

Jonathan DA SILVA

Curriculum Vitae

4, Passage Paul Valéry - Appt A301

31 770 Colomiers, France

+33 6 23 21 81 29

✉ jonathan.da.silva.physics@gmail.com

📄 jonathandasilvaphysics.github.io

in jonathan-da-silva

Birth December 23, 1987 - Perpignan, France.

Nationality French.

Marital status Single.

Current status

02/2017 - Present Engineer at Sogeti High Tech, Toulouse, France.

Professional Experience

11/2015 - 07/2016 **Postdoctoral Fellow**, *Laboratoire de Physique Subatomique et de Cosmologie (LPSC)*, Grenoble, France (Head of working group : Sabine KRAMML).

Development of programming tools for high energy physics phenomenology community, in C, C++ and Fortran.

- Two co-authored articles, published in *Physical Review D* and submitted for publication in *Computer Physics Communications*;
- One national conference contribution as speaker.

10/2013 - 09/2015 **Postdoctoral Fellow as a Marie Skłodowska-Curie early stage researcher**, *The University of Manchester*, MCnet network, United Kingdom.

Head of working group : Michael SEYMOUR.

Tested a major update of the particle physics *Herwig Event Generator*, written in C++. Finalized successfully the implementation of a particle physics model (UMSSM) in the public code *micrOMEGAs* (C, Fortran).

- Two co-authored articles, published in *Journal of High Energy Physics* and *Journal of Cosmology and Astroparticle Physics*;
- Three national and international conference contributions as speaker;
- Three presentations as seminars in scientific laboratories.

2011 - 2012 (6 months) **CMIRA 2011 EXPLO'RA DOC Fellow**, *Institute for Particle Physics Phenomenology (IPPP)*, Durham University, United Kingdom (Supervisor : Céline BÉHM).

Development of programming methods in C to efficiently cover and analyse the parameter space of particle physics models.

- Two co-authored articles published in *Physical Review D*;
- Two national conference contributions as speaker;
- Three presentations as seminars in scientific laboratories.

10/2010 - 09/2013 **CNRS Fellow**, *Laboratoire d'Annecy-le-Vieux de Physique Théorique (LAPTh)*, Université de Grenoble, France (Advisor : Geneviève BÉLANGER).

Implemented, tested and analysed successfully particle physics models using existing programming tools (mostly in C).

- Two co-authored articles, published in *Journal of Cosmology and Astroparticle Physics*;
- One workshop and one proceedings contribution;
- Seven national and international conference contributions as speaker;
- Two poster contributions at international schools in particle physics;
- Two presentations as seminars in scientific laboratories.

Education

- 10/2010 - 09/2013 **PhD in Theoretical Physics**, *Laboratoire d'Annecy-le-Vieux de Physique Théorique (LAPTh)*, Université de Grenoble, CNRS, France. Defended on July 3, 2013.
Thesis *Supersymmetric Dark Matter candidates in light of constraints from collider and astroparticle observables*, tel-00912650, [arXiv:1312.0257].
Advisor Geneviève BÉLANGER.
- 2010 **Master in Particle Physics and Cosmology**, *Université Montpellier 2*, France.
- 03 - 06/2010 **Second year Master internship**, *LAPTh*, France.
Title *Dark matter in an extension of the standard model*
Supervisor Geneviève BÉLANGER.
- 05 - 06/2009 **First year Master internship**, *Laboratoire de physique théorique et astroparticules, Université Montpellier 2*, France.
Title *Quarks model and current algebra*
Supervisor Stephan NARISON.
- 2008 **Bachelor in Physics**, *Université Montpellier 2*, France.
- 2005 **High school diploma in sciences**, *Lycée François Arago*, Perpignan, France.

Skills

IT & Programming

Operating systems	GNU/Linux, Mac OS X, Microsoft Windows	Scripting - Script Shell, C, C++, Python, Programming Fortran, HTML5/CSS3, basics of SQL
Scientific computing	ROOT, Maple, Mathematica	Other L ^A T _E X, Microsoft Office, basics of Mercurial, Subversion and Git
Specialized softwares	Systema, LanHEP, CalcHEP, micrOMEGAs, NMSSMTools, HiggsBounds/HiggsSignals, Rivet, Herwig, Pythia, Lilith, SModelS, MadAnalysis 5, MadGraph5_aMC@NLO	

Languages

French	mother tongue	Portuguese	bilingual
English	fluent	Spanish	intermediate

Teaching

- 2013 - 2015 Teaching assistant (2 hours per week of teaching during term time) at *The University of Manchester*, United Kingdom, for groups of five undergraduate students in second year BSc at the *School of Physics and Astronomy* :
Assessment of presentations : vacation essays.
Tutorials : Maths of Waves and Fields, Electromagnetism, Quantum Mechanics, Wave Optics, Thermal and Statistical Physics.
- 2010 - 2013 Teaching assistant (192 hours over 3 years) at the *IUT Annecy, Université de Savoie*, France, and more precisely at the departments *Génie Électrique et Informatique Industrielle* and *Génie Mécanique et Productique* for various groups of around 15 undergraduate students in first or second year of the BSc equivalent :
Tutorials : Classical Physics.
Labs and assessment of reports : Mechanics and Acoustics, Optics, Electricity.

Outreach

- 13/03/2015 Exhibitor at *The Big Bang Fair 2015*, The NEC Birmingham, United Kingdom.
- 2010 - 2012 Organization of local science event for general public “Fête de la Science”, LAPTh, France.

Publications

8. G. Bélanger, J. Da Silva and H. M. Tran, *Dark matter in $U(1)$ extensions of the MSSM with gauge kinetic mixing*, PRD accepted, [arXiv:1703.03275].
7. D. Barducci, G. Bélanger, J. Bernon, F. Boudjema, J. Da Silva, S. Kraml, U. Laa and A. Pukhov, *Collider limits on new physics within micrOMEGAs*, CPC submitted, [arXiv:1606.03834].
6. G. Bélanger, J. Da Silva, T. Perrillat-Bottonet and A. Pukhov, *Limits on dark matter proton scattering from neutrino telescopes using micrOMEGAs*, JCAP 12 (2015) 036, [arXiv:1507.07987].
5. G. Bélanger, J. Da Silva, U. Laa and A. Pukhov, *Probing $U(1)$ extensions of the MSSM at the LHC Run I and in dark matter searches*, JHEP 09 (2015) 151, [arXiv:1505.06243].
4. C. Boehm, J. Da Silva, A. Mazumdar and E. Pukartas, *Probing the Supersymmetric Inflaton and Dark Matter link via the CMB, LHC and XENON1T experiments*, Phys. Rev. D 87 (2013) 023529, [arXiv:1205.2815].
3. G. Bélanger, C. Boehm, M. Cirelli, J. Da Silva and A. Pukhov, *PAMELA and FERMI-LAT limits on the neutralino-chargino mass degeneracy*, JCAP 11 (2012) 028, [arXiv:1208.5009].
2. D. Albornoz Vasquez, G. Bélanger, C. Boehm, J. Da Silva, P. Richardson and C. Wymant, *The 125 GeV Higgs in the NMSSM in light of LHC results and astrophysics constraints*, Phys. Rev. D 86 (2012) 035023, [arXiv:1203.3446].
1. G. Bélanger, J. Da Silva, and A. Pukhov, *The Right-handed sneutrino as thermal dark matter in $U(1)$ extensions of the MSSM*, JCAP 12 (2011) 014, [arXiv:1110.2414].

Workshop

G. Brooijmans, B. Gripaios, F. Moortgat, J. Santiago, P. Skands, *et al.*, *Les Houches 2011: Physics at TeV Colliders New Physics Working Group Report*, arXiv:1203.1488.

Proceedings

J. Da Silva, *To connect supersymmetry and dark matter*, Contribution to the JRJC 2011 proceedings.

Other experience

- 21 - 26/07/2014 Secretary duties at the 22st International Conference on Supersymmetry and Unification of Fundamental Interactions, The University of Manchester, United Kingdom.
- 2012 Member of the editorial board of the International Europhysics Conference on High Energy Physics (HEP2011).
- 21 - 27/07/2011 Secretary duties in the Astroparticle Physics session of HEP2011, Grenoble, France.
- 2011 - 2012 Deputy Representative of PhD students from LAPP and LAPTh, France.
- 2007 Computing and internet certificate (C2i) – level 1, Université Montpellier 2, France.
- 2004 - 2010 Responsible of invoicing for the limited liability company “DA SILVA tiler”, Baho, France.