

Constantinos Melachrinos / Curriculum Vitae

CONTACT INFORMATION	Computational Biology Lab, Institute of Molecular Biology and Biotechnology (IMBB), Foundation for Research and Technology - Hellas (FORTH), Nikolaou Plastira 100 GR-70013, Heraklion, Crete, Greece e-mail: melachrinos@imbb.forth.gr, melachrinos@alum.mit.edu phone: (+30) 694 503 4962
NATIONALITY	Cypriot (European Union member)
DATE OF BIRTH	8 th August 1984
RESEARCH EXPERIENCE	Computational Neuroscience and Bioinformatics (2014–present) Postdoctoral Researcher in Computational Biology Lab, IMBB, FORTH under the supervision of Prof. Poirazi (dEMORY ERC grant) Dissect the role of dendrites on memory acquisition and learning using computational modeling of the human brain Latency coding in information processing of brain (vision, olfaction, audition, pre-frontal cortex) Role of dendritic morphology in response of pyramidal neuron dendrites $W + J/\psi$ associated production at ATLAS (2011–2013) First observation of $W + J/\psi$ process at the Large Hadron Collider Measurement of the cross-section ratio $W + J/\psi : W$ to compare with Color Octet and Color Singlet Models for Charmonium hadroproduction Main analysis contact Main editor of JHEP paper Higgs boson observation at ATLAS (2010–2012) Participated in the search for the Higgs boson in the $H \rightarrow WW \rightarrow lvqq$ and $H \rightarrow WW \rightarrow lvlv$ channels, which culminated to the discovery of the Higgs boson Early Monte Carlo feasibility studies 2012 data validation studies W+jets background studies Fast Tracker Trigger upgrade project at ATLAS (2008–2013) Integral member of the FTK collaboration Implemented two-stage architecture used in Technical Proposal Responsible for Insertable B-layer integration into FTK framework Participated in the installation and testing of the first FTK prototype Trigger and Data Acquisition operations at ATLAS (2010–2013) Experienced Run Control shifter Offline Trigger Expert on call, responsible for trigger reprocessings and monitoring trigger conditions Responsible for updating and maintaining the ATLAS trigger monitoring webpages Other projects (2005–2009) <i>South Pole Telescope</i> : responsible for implementing the analogue to digital multiplexer transition for

the SPTpol upgrade (UChicago Experimental Physics Project, 2008–2009); Prof. J. Carlstrom, Prof. S. Meyer

Compact Muon Solenoid (CMS): measurement of the $WZ \rightarrow 3l(e/\mu)$ cross-section using simulated data (MIT Undergraduate Thesis, 2007–2008), Prof. C. Paus, Prof. M. Klute

Massachusetts General Hospital: devised and implemented algorithms for the improvement of 4D-CT imaging in lung cancer (MIT Independent Activities Period project, 2007), Dr. J. Wolfgang

MIT Center for Space Research: searched for ultracool brown dwarfs, including an observational run at the Magellan Telescopes in Chile (2006–2007), Prof. A. Burgasser

MIT Kavli Institute for Astrophysics: participated in the search for gravitational waves with LIGO, combining LIGO with VIRGO data and improving the ROC curves with combinations of detection algorithms (2005–2006), Prof. E. Katsavounidis, Prof. M. Zanolin

SERVICE WORK **MIT Educational Counselor (2012–present)**

Responsible to interview MIT prospective undergraduate students in the region of Geneva, Switzerland and Crete, Greece.

UChicago Physics graduate admissions committee member (2011)

Participated in the evaluation and discussion of prospective applicants to the University of Chicago Physics PhD program in a committee consisting of 7 students and 7 faculty members.

Massachusetts Institute of Technology groups (2004–2008)

International Students Association: Treasurer

Number Six Literary Society: Treasurer and New Member Educator

Hellenic Student Association: Secretary

Second Lieutenant for Cyprus National Guard (2002–2004)

Responsible to operate and maintain communications equipment in barracks, train active and reserve soldiers in proper usage of communications equipment, set up camp, install communications network from scratch

EDUCATION **Doctor of Philosophy (Ph.D. in Physics)**

Institution: The University of Chicago

Thesis Title: "First observation of associated production of J/ψ meson and W boson"

Supervisor: Prof. Florencia Canelli

Date conferred: December 2013

Master of Science (M.Sc. in Physics)

Institution: The University of Chicago

Date conferred: December 2009

Bachelor of Science (S.B. in Physics with Electrical Engineering)

Institution: Massachusetts Institute of Technology

Thesis Title: "The Muon Detection System and Measurement of the $WZ \rightarrow 3l(e, \mu)$ cross-section at CMS"

Supervisor: Prof. Christoph Paus

Date conferred: June 2008

SKILLS **Programming:** Python, C++ (ROOT), Matlab, Unix shell scripting

Software: Computing Grid, Parallel jobs with PBS, L^AT_EX

OS: Mac OSX, Linux

Languages: Greek (native), English (fluent), Spanish (proficient), French (conversant), Persian (basic)

**SCHOOLS –
WORKSHOPS**

The Next Stretch on the Higgs Magnificent Mile (2012)

Attended lectures and participated in discussions on latest theoretical ideas, phenomenological methods and experimental results from the LHC and Tevatron on the Higgs.

Chicago Workshop on LHC Physics (2012)

Attended lectures and participated in discussions on LHC latest results, implications and prospects.

The International School of Trigger and Data Acquisition (2012)

Attended lectures, and hands-on laboratory sessions on Trigger and Data Acquisition matters.

CERN-Fermilab Hadron Collider Physics Summer School (2010)

Attended pedagogical reviews of both the theoretical and experimental underpinnings of hadron collider physics.

Particle Physics and Cosmology Summer School in Cyprus (2008)

Attended lectures and participated in discussions on various topics, including Lattice QCD, Cosmology and HEP.

The CERN Summer Student Program (2007)

Attended lectures and discussion sessions in a variety of topics in High Energy Physics, Detectors and Instrumentation, Cosmology, Theory, and more.

Worked towards undergraduate thesis project with MIT group.

**AWARDS –
SCHOLARSHIPS**

US NSF LHC Student Support Award (2011–2012); awarded to the best students affiliated with US universities working at the LHC to support their move to Geneva and work on location at CERN; (\$15k)

Onassis Fellowship for graduate studies (2010–2013); (\$43k)

Leventis Fellowship for graduate studies (2010–2012); (\$20k)

IKY Scholarship for graduate studies (2008–2010); Cyprus State scholarships awarded to the best Cypriot graduate students; (\$34k)

McCormick Fellowship for graduate studies at the University of Chicago (2008–2010); awarded to the top incoming graduate students; (\$60k)

Ploussios Scholarship Fund for undergraduate studies at MIT (2006–2008); awarded to a Cypriot student who studies at MIT (\$20k)

Fulbright CASP Scholarship for undergraduate studies at MIT (2004–2008); awarded to the top Cypriot students to study in the USA (\$47k)

Second Lieutenant in Cyprus National Guard, position reserved for top 320 incoming soldiers in Logic, IQ and Athletics; specialty: Communications; Ranked 1st out of the School for Army Communications Training after four months of training in Athens

Prizes and Honorable Mentions in Physics, Chemistry and Mathematics National Olympiads (1999–2002)

**TALKS –
CONFERENCES**

1. **University of Birmingham Particle Physics Seminar 2014:** "Measurement of the production cross section of prompt J/ψ mesons in association with a W^\pm boson in pp collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector"
2. **Multiple Partonic Interactions at the Large Hadron Collider 2013:** "First measurement of associated vector boson plus prompt J/ψ production at the ATLAS experiment"
3. **Large Hadron Collider Physics Conference 2013:** "Heavy Flavor Production with ATLAS"
4. **American Physical Society April Meeting 2013:** "First evidence of prompt J/ψ production in association with a W boson and measurement of prompt $J/\psi + W$ cross-section with 4.7 fb^{-1} "

of data at $\sqrt{s} = 7$ TeV at the Large Hadron Collider”

5. **Quark Confinement and the Hadron Spectrum 2012:**“Production and spectroscopy of heavy flavor and quarkonia with the ATLAS detector”
6. **American Physical Society April Meeting 2011:**“The Fast Tracker Trigger upgrade for ATLAS”
7. **Argonne Undergraduate Symposium 2007:**“The Muon Detection System and Measurement of the $WZ \rightarrow 3l(e, \mu)$ crosssection at CMS”

REFERENCES

Kersten Distinguished Service Professor of Physics Melvyn Shochet
HEP-211, Enrico Fermi Institute, University of Chicago, 5640 S. Ellis Ave., Chicago, IL 60637 USA
shochet@hep.uchicago.edu

Prof. Florencia Canelli
Physik-Institut, Faculty of Science, University of Zurich, Switzerland
canelli@physik.uzh.ch

Prof. Peter Onyisi
Department of Physics, High Energy Physics, University of Texas at Austin, TX 78712, USA
ponyisi@utexas.edu

PUBLICATIONS

1. The ATLAS collaboration, “Measurement of the production cross section of prompt J/ψ mesons in association with a W^\pm boson in pp collisions at $\sqrt{s} = 7$ TeV”, *accepted by JHEP*.
2. The ATLAS collaboration, “Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC”, *Phys. Lett. B* **716** (2012) 1-29.
3. The ATLAS collaboration, “Combined search for the Standard Model Higgs boson in pp collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector”, *Phys. Rev. D* **86** (2012) 032003.
4. The ATLAS collaboration, “Combined search for the Standard Model Higgs boson using up to 4.9 fb⁻¹ of pp collision data at $\sqrt{s} = 7$ TeV with the ATLAS detector at the LHC”, *Phys. Lett. B* **710** (2012) 49-66.
5. The ATLAS collaboration, “Search for the Standard Model Higgs boson in the $H \rightarrow WW^* \rightarrow l \nu l \nu$ decay mode with 4.7 /fb of ATLAS data at $\sqrt{s} = 7$ TeV”, *Phys.Lett. B* **716** (2012) 62-81.
6. The ATLAS collaboration, “Search for the Higgs boson in the $H \rightarrow WW^* \rightarrow l\nu l\nu$ decay channel in pp collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector”, *Phys. Rev. Lett.* **108** (2012) 111802.
7. Andreani, A., et. al., “The FastTracker Real Time Processor and Its Impact on Muon Isolation, Tau and b-Jet Online Selections at ATLAS”, *IEEE Trans. Nucl. Sci.* **59** (2012) 348.
8. F. Beauville, et. al., “Detailed comparison of LIGO and Virgo Inspiral Pipelines in Preparation for a Joint Search”, *Class. Quantum Grav.* **25** (2008) 045001.
9. F. Beauville, et. al., “A comparison of methods for gravitational wave burst searches from LIGO and Virgo”, *Class. Quantum Grav.* **25** (2008) 045002.

208 peer-reviewed papers as a member of the ATLAS collaboration, internal notes, and list of conference proceedings available upon request