europass Curriculum vitae

PERSONAL INFORMATION

Dorel PIETREANU

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dpietreanu

Gender Male | Date of birth 9 March 1978 | Nationality Romanian

POSITION APPLIED FOR

Member of the SCIENTIFIC COUNCIL

WORK EXPERIENCE

October 2021 - present

Research Scientist II

Horia Hulubei National Institute of Physics and Nuclear Engineering - IFIN HH
Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA
R & D activities in ATLAS experiment

February 2014 - October 2021

Research Scientist III

Horia Hulubei National Institute of Physics and Nuclear Engineering - IFIN HH
Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA
R & D activities in SIDDHARTA, SIDDHARTA2, VIP, VIP2 and ATLAS experiments

December 2012 - February 2014

Research Scientist

Horia Hulubei National Institute of Physics and Nuclear Engineering - IFIN HH
Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA
R & D activities in SIDDHARTA, SIDDHARTA2, VIP, VIP2 and NA62 experiments

July 2011 - December 2012

Assistant Research Scientist

Horia Hulubei National Institute of Physics and Nuclear Engineering - IFIN HH
Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA
R & D activities in SIDDHARTA, SIDDHARTA2 and VIP experiments

April 2005 - August 2010

Associate Research Scientis

Istituto Nazionale di Fisica Nucleare Laboratori Nazionali di Frascati - LNF INFN
Via Enrico Fermi, 40, 00044, Frascati, Rome, Italy
R & D activities in SIDDHARTA and VIP experiments

January 2003 - April 2005

Associate Research Scientist
Asociate Teaching Assistant

Carol Davila Medical University
Eroilor Sanitari Blv. no. 8, Bucharest, Romania
R & D activities in optical tweezers and dielectrophoresis, teaching biophysics

EDUCATION AND TRAINING

2004 - 2012

PhD in Physics

University of Bucharest, Faculty of Physics, ROMANIA

ISCED 8

2002-2004

Master of science in Theoretical Physics

University of Bucharest, Faculty of Physics, ROMANIA

ISCED 7

2001-2004

Master of science in Biophysics

Carol Davila Medical University, Bucharest, ROMANIA

ISCED 7

1996-2001

Bachelor of Science in Physics

University of Bucharest, Faculty of Physics, ROMANIA

ISCED 6

PERSONAL SKILLS

Mother tongue: Romanian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C2	C1
Italian	C1	C1	C1	C2	C2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Communication skills: Team work: I have engaged in collaborative work with multiple research teams across various research centers: European Organization for Nuclear Research (CERN, Switzerland), Laboratori Nazionali di Frascati - Istituto Nazionale di Fisica Nucleare (LNF-INFN, Italy), Laboratori Nazionali del Gran Sasso - Istituto Nazionale di Fisica Nucleare (LNGS-INFN, Italy), Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH, Romania), The European X-ray Free Electron Laser (XFEL-DESY, Germany), Lawrence Livermore National Laboratory (LLNL, USA), Medical University Carol Davila (UMFCD, Romania).

Digital competences

SELF-ASSESSMENT				
Information Processing	Content creation	Communication	Problem solving	Safety
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Digital competences - Self-assessment grid

Computer skills

Programming: C, C++, Pascal, Fortran, PHP, HTML, UNIX shell scripting, SQL

Data analysis, statistics, numerical calculus and simulations: ROOT, Mathematica, Geant4.

Applications: TEX, LATEX, BIBTEX, Microsoft Office, Photoshop, CAD and other common productivity packages for Windows, OS X, and Linux platforms

Instrumentation and Control: LabVIEW, Measurement Studio and other National Instruments control and data acquisition hardware and software

Operating Systems: Microsoft Windows Platforms, Apple OS X, Linux, BSD and other UNIX variants.

Driving licence A, B

ADDITIONAL INFORMATION

Publications https://www.webofscience.com/wos/woscc/analyze-results/f6d10ac3-a961-4aa5-8cee-5f53adf622ff-d4de2591?state=%7B%22backlink%22:false%7D

SCIENTIFIC ACTIVITY

Overview of My Scientific Activity My research activity was focused on the follow directions: Biophysics, Hadron Physics, Fundamental Physics and High Energy Physics.

Biophysics In collaboration with teams from the Department of Lasers at the National Technical University of Athens and Carol Davila Medical University of Bucharest, we successfully pioneered a novel technique for quantifying optically induced forces acting on micro-particles and cells, using dielectrophoresis. My contribution to this work was the analytically and numerical calculation of the dielectrophoretic force for a spherical particle between two thin electrodes, development and implementations of the experimental setup and DAQ system, analysis of the experimental data.

Hadron Physics I was involved in the study of exotic atoms working in SIDDHARTA experiment at the National Laboratories of Frascati (LNF) dell'Istituto Nazionale di Fisica Nucleare (INFN).

SIDDHARTA has performed the most precise measurement of the K-series X-rays of kaonic hydrogen atoms, determined for the first time the energy shift of the kaonic ^{4}He 3d$\rightarrow$2p line using the gaseous target and measured for the first time the energy of the kaonic ^{3}He 3d$\rightarrow$2p transition. Last but not least, SIDDHARTA has performed the first-ever exploratory measurement of kaonic-deuterium K-series X-rays.

I participated, together with all SIDDHARTA collaborators, to the data acquisition process, performing day and night shifts. I was the DCS responsible of the SIDDHARTA setup and one of the responsible person for the DAQ and data management.

Fundamental Physics In the domain of fundamental physics, my research focuses on the VIP Experiment, which examines the validity of the Pauli Exclusion Principle (PEP), a fundamental concept in modern physics. This study involved searching for unusual X-ray emissions from copper atoms within a conductor. The presence of these abnormal X-rays would indicate a violation of the PEP, highlighting a prohibited Pauli transition. The limit for detecting violations of the Pauli Exclusion Principle for electrons was refined to 4.0×10^{-29}, achieving an improvement of approximately three orders of magnitude compared to the previous result. Regarding my personal contribution to the VIP experiment, I was responsible for the data management, conducted data analysis, and interpreted experimental results. Additionally, I actively participated in installing hardware setups at both the Frascati and Gran Sasso laboratories.

High Energy Physics

In the field of high energy physics, my scientific activity is related to the ATLAS Experiment. ATLAS, one of the four major experiments at the Large Hadron Collider (LHC) at CERN, is an international collaboration focusing on particle physics. It aims to explore the full spectrum of discoveries and opportunities provided by the LHC. This includes testing the predictions of the Standard Model, investigating physics beyond it, and developing new theories to enhance our understanding of the universe.

I joined the Bucharest ATLAS team in November 2017, when I start working for my qualification task in the project xTauFramework as software developer and maintainer. I was providing support and updates to analysis teams that were using the xTauFramework and I was involved in the implementation of new software algorithms required in different type of analysis. In parallel with my qualification task I start working in the New Small Wheel(NSW) project, being involved in the testing of the ROC and ART ASICS, used in the phase II upgrade of the New Small Wheel system. I was involved in the design and construction of the test setups as well in the testing procedure and software for the ROC units validation.

During the recent period, my activity was related to the double charged Higgs analysis. This involved actively participating in both the framework development and data analysis.