

João Carlos Arnauth Pela

CONTACT INFORMATION	Trav. do Pregoeiro n°24, 3° Esq. 1600-588 Lisboa Portugal	<i>Voice (CH):</i> +41762021757 <i>Voice (PT):</i> +351926357397 <i>E-mail:</i> joaopela@gmail.com <i>WWW:</i> www.nfist.pt/~pela
CITIZENSHIP	Portuguese	
RESEARCH INTERESTS	High Energy Physics, Instrumentation, Detector Design, Simulation, Nuclear Fusion	
EDUCATION	Instituto Superior Técnico , Lisboa, Portugal M.S., <i>Engineering Physics and Technology</i> , Oct 2010 <ul style="list-style-type: none">• With final grade of 18 (in 20)• Thesis Topic: Multi-Lepton Final States in the Search for New Physics at the Large Hadron Collider• Supervisor: <i>Professor João Varela</i>• Co-Supervisor: <i>Michele Gallinaro</i>• Area of Study: Experimental Particle Physics B.S., <i>Engineering Physics and Technology</i> , Feb 2009 <ul style="list-style-type: none">• With final grade of 14 (in 20)• Engineering specialization (emphasis on Instrumentation)	
COMPLEMENTARY EDUCATION	Instituto Superior Técnico , Lisboa, Portugal Level 1 Mechanical Workshop Course, Jun 2010 <ul style="list-style-type: none">• Basic use and construction techniques with Mechanical Workshop tools and machines• Allows use of the Instituto Superior Técnico Mechanical Workshop	
SCIENTIFIC PROFESSIONAL EXPERIENCE	CERN - European Organization for Nuclear Research , Geneva, Switzerland <i>Engineer/Physicist for the CMS Experiment at the LHC</i> Feb 2011 to current <ul style="list-style-type: none">• Design and implementation of monitoring tools for the Level 1 Trigger in the framework of the Data Quality Monitoring (DQM) system. Resulting work is used for online monitoring and data quality certification.• A shift as CMS Shift Leader (collisions) Aug 2001• Several shifts as CMS Online Trigger Shifter (collisions) Aug 2011 to current Laboratório de Instrumentação e Física Experimental de Partículas , Lisbon, Portugal <i>Junior Researcher for the CMS Experiment at the LHC</i> 2007 to 2010 <ul style="list-style-type: none">• Coordinator and developer of the EXOTrilepton Exercise for CMS Exotica group as a part of 2009 October Exercise with the objective of testing LHC Data Flow Model Oct 2009• Several shifts as CMS-ECAL Barrel, Endcaps and Safety Shifter, during the CRAFT 2009 (cosmics) program. Aug 2009	

- Design and implementation of method for studying potential for Universal Extra Dimensions with a four lepton final state **Dec 2008 to present**
- Design and implementation of method for studying $t\bar{t}$ in semileptonic and fully leptonic with hadronic τ channels **Set 2007 to Dec 2008**

Centro de Fusão Nuclear, Lisboa, Portugal

Experimental Physist

2003

- Helped to design a test PCB Board to implement the new system of slow control of the ISTOK Tokamak Fusion Reactor based in CAN technology

PUBLICATIONS

Thesis

- **Multi-Lepton Final States in the Search for New Physics at the Large Hadron Collider**, João Carlos Arnauth Pela, 2010, Instituto Superior Técnico

CMS Internal Notes (directly involved)

- CMS Exotica PAG: E. Barberis, O. Boeriu, J. Brooke, G. Bruno, J. Chen, J.P. Chou, K. F. Chen, A. De Roeck, S. Eno, M. Gallinaro, S. Harper, C. Hill, G. Landsberg, M. Mozer, J. Pela, S. Rappoccio, A. Rizzi, K. Rossato, P. Rumerio, A. Safonov, C. Shepherd-Themistocleous, “*Data Flow for the CMS Exotica Group for Early Running*” CMS AN - 2009/XX (Under Preparation)
- P. Ribeiro, M. Gallinaro, M. Kazana, J. Pela, J. Varela, “*Discovery potential for Universal Extra Dimensions in the four leptons final state in pp collisions at $\sqrt{s} = 14$ TeV*” CMS AN - 2008/035

CMS Papers (as a member of the CMS collaboration)

- 1) Measurement of the Differential Cross Section for Isolated Prompt Photon Production in pp Collisions at 7 TeV., , By CMS Collaboration, [arXiv:1108.2044], CMS-QCD-10-037 (Aug 2011)
- 2) Measurement of the Drell-Yan Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV., , By CMS Collaboration, [arXiv:1108.0566] CMS-EWK-10-007 (Aug 2011)
- 3) Search for B(s) and B to dimuon decays in pp collisions at 7 TeV., By CMS Collaboration, [arXiv:1107.5834] CMS-BPH-11-002 (Jul 2011)
- 4) Dependence on pseudorapidity and centrality of charged hadron production in PbPb collisions at a nucleon-nucleon centre-of-mass energy of 2.76 TeV., By CMS Collaboration, [arXiv:1107.4800] CMS-HIN-10-001 (Jul 2011)
- 5) Measurement of the Inclusive W and Z Production Cross Sections in pp Collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1107.4789] CMS-EWK-10-005 (Jul 2011) 68p.
- 6) Search for Resonances in the Dijet Mass Spectrum from 7 TeV pp Collisions at CMS., By CMS Collaboration, [arXiv:1107.4771] CMS-EXO-11-015 (Jul 2011)
- 7) Determination of Jet Energy Calibration and Transverse Momentum Resolution in CMS., By CMS Collaboration, [arXiv:1107.4277] CMS-JME-10-011 (Jul 2011)
- 8) Search for Three-Jet Resonances in pp Collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1107.3084] CMS-EXO-11-001 (Jul 2011)
- 9) Search for supersymmetry in pp collisions at $\sqrt{s}=7$ TeV in events with a single lepton, jets, and missing transverse momentum., By CMS Collaboration, [arXiv:1107.1870] CMS-SUS-10-006 (Jul 2011)
- 10) A search for excited leptons in pp Collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1107.1773] CMS-EXO-10-016 (Jul 2011)

- 11) Inclusive search for squarks and gluinos in pp collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1107.1279] (Jul 2011)
- 12) Search for New Physics with a Mono-Jet and Missing Transverse Energy in pp Collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1106.4775] CMS-EXO-11-003 (Jun 2011)
- 13) Search for New Physics with Jets and Missing Transverse Momentum in pp collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1106.4503] CMS-SUS-10-005 (Jun 2011)
- 14) Measurement of the Strange B Meson Production Cross Section with J/Psi phi Decays in pp Collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1106.4048] CMS-BPH-10-013 (Jun 2011)
- 15) Search for Supersymmetry in Events with b Jets and Missing Transverse Momentum at the LHC., By CMS Collaboration, JHEP 1107:113,2011., [arXiv:1106.3272]
- 16) Measurement of the t-channel single top quark production cross section in pp collisions at $\sqrt{s} = 7$ TeV., By CMS Collaboration, [arXiv:1106.3052] CMS-TOP-10-008 (Jun 2011) 27p.
- 17) Search for Light Resonances Decaying into Pairs of Muons as a Signal of New Physics., By CMS Collaboration, JHEP 1107:098,2011., [arXiv:1106.2375]
- 18) Search for Same-Sign Top-Quark Pair Production at $\sqrt{s} = 7$ TeV and Limits on Flavour Changing Neutral Currents in the Top Sector., By CMS Collaboration, JHEP 1108:005,2011., [arXiv:1106.2142]
- 19) Search for Physics Beyond the Standard Model Using Multilepton Signatures in pp Collisions at $\sqrt{s}=7$ TeV., By CMS Collaboration, [arXiv:1106.0933] CMS-SUS-10-008 (Jun 2011)
- 20) Indications of suppression of excited Υ states in PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV., By CMS Collaboration, Phys.Rev.Lett.107:052302,2011., [arXiv:1105.4894]
- 21) Commissioning and Performance of the CMS Pixel Tracker with Cosmic Ray Muons., By CMS Collaboration, JINST 5:T03007,2010., [arXiv:0911.5434]
- 22) Performance of the CMS Level-1 Trigger during Commissioning with Cosmic Ray Muons., By CMS Collaboration, JINST 5:T03002,2010., [arXiv:0911.5422]
- 23) Measurement of the Muon Stopping Power in Lead Tungstate., By CMS Collaboration, JINST 5:P03007,2010., [arXiv:0911.5397]
- 24) Commissioning and Performance of the CMS Silicon Strip Tracker with Cosmic Ray Muons., By CMS Collaboration, JINST 5:T03008,2010., [arXiv:0911.4996]
- 25) Performance of CMS Muon Reconstruction in Cosmic-Ray Events., By CMS Collaboration, JINST 5:T03022,2010., [arXiv:0911.4994]
- 26) Performance of the CMS Cathode Strip Chambers with Cosmic Rays., By CMS Collaboration, JINST 5:T03018,2010., [arXiv:0911.4992]
- 27) Performance of the CMS Hadron Calorimeter with Cosmic Ray Muons and LHC Beam Data., By CMS Collaboration, JINST 5:T03012,2010., [arXiv:0911.4991]
- 28) Fine Synchronization of the CMS Muon Drift-Tube Local Trigger using Cosmic Rays., By CMS Collaboration, JINST 5:T03004,2010., [arXiv:0911.4904]
- 29) Calibration of the CMS Drift Tube Chambers and Measurement of the Drift Velocity with Cosmic Rays., By CMS Collaboration, JINST 5:T03016,2010., [arXiv:0911.4895]
- 30) Performance of the CMS Drift-Tube Local Trigger with Cosmic Rays., By CMS Collaboration, JINST 5:T03003,2010., [arXiv:0911.4893]
- 31) Commissioning of the CMS High-Level Trigger with Cosmic Rays., By CMS Collaboration, JINST 5:T03005,2010., [arXiv:0911.4889]
- 32) Identification and Filtering of Uncharacteristic Noise in the CMS Hadron Calorimeter., By CMS Collaboration, JINST 5:T03014,2010., [arXiv:0911.4881]
- 33) Performance of CMS Hadron Calorimeter Timing and Synchronization using Test Beam, Cosmic Ray, and LHC Beam Data., By CMS Collaboration, JINST 5:T03013,2010., [arXiv:0911.4877]

- 34) Performance of the CMS Drift Tube Chambers with Cosmic Rays., By CMS Collaboration, JINST 5:T03015,2010,. [arXiv:0911.4855]
- 35) Commissioning of the CMS Experiment and the Cosmic Run at Four Tesla., By CMS Collaboration, JINST 5:T03001,2010,. [arXiv:0911.4845]
- 36) CMS Data Processing Workflows during an Extended Cosmic Ray Run., By CMS Collaboration, JINST 5:T03006,2010,. [arXiv:0911.4842]
- 37) Aligning the CMS Muon Chambers with the Muon Alignment System during an Extended Cosmic Ray Run., By CMS Collaboration, JINST 5:T03019,2010,. [arXiv:0911.4770]
- 38) Performance Study of the CMS Barrel Resistive Plate Chambers with Cosmic Rays., By CMS Collaboration, JINST 5:T03017,2010,. [arXiv:0911.4045]
- 39) Time Reconstruction and Performance of the CMS Electromagnetic Calorimeter., By CMS Collaboration, JINST 5:T03011,2010,. [arXiv:0911.4044]
- 40) Alignment of the CMS Muon System with Cosmic-Ray and Beam-Halo Muons., By CMS Collaboration, JINST 5:T03020,2010,. [arXiv:0911.4022]
- 41) Precise Mapping of the Magnetic Field in the CMS Barrel Yoke using Cosmic Rays., By CMS Collaboration, JINST 5:T03021,2010,. [arXiv:0910.5530]
- 42) Performance and Operation of the CMS Electromagnetic Calorimeter., By CMS Collaboration, JINST 5:T03010,2010,. [arXiv:0910.3423]
- 43) Alignment of the CMS Silicon Tracker during Commissioning with Cosmic Rays., By CMS Collaboration, JINST 5:T03009,2010,. [arXiv:0910.2505]

CONFERENCE
PRESENTATIONS

[PASC Winter School 2008](#) - Discovery potential for Extra Dimensions in the four lepton final state at the LHC

ACADEMIC
EXPERIENCE

[Instituto Superior Técnico](#), Lisboa, Portugal

Graduate Student

Feb 2009 to present

Undergraduate Student

September 2002 to February 2009

[NFIST \(IST Physics Students Association\)](#) Member **September 2002 to present**

- Development and implementation of School Registration Web Application for *Physics Week 11* and *Physics Week 12* at IST
- Development and implementation of an integrated system of mailing lists, library and forum
- Responsible for many activities over the years
- Responsible and developer of many activities Web Site (Social Activities and Outreach).

[National Physics Students Meeting 2008](#)

- Member of the organization committee
- Development and implementation of all the website's applications, including Student Registration, Forum, News Portal, etc

OTHER
PROFESSIONAL
EXPERIENCE

- Web Designer, designed commercial web sites for 2 small companies
- Judo Teacher, during a period of 2 years in two separated schools
- Sysadmin, for a local sports club during 2 years
- Counselor in Summer Camp, during a single summer (also supported Judo classes in that camp)

LANGUAGE SKILLS

Portuguese

- Native Speaker

English

- [IELTS Certification](#) at 30/Jan/2010 with scores: Listening 7.0, Reading 7.5, Writing 6.5, Speaking 7.0, Overall Band Score 7.0 (Good User)
- 1st language of choice during undergraduate studies (7 years of classes)
- Language used in work place for since 2007

French

- Good comprehension of spoken and written language
- Resonable speaking capability
- 2nd language of choice during undergraduate studies (3 years of classes)

Spanish

- Good comprehension of spoken and written language

TECHNICAL SKILLS

Extensive hardware and software experience in networking and information technology

Programming: C, C++, Python, JAVA, Fortran 95, Python, Mathematica, Assembler

Database: MySQL, SQL

Web Oriented: HTML, PHP, CSS, Javascript, XML

System Administration: Shell Scripting (Bash, SH Shell), SVN, CVS

Applications: \LaTeX , Microsoft Office, Open Office, and other common productivity packages for Windows and Linux platforms

Operating Systems: Linux (administration knowledge), Microsoft Windows XP/2000/Vista/7

Driver's Licence for motorcycle (all A classes) and cars (B class)

SPORTS

EXPERIENCE

Judo

- Graduation: 2nd Dan - 2nd Degree black belt **2007**
- Teaching: Schools and Summer Camps
- Refereeing: Regional Referee **2008**
- Competition: 3rd National Kata Championship 2007, 2nd National Univercitary Championship 2005-06, 3rd Place, National Univercitary Championship 2004-05

Other Sports Experience:

- Martial Arts: Aikido, Iaido, Ju-Jitsu
- Table Tennis
- Swimming