

Roger Caminal Armadans

Curriculum Vitae

PERSONAL INFORMATION

Date of Birth May 14, 1988
Place of Birth Sant Cugat del Vallès, Spain
Sex Male
Nationality Spanish

EDUCATION

- 2015-present **Postdoctoral researcher**, *University of Illinois at Urbana-Champaign*, United States of America.
Postdoctoral advisor: Dr. Verena Martínez Outschoorn
- 2011-2015 **Ph.D. in High Energy Physics**, *Institut de Física d'Altes Energies (IFAE)*, Universitat Autònoma de Barcelona, Spain.
Advisor: Dr. Mario Martínez Pérez
Thesis: *Search for new phenomena in jets plus missing transverse energy final states at the LHC*
- 2010-2012 **M.S. in High Energy Physics, Astrophysics and Cosmology**, *Institut de Física d'Altes Energies (IFAE)*, Universitat Autònoma de Barcelona, Spain.
Advisor: Dr. Sebastián Grinstein
Thesis: *New pixel sensor technologies for the ATLAS upgrade*
- 2006-2010 **B.S in Physics**, *Facultat de ciències*, Universitat Autònoma de Barcelona, Spain.
Advisor: Dr. John Calsamiglia Costa
Thesis: *Locality and separability in discrimination of quantic hypotheses*

EMPLOYMENT AND RESEARCH

- March 2015 **Postdoctoral researcher**, *CERN*, Geneva, ATLAS Experiment.
Data analyst for the ATLAS Collaboration in the Higgs group.
 - Main analyzer in the search for Higgs boson produced in association to a W boson and decaying to four b -quarks via two spin-zero particles.
 - Flavor-tagging liaison for the Higgs Beyond the Standard Model ATLAS group.
- Jul 2011-2015 **Graduate Student**, *CERN*, Geneva, ATLAS Experiment.
Data analyst for the ATLAS Collaboration in the SUSY and Exotics Working Groups.

- Participation in the optimization studies for the LHC run-II.
 - Participation in the SUSY third generation Legacy Paper, intended to be a reference for the constraints placed by ATLAS with the run-I dataset. Statistical combinations as well as new interpretations have been provided based on the monojet analysis.
 - Reinterpretation of the monojet stop and sbottom searches in terms of other supersymmetric and exotic scenarios with A.Cortés, V.Giangiobbe, C.Fischer and M.Martínez.
 - Main analyzer for the monojet analysis regarding the searches for third-generation squarks decaying in compressed supersymmetric scenarios.
 - Main analyzer for the monojet analysis concerning the search for pair-produced top squarks decaying into charm quarks and the lightest neutralinos.
 - Participation in the search for dark matter candidates and large extra dimensions in events with a jet and missing transverse momentum at 7 TeV.
 - Together with a post doc in our team, perform the full analysis in the searches for dark matter candidates and large extra dimensions at 7 TeV monophoton analysis.
-
- Participation in the TileCal upgrade R&D task force in the ATLAS cavern.
 - Participation as on-line data acquisition contact person for the hadronic calorimeter during operation.
 - Maintenance of the online code that processes the information from the anode integrated minimum bias currents in the ATLAS Tile Calorimeter.

Sep 2010-Jan 2012 **Undergraduate Research Assistant**, *Institut de Física d'Altes Energies (IFAE)*, Spain.

- Research on new radiation-hard pixel sensor technologies in collaboration with CNM-Barcelona. New results of the characterization and beam test studies of n-in-p planar and 3D double sided devices bump bonded to the current ATLAS pixel front-end chip (FE-I3) were performed.

Aug 2010 **Summer Student**, *CERN*, Geneva, ATLAS Experiment.

- Participation in the ATLAS exotics mono jet analysis.

LIST OF SIGNIFICANT PUBLICATIONS

(A complete list of publications (+150) is available at inspirehep.net)

Articles

ATLAS Collaboration, Search for the Higgs boson produced in association with a W boson and decaying to four b quarks via two spin-zero particles in pp collisions at 13 TeV with the ATLAS detector, arXiv:1606.08391 [hep-ex].

ATLAS Collaboration, Search for pair-produced third-generation squarks decaying via charm quarks or in compressed supersymmetric scenarios in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector, Phys. Rev. D. 90, 052008 (2014).

ATLAS Collaboration, Search for dark matter candidates and large extra dimensions in events with a photon and missing transverse momentum in pp collision data at $\sqrt{s} = 7$ TeV with the ATLAS detector, Phys.Rev.Lett.110(2013)011802, 2013.

ATLAS Collaboration, Search for dark matter candidates and large extra dimensions in events with a jet and missing transverse momentum with the ATLAS detector, JHEP 1304 (2013) 075 [arXiv:1210.4491 [hep-ex]], 2013.

Conference notes

ATLAS Collaboration, Search for pair-produced top squarks decaying into charm quarks and the lightest neutralinos using 20.3 fb^{-1} of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector at the LHC, ATLAS-CONF-2013-068, 2013.

ATLAS Collaboration, Search for New Phenomena in Monojet plus Missing Transverse Momentum Final States using 10 fb^{-1} of pp Collisions at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS detector at the LHC, ATLAS-CONF-2012-147, 2013.

Internal notes

R. Caminal Armadans, M. Casolino, T. Farooque, A. Juste Rozas, M. Khader, V. Martínez Outschoorn, W. Moon, L. Valery, Direct search for exotic Higgs boson decays to two spin-zero particles in the $H \rightarrow 2a \rightarrow 4b$ channel in Pp collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector, ATL-COM-PHYS-2015-1457.

R. Caminal Armadans, V. Gangiobbe, A. Cortés-González, C. Fischer, M. Martínez-Pérez, New interpretations in terms of SUSY and Exotics scenarios of the monojet-like analysis used in the third generation squark searches, ATL-COM-PHYS-2014-895.

J. Abdallah, R. Caminal Armadans, A. Cortés-González, V. Gangiobbe, T. Golling, D.H. Guest, M. Hohlfeld, M. Martínez-Pérez, J. Schaeffer, Search for Scalar Top Quarks in final states with two charm jets and missing transverse momentum at $\sqrt{s} = 8 \text{ TeV}$, ATL-COM-PHYS-2013-064.

Proceedings

Roger Caminal Armadans, *on behalf of the ATLAS and CMS Collaborations*, Searches for supersymmetry in resonance production and R-parity violating prompt signatures with the ATLAS and CMS detectors, ATL-PHYS-PROC-2014-220.

Roger Caminal Armadans, *on behalf of the ATLAS Collaboration*, Search for supersymmetric compressed scenarios in monojet-like final states using 20.3 fb^{-1} of pp collisions at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS detector at the LHC, ATL-PHYS-PROC-2014-211.

Roger Caminal Armadans, *on behalf of the ATLAS Collaboration*, Search for pair produced top squarks decaying into a charm quark and the lightest neutralinos in pp collisions at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS detector at the LHC, PoS(EPS-HEP 2013)111, 2013.

Roger Caminal Armadans, *on behalf of the ATLAS Collaboration*, Searches for monojets and monophotons with the ATLAS detector, PoS(DIS 2013)119, 2013.

CONFERENCES AND SCHOOLS

Oct 2014 **VI CPAN days**, Sevilla, Spain.

- Talk: Search for supersymmetry in compressed scenarios.

Jul 2014 **37th International Conference on High Energy Physics (ICHEP 2014)**, Valencia, Spain.

- Talk: Searches for supersymmetry in resonance production and R-parity violating prompt signatures with the ATLAS and CMS detectors.
- Poster: Search for pair-produced third-generation squarks in compressed supersymmetric scenarios using monojet-like final states in pp collisions at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS detector at the LHC.

Sep 2013 **Taller de Altas Energías 2013 (TAE HEP school 2013)**, Benasque, Spain.

Jul 2013 **European Physical Society Conference on High Energy Physics (EPS HEP 2013)**, Stockholm, Sweden.

- Poster: Search for Scalar Top Quarks in the final states with two charm jets and missing transverse momentum at $\sqrt{s} = 8 \text{ TeV}$.

May 2013 **Large Hadron Collider Physics Conference (LHCP 2013)**, Barcelona, Spain.

Apr 2013 **XXI International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2013)**, Marseille, France.

- Talk: Searches for monojets and monophotons with the ATLAS detector.

LANGUAGE AND COMPUTER SKILLS

| | |
|----------------------|--|
| Language | Catalan (Native), Spanish (Native), English (Fluent), French (Fluent), Italian (Basic) |
| OS | Linux, MacOS, Windows |
| Programming | C/C++, Python |
| Scripting | Bash, Python |
| Statistical software | ROOT, pyROOT, RooFit, RooStats, Octave, Mathematica, R |
| Revision control | git, svn |

OUTREACH

| | |
|------------------|---|
| Mar 2012-Present | Official guide at CERN. Lecturer and experiment site guide for all ages, backgrounds and knowledge ranges. Outreach talks in high schools. |
|------------------|---|

OTHER INFORMATION

| | |
|------------------|---|
| Oct 2014 | Statistics with <i>R</i> . Karolinska Institutet through edX |
| Sep 2014 | Machine learning. Stanford University through Coursera Inc. |
| Feb 2013 | Introduction to Computer Science and Programming. The Massachusetts Institute of Technology (MIT) through edX |
| Jan 2006 | Initiation basketball coach license. Federació catalana de Basquetbol. |
| Feb 2002-Present | Licensed amateur radio operator. Jefatura Provincial de Telecomunicaciones de Barcelona. Experience in antenna installation, electronics knowledge, circuit building, morse code communication and contesting. Concerning the latest, the most significant results in contests are: <ul style="list-style-type: none">◦ CQ WW DX CW contest: North America winner (third world wide) in multi operator category in 2009 from Jamaica.◦ CQ WW DX CW contest: Europe winner in multi operator category in 2002, 2003, 2006 and 2007 from Balearic Islands.◦ CQ WW WPX CW contest: Europe winner (second world-wide, first rookie) in single operator in 2005 from Balearic Islands. |