calorimeter Trigger Review Panel.**
- 2003– : Member of the **CMS Resistive Plate Chamber Trigger Review Panel.**
- 2002–2003: Member of the **CMS Global Trigger Review Panel.**

RESEARCH GRANTS:

- 2004–2008: CMS Imperial College e-Science grant.
- 2006–2008: UK CMS GCT grant.
- 2008– : UK CMS Trigger SLHC grant
- 2012–2015: Thalys grant with Profs. P. Sphicas (Univ. of Athens) and G. Tsipolitis (National Technical University of Athens).
- 2012–2015: Aristia grant with Prof. P. Sphicas (Univ. of Athens).
- 2019– : Principal Investigator of the DeTAnet, Research Infrastructure

Conference and Workshop Organizing Committees:

- 2009 – 2011: International Conference – **Neutrino 2010**, Athens Greece
- 2015 – 2016: Common ATLAS and CMS Electronics Workshop (**ACES-2015**).

CONFERENCE TALKS:

1. **The CMS L1 Trigger for LHC RUN-II**, TWEPP 2017, Santa Cruz, USA, September 2017.
2. **The CMS L1 Trigger for RUN-II**, ICHEP 2015, Vienna, Austria, July 2015.
3. **CMS Trigger Upgrades**, ICHEP 2013, Stockholm, Sweden, July 2013.
4. **CMS Trigger Upgrades**, ACES Workshop, CERN, March 2011.
5. **Trigger Studies using Calorimeter Muon and Tracking Triggers**, ACES Workshop, CERN, March 2009.

6. **The CMS Trigger at the LHC and the SuperLHC.** ICHEP08, Philadelphia, Pennsylvania, Aug. 2008.
7. **First Results on the Performance of the CMS Global Calorimeter Trigger,** TWEPP 2007, Prague, September 2007.
8. **Overview of the LHC Triggers and Plans for the LHC Startup,** LHC-Forum, Cosener's House, Apr. 2007.
9. **Overview of the CMS Trigger and Plans for LHC Startup,** HEP 2007, Athens, Mar. 2007.
10. **Results from Studies for a Tracking Trigger for CMS at SLHC,** SLHC Workshop, CERN, Mar. 2007.
11. **LHC Startup - Trigger commissioning,** UK Institute of Physics Workshop on LHC Startup, London, Oct. 2006.
12. **Triggering at LHC and SLHC,** HEP 2006, Ioannina, Apr. 2006.
13. **The CMS Silicon Tracker Readout System,** Nuclear Science Symposium, Rome, Oct. 04.
14. **Jet Production at High Transverse Energies at HERA,** Deep Inelastic Scattering 2002, DIS2002, Krakow, Apr. 2002.
15. **Jet Physics at HERA,** 2001 Meeting of the Hellenic Society for High Energy Physics, HEP2002, Heraklion, Greece 2001.
16. **Photon Structure, Review talk,** International Conference on Hadron Structure, Hadron Structure 2000, Stara Lesna, Slovakia 2-8 Oct. 2000.
17. **Photon Structure at HERA, Review talk,** at the XIV International Workshop on High Energy Physics and Quantum Field Theory (QFTHEP 99), Moscow 27 May - 2 June 1999.
18. **QCD in the Photon Structure at HERA, Rapporteur talk** at QCD98, Montpellier, France, July 1998.
19. **Probing the Photon Structure via Di-Jet Production with ZEUS at HERA.** Low-x workshop. Berlin-Zeuthen, Germany, June 1998.
20. **Deep Inelastic ep Scattering at HERA, Review talk,** Electromagnetic Interactions with Nucleons and Nuclei, Santorini, Greece, October 1997.
21. **Jet Physics with ZEUS at HERA,** 1997 Meeting of the Hellenic Society for High Energy Physics, Heraklion, Greece, April 1997.
22. **Jet Physics at HERA, Review talk,** Meeting of the Division of Particles and Fields of the American Physical Society, Indianapolis, Indiana. USA, 1997.
23. **Direct and Resolved Photoproduction at HERA with Virtual and Real Photons,** Deep Inelastic Scattering and Related Phenomena, Rome, Italy, 1996.
24. **The Zeus Detector Calorimeter First Level Trigger,** Computing in High Energy Physics, San Francisco, USA, April 1994.
25. **The ZEUS Detector Calorimeter First Level Trigger,** 1991 IEEE Nuclear Science Symposium, Santa Fe, New Mexico, USA, 1991.
26. **Neutrino Production of Opposite Sign Dimuons at Tevatron Energies,** 1990 Meeting of the Division of Particles and Fields of the American Physical Society, Dallas, USA, 1990.
27. **Neutrino Production of Charm Quarks,** Banf Summer School, Banf, Canada, Aug. 1988.
28. **Opposite Sign Dimuon Production at the FNAL Tevatron,** Meeting of the American Physical Society, Baltimore, USA, April 1988.