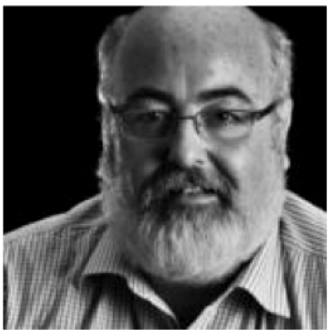
Curriculum Vitae
Mario Martínez Pérez



Personal information

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Education

1998 Ph.D in Physics, Universidad Autónoma de Madrid, Spain.
1994 B.S in Theoretical Physics, Universidad Autónoma de Madrid, Spain.

Research Positions

2007 – present, ICREA Full Research Professor @ IFAE-Barcelona, Spain.
2004 – 2007, Assistant Research Professor, IFAE- Barcelona, Spain.
2001 – 2004, Research Associate, FNAL, USA.
1998 – 2001, Research Associate, DESY, Germany.

General Indicators of quality of scientific production

According to Scopus for the period (2016 – 2020):
Number of publications: 446 (416 in Q1 and 360 in D1)
Total number of cites: 14229
H-index: 113

Number of PhD and Master thesis supervised (last 10 years): 9 PhD and 5 Master theses.
Number of invited conference talks in the last 10 years: 40

At present I supervise 5 PhD and 3 Master theses.

Research Experience

VIRGO Experiment @ EGO (2019 – present)

- Member of the Virgo Organization Committee (2020 - 2021).
- Searches for dark matter and tests of General Relativity using gravitational waves.
- Studies on Cosmology using gravitational waves.
- Searches for stochastic gravitational waves signals from the early universe.
- Developing new instrumentation for gravitational waves experiments.
- Corresponding Editor of 3 articles in journals.
- Supervisor of 3 PhD theses (defense expected in 2022 - 2023).

ATLAS Experiment @ LHC (2008 – present)

- Member of "Spokesperson sign-off" Group (2016).
- Member of Publication Committee (2014 – 2016).
- Co-convener Data Quality Group (2008 – 2009, 1 year).
- Studies on Jet and Z+jets production at the LHC.
- Searches for SUSY, SM Higgs and dark matter.
- Corresponding Editor of 9 articles in journals and 11 CONF/PUB notes.
- Member of 24 Editorial Boards for articles and conference notes.
- Supervisor of 8 Ph.D. theses (2 additional ones expected in 2021 – 2022).

CDF Experiment @ Tevatron (2001 – 2008)

- Co-convener QCD Physics Working Group (2003 – 2004).
- Data Quality Coordinator (2003 – 2008).
- Studies on Jet and Z+jets production at the LHC.
- Searches for SUSY, SM Higgs and dark matter.
- Corresponding Editor of 8 articles in journals and member of many EBs.
- Supervisor of 5 PhD theses.

ZEUS Experiment @ HERA (1994 – 2001)

- Contributions to the ZEUS Forward Plug Calorimeter.
- Contributions to the ZEUS Silicon Tracker Construction.
- Studies on High-Q^2 DIS, Jet Production and Diffractive Physics.
- Corresponding Editor of 2 publications in journals.

More than 30 talks in conferences and workshops and more than 12 invited seminars. Author of hundreds of publications as a member of ZEUS, CDF, ATLAS and Virgo Collaborations.

Research Projects

List research projects funded by the Spanish Funding Agency for which I acted as PI.

- PGC2018-101858-B-I00, *Particle Physics with Gravitational Waves using the Virgo Interferometer* (2019-2020) [119k€].
- FPA2012-38713, *Physics in proton-proton collisions at the LHC using the ATLAS detector* (2013-2015) [1200k€].
- FPA2009-07496, *Physics in hadron colliders with the CDF and ATLAS experiments* (2010-2012) [1960k€].
- FPA2008-02152, *Search for new physics using the CDF and ATLAS detectors* (2009) [322k€].
- FPA2005-03036, *Study of the proton-antiproton collisions at the Tevatron with the CDF detector* (2006-2008) [580k€].
- FPA2004-00769, *Study of the proton-antiproton collisions at the Tevatron with the CDF detector* (2005) [399k€].

Other research projects where I acted as researcher or “garante”:

- FPA2015-69260-C3-1-R, *Participation in the ATLAS experiment at the LHC* (2016-2018) [1797k€].
- FPA2015-69260-C3-2-R, *Participation in the ATLAS experiment at the LHC: Physics, Detector Operations and Upgrade* (2016-2018) [544k€].

- SEV-2016-0588, *Severo-Ochoa Excellence Award* (2017-2021) [4M€].
- SEV-2012-0234, *Severo-Ochoa Excellence Award* (2013-2017)[4M€].

Funds from European Programs:

- H2020-MSCA-RISE-2016, *NEw WindowS on the universe and technological advancements from trilateral EU-US-Japan collaboration* (2017 – 2021) [25k€].
- H2020-MSCA-RISE-2020, *Probes of new physics and technological advancements from particle and gravitational wave physics experiments. A cooperative Europe - United States - Asia effort* (2020 – 2024) [75k€].

Institutional Responsibilities

2020 – Member of the Virgo Organization Committee.

2019 – Member of the Virgo and ET Steering Committees.

2019 – PI of the IFAE-Barcelona Group in Virgo, EGO.

2015 – 2020 Head IFAE Experimental Division, IFAE, Spain.

2015 – 2018 Manager of the Spanish High Energy Physics, MINEICO, Spain.

2015 – 2018 Spanish Scientific Delegate to CERN's Council, CERN.

2014 - 2016 Member of ATLAS Publication Committee, CERN.

2009 - 2015 PI of the IFAE-Barcelona Group in ATLAS, CERN.

2009 - 2015 Member of the ATLAS Collaboration Board representing IFAE, CERN.

2004 - 2012 PI of the IFAE-Barcelona Group at the CDF experiment, FNAL, USA.

Scientific Committees

(2020 – now) Co-coordinator of Stray Light Control WG in the Einstein Telescope.

(2020 – 2020) Referee for FELLINI-INFN Fellowship Program, Italy.

(2019 - now) Member of the Virgo and the Einstein Telescope Steering Committees.

(2017 - now) Member of CERN's P2UG Committee for CMS upgrade, CERN.

(2005 – 2009) Member of the LHCC committee, CERN.

(2015 – 2018) Member of the External Scientific Committee for LSC, Canfranc, Spain

(2015 – 2018) Chief Reviewer of the Spanish High Energy Physics Grants (FPA), Spain

(2012 – now) Member of the Spanish ANEP Evaluation Panel, MINEICO, Spain.

(2012 – 2012) Member for DOE/NSF LHC Operations program review panel, USA.

(2012 – 2012) Member of the DOE/NSF Energy Frontier Research Review Panel, USA.

Conference organization (last 10 years)

(2020) Co-organizer of the 2020 Virtual Iberian Gravitational Waves Meeting, Spain, 160 participants.

(2018) Chair of 26th International Conference on Supersymmetry and Unification of Fundamental Interactions, SUSY2018, Barcelona, Spain, 300 participants.

(2018) Chair of Workshop on Direct Dark Matter detection in Spain, LSC-Canfranc, Spain, 75 participants.

(2018) Convener of Session, DM@LHC2018, University of Heidelberg, Germany.

(2015 – 2018) Chair of the Advisory Committee for the International Meeting for Fundamental Physics, IMFP, Spain, about 100 participants.

(2014 – 2016) Member of the International Advisory Committee for the Large Hadron Collider Physics Conference, about 350 participants.

(2013) Chair of the First Large Hadron Collider Physics Conference, LHCP2013, Barcelona, Spain, 350 participants.

(2013) Chair of the TAE Spanish School for High Energy Physics, Benasque, Spain, 50 participants.

(2012 – 2015) Member of the Organising committee of HASCO (Hadron Collider Physics School), Goettingen, Germany, 50 participants.

PhD theses supervised (last 10 years, 9 out of a total of 13)

In the following the PhD theses supervised during the last 10 years are listed. At present five PhD students from ATLAS and Virgo are under my direct supervision. Doctoral students supervised by my group in the past have an excellent track record in their later career. About 40% of them found promising careers in industry, whereas the rest obtained top-level postdoctoral positions in the UK, USA, Sweden, Germany and Canada.

* Gianluca De Lorenzo, Search for Gluino and Squark Production in Multiple-jets plus Missing Transverse Energy Final States at the Tevatron using the CDF Detector. (Excellent - Cum Laude), UAB, March 2010.

* Francesc Vives, Study of Inclusive Jet Production and Jet Shapes in proton-proton collisions at sqrt(s)=7 TeV using the ATLAS Detector. Excellent - Cum Laude), UAB, October 2011.

* Estel Pérez, First measurement of the Z+jets production cross section with the ATLAS experiment at the LHC. (Excellent - Cum Laude), UAB, December 2011.

* Valerio Rossetti, Search for new phenomena in events with one energetic jet and large missing transverse momentum in proton-proton collisions at sqrt(s) = 7 TeV and 8 TeV with the ATLAS detector. (Excellent - Cum Laude), UAB, July 2013 (Springer Thesis Prize).

* Roger Caminal, Search for new phenomena in jets plus missing transverse energy final states at the LHC. (Excellent - Cum Laude), UAB, February 2015.

* Garoe González, Search for the SM Higgs boson in the (W/Z)H channel with H->bb using the ATLAS detector at the LHC. (Excellent - Cum Laude), UAB, March 2015.

* Silvia Fracchia, Search for third-generation squarks in all-hadronic final states at the LHC with the ATLAS detector. (Excellent - Cum Laude), UAB, December 2016.

* Cora Fischer, Search for new phenomena in events with a highly energetic jet and missing transverse momentum with the ATLAS detector, (Excellent - Cum Laude), UAB, September 2017.

* Andrea Rodriguez, Search for new phenomena in events with jets and missing transverse momentum at the high-energy LHC RunII with the ATLAS detector, (Excellent - Cum Laude), UAB, October 2018.

Selected Publications in Journals (last 10 years)

According to Scopus database I have authored 446 publications (416 in Q1 and 360 in D1) in the last five years, which have accumulated a total of 14229 citations. My h index is 113. Here I list the most relevant/recent publications during the last decade.

* R. Abbott, et al. (The LIGO Scientific Collaboration, the Virgo Collaboration), "*Tests of General Relativity with Binary Black Holes from the second LIGO-Virgo Gravitational-Wave Transient Catalog*", [arXiv:2010.14529] (2020) (accepted in Phys. Rev. D)

* A. Romero et al., "*Determination of the light exposure on the photodiodes of a new instrumented baffle for the Virgo input mode cleaner end-mirror*", Class. Quantum Grav. 38 045002 [arXiv:2008.13740] (2020).

* R. Abbott, et al. (The LIGO Scientific Collaboration, the Virgo Collaboration)," *Gravitational-wave Constraints on the Equatorial Ellipticity of Millisecond Pulsars*", *ApJL* 902 L21 (2020).

* Cirone A et al. "*Investigation of magnetic noise in Advanced Virgo*", *Class. Quant. Grav.* 36, no.22, 225004 (2019).

* ATLAS Collaboration, "*Search for dark matter and other new phenomena in events with an energetic jet and large missing transverse momentum using the ATLAS detector*", *JHEP*, 1801, 126 (2018).

* ATLAS Collaboration, "*Observation of H—bb decays and VH production with the ATLAS detector*", *Phys.Lett.*, B786, 59-86 (2018).

* ATLAS Collaboration, "*Search for supersymmetry in final states with missing transverse momentum and multiple b-jets in proton-proton collisions at 13 TeV with the ATLAS detector*", *JHEP*, 1806, 107 (2018).

* ATLAS Collaboration, '*Search for dark matter produced in association with bottom or top quarks in 13 TeV pp collisions with the ATLAS detector*", *Eur. Phys. J.*, C78, no. 1, 18 (2018).

* ATLAS Collaboration,"*Search for dark matter at √s=13 TeV in final states containing an energetic photon and large missing transverse momentum with the ATLAS detector* ", Eur. Phys. J. C 77 (2017) 393.

* ATLAS Collaboration, "*Search for new phenomena in final states with an energetic jet and large missing transverse momentum in pp collisions at √s=8 TeV with the ATLAS detector*", Eur. Phys. J. C 02 (2015) 018.

* ATLAS Collaboration, "*Search for the bb decay of the Standard Model Higgs boson in associated (W/Z)H production with the ATLAS detector"*, JHEP 01 (2015) 069.

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

* 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.

* 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 √s =7 TeV with the ATLAS detector*", Phys. Rev. Lett 110 (2013) 011802.

* ATLAS Collaboration, "*Measurement of the production cross section for Z/γ* in association with jets in pp collisions at √s=7 TeV with the ATLAS detector*", Phys. Rev. D 85 (2012) 032009.

* ATLAS Collaboration, "*Measurement of inclusive jet and dijet production in pp collisions at √s=7 TeV using the ATLAS detector*", Phys. Rev. D 86 (2012) 014022.

* ATLAS Collaboration, "*Search for new phenomena with the monojet and missing transverse momentum signature using the ATLAS detector in √s=7 TeV proton-proton collisions*", Phys. Lett. B 705 (2011) 294.

* ATLAS Collaboration, "*Study of Jet Shapes in Inclusive Jet Production in pp Collisions at √s=7 TeV using the ATLAS Detector*", Phys. Rev. D 83 (2011) 052003.

Selected Talks in Conferences and Workshops (last 10 years)

* *Jet Shapes in ATLAS and MC modeling*, Boost2011 Conference, Princeton University, 2011.

* *Experimental Tests of QCD*, 24th Rencontre de Blois -Particle Physics and Cosmology, Blois, 2012.

* *Search for Dark Matter at the LHC*, Sixth symposium on large TPCs for low energy rare event detection, Paris, 2012.

* *ATLAS Monophoton Results,* Dark Matter@ LHC Workshop, Chicago, 2013.

* *Overview of ATLAS Results*, PACT Workshop Fundamental Physics, CMB and LSS in the light of Planck satellite and DES', IFT/CSIC-Madrid, 2013.

* *Mono-X searches at CMS and ATLAS*, SUSY at the Near Energy Frontier WorkShop, Fermilab, 2013.

* *Review of Searches for New Physics in ATLAS*, Galileo Galilei Institute for Theoretical Physics, Florence, October 2015.

* *Searches for Dark Matter plus Heavy Flavour Production at the LHC*, DM@LHC Workshop, Irvine, USA, April 2017.

* *Overview of Dark Matter Searches with ATLAS*, World Summit on Exploring the Dark Side of the Universe, Guadeloupe, France, June 2018.

* *Searches for Beyond Standard Model Physics at ATLAS and CMS*, Planck 2019 (22nd International Conference From the Planck Scale to the Electroweak Scale), Spain, June 2019.

* *New instrumented baffles for AdV+ upgrade*, LIGO-Virgo-KAGRA Collaboration Meeting, Poland, October 2019.

* *Overview of IFAE activities on GW Physics and Instrumentation in Virgo*, Virtual Iberian Gravitational Waves Meeting 2020, Spain, September 2020.

CV Summary

I am a Doctor in Physics from the Universidad Autónoma de Madrid. In 1994-2000 I worked as researcher at DESY (Hamburg, Germany) in the ZEUS experiment at the HERA collider. I moved to Fermilab (near Chicago, USA) to work as a Fermilab researcher in the CDF experiment at the Tevatron collider. In 2008 I moved back to Europe to work for the ATLAS experiment at the LHC at CERN (Geneva, Switzerland). Since 2004, I have acted as principal investigator of several research projects. My CV reflects the track record of an independent researcher, with a clear international projection and regarded as a leader in the field. I am ICREA Full Research Professor in Barcelona since 2007. I acted as supervisor of 13 Ph.D. theses, and four additional ones will be concluded in the following three years.

In 2003, I became the project leader of the IFAE-CDF group, when IFAE was accepted as one of the 62 institutions participating in the CDF experiment at Fermilab. During the next years I built up a group at the Tevatron that was highly regarded by the CDF experiment (the CDF collaboration meeting organized by IFAE in 2005 in Barcelona was the very first time the CDF experiment decided to meet outside the USA). I was able to support the members of our team and promote them into convener-ships and high-level physics coordination positions within the experiment. Some of the members of that IFAE-CDF team now play leading roles at the LHC experiments.

In 2005, I was asked to join the LHCC committee at CERN: a high-profile external scientific committee that reviews the LHC experiments and the GRID computing at CERN and reports the findings to CERN's Directorate. I was the youngest member of the committee at that time. The initial two years term in the LHCC committee was extended to almost five years. This allowed me to have a privileged view of the LHC experiments during their construction.

In 2009, the ATLAS and CDF teams in IFAE formally merged, and I became the project leader for the whole team. I focused on the physics exploitation of the LHC run I data, with the aim to put the IFAE group at the front of a very strong physics program, to maintain the commitments in terms of detector operations, and to keep a large visibility within the ATLAS experiment and the LHC community as a whole. In 2012, the IFAE-ATLAS project was ranked as top one in the list of proposals presented in the FPA2012 call. In 2015-2020 I was appointed Head of IFAE Experimental Division. During the following years I had an increasing visibility within the Spanish community: as Spanish ANEP referee, chair of the LHCP-2013 conference, and director of the TAE-2013 school.

In 2015-2018 I was appointed Scientific Manager of the Spanish FPA High Energy Physics Program, and Scientific Delegate for Spain in CERN's Council. Due to evident conflict of interests (the FPA Manager has the duty to review and assign funds to research projects) in 2015 I formally gave up on my responsibilities as PI of the ATLAS-IFAE group but I maintained my involvement in the experiment. In 2018 I was chair of the SUSY2018 conference. As Spanish Scientific Delegate in CERN's Council, I promoted the organization of the next Open Symposium of the update of the European Strategy for Particle Physics in Spain in 2019. Since 2017 I am a member of CERNs P2UG Committee for the review of the CMS upgrade activities at the LHC.

In 2019, I led the effort to open a research line on Gravitational Waves at IFAE. Since then I act as PI of the group working in the Virgo experiment, with significant responsibilities on the construction of novel instrumentation for Virgo, and on the detector commissioning and operations. I am a member of the Virgo and the Einstein Telescope (ET) Steering Committees. I contributed to the recent update of the ET CDR document and I have been recently proposed as co-coordinator of the stray light control design efforts for ET. I drove the recent Spanish coordinating efforts to aggregate interest on the ET project, which in turns translated into the political support from the Spanish funding agency to the ET candidature as ESFRI infrastructure in Europe. Finally, I co-organized the Iberian GW Meeting in 2020.

Finally, in 2020, motivated by the Covid-19 pandemic situation, I promoted in IFAE a new activity related to the simulation and modeling of the spread of the disease in collaboration with scientists from other CERCA centers in Catalonia, experts on demography, mobility and epidemiologists.