

Curriculum Vitae

Mario Martínez Pérez



Personal information

Family name, First name: MARTINEZ PEREZ, MARIO

Researcher unique identifier(s):

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Date of birth: 22/05/1971

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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 (last five years)

Number of Publications: 606. Q1 73% (Web of Science)

Number of Cites: 450112 (Inspirehep)

Mean IF: 5,4 /Web of Science)

H-Index: 103 (Inspirehep)

Number of PhD and Master thesis supervised: 18 PhD and 14 Master theses.

At present I supervise 5 PhD theses.

Research Experience

Einstein Telescope (2021 – present)

- Coordinator of the Horizon Europe INFRADEV ET-PP project (2021 – present)
- Member of the ET Organization Directorate (2022 – present)

- Member of the ET pathfinder (2024 – present)
- Co-convener of the Stray Light Control WG at ET (2021 – 2025)

VIRGO Experiment @ EGO (2019 – present)

- Member of the EGO Council (2024 – present)
- Member of the IGWN Design Group (2024 – present, co-chair since 2026)
- 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 several articles in journals.
- Supervisor of 5 PhD theses (3 theses defended in 2022 - 2025).

ATLAS Experiment @ LHC (2008 – 2019)

- Member of "Spokesperson sign-off" Group (2016).
- Member of the 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 40 talks in conferences and workshops and more than 10 invited seminars in the last 10 years. Author of hundreds of publications as a member of ZEUS, CDF, ATLAS and Virgo & ET Collaborations.

Research Projects

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

- CEX2024-001441-S, *Centros de Excelencia Severo Ochoa*, MICINN, (2025-2029), [4500k€].
- PID2023-146517NB-I00, *Study of Gravitational Waves using ground-based interferometers and the Einstein Telescope*, (2024-2027), [689k€].
- NextGenerationEU, *Plan Complementario de Astrofísica y Física de Altas Energías*, PRTR-C17.I1, (2022 - 2025) [900k€] (acting as co-PI).
- PID2020-113701GB-I00, *Gravitational Waves Physics with ground-based interferometer*, (2021-2024) [442k€].
- 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€].

Funds from European Programs:

- Coordinator of ET-PP, HORIZON-INFRA-2021-DEV-02-01, *Einstein Telescope Preparatory Phase* (2022- 2026) [3450k€]
- GRAVITY, HORIZON-MSCA-2024-SE-01-01, *New Technologies for Next-Generation Gravitational-Wave Detectors* (2026 - 2030) [30k€]
- PROBES, H2020-MSCA-RISE-2020, *Probes of new physics and technological advancements from particle and gravitational wave physics experiments* (2020 – 2024) [75k€].
- NEWS, H2020-MSCA-RISE-2016, *NEw WindowS on the universe and technological advancements from trilateral EU-US-Japan collaboration* (2017 – 2021) [25k€].

Other research projects where I acted as researcher:

- 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€].

Institutional Responsibilities

2025 – IFAE Severo Ochoa Scientific Director

2023 – IFAE Deputy Director

2022 – Member of ET Directorate.

2020 – Member of the Virgo Organization Committee and IGWN Design Committee.

2019 – Member of the Virgo and ET Steering Committees.

2019 – PI of the IFAE-Barcelona GW Group.

2015 – 2025 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 – 2025) Co-coordinator of Stray Light Control WG in the Einstein Telescope.

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

(2017 - 2025) 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)

(2024) Chair of LIGO-Virgo-KAGRA Collaboration Meeting, LVK2024, Barcelona, Spain, 800 participants.

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

(2019) Co-organizer of the Open Symposium on the upgrade of the European Strategy for Particle Physics, Spain, 600 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, 8 out of a total of 18)

In the following the PhD theses supervised during the last 10 years are listed. At present five PhD students are under my 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 Belgium, Denmark, UK, USA, Sweden, Germany, and Canada.

- * Giada Caneva, *Testing General Relativity Across Scales with Gravitational Waves with LIGO-Virgo-Kagra Data*, (Excellent - Cum Laude), UAB, 2025.
- * Alex Menéndez, *Search for subsolar mass black holes in LIGO/Virgo using O3 data and the implementation of Machine Learning algorithms in the identification of Compact Binary Coalescence events*, (Excellent - Cum Laude), UAB, 2022.
- * Alba Romero, *Study of Gravitational Waves using the LIGO/Virgo data*, (Excellent - Cum Laude), UAB, 2022.
- * 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, 2018.
- * 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, 2017.
- * Silvia Fracchia, *Search for third-generation squarks in all-hadronic final states at the LHC with the ATLAS detector*, (Excellent - Cum Laude), UAB, 2016.
- * 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, 2015.
- * Roger Caminal, *Search for new phenomena in jets plus missing transverse energy final states at the LHC*, (Excellent - Cum Laude), UAB, 2015.

Selected Publications in Journals (last 10 years)

According to the Web of Science database I have authored 606 publications (73% in Q1) in the last five years, which have accumulated a total of 450112 citations. My h index is 103. Here I list the most relevant and recent publications during the last decade.

- * Marc Andrés-Carcasona et al., “*New modeling of the stray light noise in the main arms of the Einstein Telescope*”, Class. Quant. Grav. 42 (2025) 21.
- * Book: *Gravitational Wave Science with Machine Learning*, Springer Series in Astrophysics and Cosmology. Ed. Elena Cuoco, Published by Springer Singapore, ISBN 978-981-96-1736-4 (2025).
- * Marc Andrés-Carcasona et al., “*New approach to search for long transient gravitational waves from inspiraling compact binary systems*”, Phys. Rev. D 111, 043019 (2025).
- * Marc Andrés-Carcasona et al., “*Performance of an instrumented baffle placed at the entrance of Virgo’s end mirror vacuum tower during O5*”, Phys. Rev. D 111, 042001 (2025).

* Marc Andrés-Carcasona et al., "Constraints on primordial black holes from LIGO-Virgo-KAGRA O3 events", Phys. Rev. D 110, 023040 (2024).

* Alexis Menéndez-Vázquez et al., "Searches for compact binary coalescence events using neural networks in LIGO/Virgo third observation period", Class. Quantum Grav. 41 135018 (2024).

* Giada Caneva et al., "First Constraints on Compact Binary Environments from LIGO-Virgo Data", Phys. Rev. Lett. 132, 251401 (2024).

* Marc Andrés-Carcasona et al., "Study of scattered light in the main arms of the Einstein Telescope gravitational wave detector", Phys. Rev. D 108, 102001 (2023).

* Marc Andrés-Carcasona et al., "Searches for mass-asymmetric compact binary coalescence events using neural networks in the LIGO/Virgo third observation period", Phys. Rev. D 107, 082003 (2023).

* Alba Romero-Rodríguez, Mario Martínez, Oriol Pujolàs, Mairi Sakellariadou, and Ville Vaskonen, "Search for a Scalar Induced Stochastic Gravitational Wave Background in the Third LIGO-Virgo Observing Run", Phys. Rev. Lett. 128, 051301 (2022), highlighted as Editor's Suggestion by the journal.

* Otger Ballester et al., "Measurement of the stray light in the Advanced Virgo input mode cleaner cavity using an instrumented baffle", Class. Quantum Grav. 39 115011 (2022).

* Alexis Menéndez-Vázquez et al., "Searches for compact binary coalescence events using neural networks in the LIGO/Virgo second observation period", Physical Review D, 103, 6, 062004 (2021).

* Alba Romero-Rodríguez et al., "Implications for First-Order Cosmological Phase Transitions from the Third LIGO-Virgo Observing Run", Physical Review Letters, 126, 15, 151301 (2021).

* Alba Romero-Rodríguez 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 (2021).

* R. Abbott, et al., (The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration), "Upper Limits on the Isotropic Gravitational-Wave Background from Advanced LIGO's and Advanced Virgo's Third Observing Run", Phys. Rev. D 104, 022004 (2021).

* A. Menéndez et al., "Searches for Compact Binary Coalescence Events using Neural Networks in LIGO/Virgo Second Observation Period", Phys. Rev. D 103, 062004 (2021).

* 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*”, Phys. Rev. D 103, 122002 (2021)

* 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 (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 $\sqrt{s}=13$ 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 $\sqrt{s}=8$ 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.

Selected Talks in Conferences and Workshops (last 10 years)

* *The Einstein Telescope Project*, Big Science Industry Forum Spain, Madrid, Spain, 2025.

* *Status ET Preparatory Phase*, ET annual meeting, Croatia, 2025.

* *Stray Light – Instrumented Baffles*, Cosmic Explorer - Einstein Telescope Beamtube Workshop III - Hanford, USA, October 2025.

* *Updated Stray Light Induced Noise Simulations in the Einstein Telescope main Arms*, 16th Edoardo Amaldi Conference on Gravitational Waves, Glasgow, UK, 2024.

* *The Einstein Telescope Project*, California Institute of Technology, USA, 2024.

* *Gravitational Waves now and in the future*, 34th Rencontres de Blois, Blois, France, 2023.

* *The Einstein Telescope Project*, BSBF Meeting, Granada, Spain, 2022.

* A new instrumented baffle for Advanced Virgo, 8th KAGRA Int. Workshop, Kyoto, 2021.

* *A new instrumented baffle for Advanced Virgo*, 14th Edoardo Amaldi Conference on Gravitational Waves, Melbourne, 2021.

* *Summary of Stray Light Mitigation Strategies at 2G Interferometers*, Gravitational Waves Advanced Detector Workshop, Rome, 2021.

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

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

* *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.

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

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

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

CV Summary

I hold a PhD in Physics from the Universidad Autónoma de Madrid. From 1994 to 2000, I worked as a researcher at DESY (Hamburg, Germany) on the ZEUS experiment at the HERA collider. I then moved to Fermilab (near Chicago, USA), where I worked as a Fermilab researcher on the CDF experiment at the Tevatron collider. In 2008, I returned to Europe to join the ATLAS experiment at the LHC at CERN (Geneva, Switzerland). Since 2004, I have served

as principal investigator of several research projects. My CV reflects the track record of an independent researcher with a strong international profile, widely regarded as a leader in the field. I have been an ICREA Research Professor in Barcelona since 2007. To date, I have supervised 18 PhD theses and 14 Master's theses. Since 2023, I have served as IFAE's Deputy Director, and since 2025 as Scientific Director of the Severo Ochoa Award.

In 2003, I became project leader of the IFAE–CDF group. In 2005, I was invited to join the CERN LHC Committee (LHCC), a high-level external scientific committee responsible for reviewing the LHC experiments and GRID computing at CERN. In 2009, the ATLAS and CDF teams at IFAE formally merged, and I became project leader of the combined team.

From 2015 to 2023, I was Head of the IFAE Experimental Division. During this period, my visibility within the Spanish scientific community increased through roles such as Spanish ANEP referee, Chair of the LHCP-2013 conference, and Director of the TAE-2013 school.

From 2015 to 2018, I served as Scientific Manager of the Spanish FPA High Energy Physics Program and as Spain's Scientific Delegate to the CERN Council. Due to an evident conflict of interest—since the FPA Manager is responsible for evaluating and allocating research funding—I formally relinquished my role as Principal Investigator of the ATLAS–IFAE group in 2015, while maintaining my involvement in the experiment. Since 2017, I have been a member of CERN's P2UG Committee for the CMS upgrade. I also organized the SUSY2028 conference in Barcelona.

In 2019, I led the establishment of a new research line on Gravitational Waves at IFAE. Since then, I have served as Principal Investigator of the group working on the Virgo experiment. I am a member of the Virgo Steering Committee and was, until 2022, a member of the Einstein Telescope (ET) Steering Committee. I contributed to the update of the ET Conceptual Design Report and currently serve as co-coordinator of the stray-light control design efforts for ET. I co-organized the Iberian Gravitational Waves Meeting in 2020 and organized the LIGO–Virgo–KAGRA Collaboration Meeting in Barcelona in 2024. I am co-chair of the IGWN Design Committee.

In 2021, the Einstein Telescope was included in the new ESFRI roadmap, and I was appointed Principal Investigator and European Coordinator of the four-year Horizon-CSA INFRA-DEV project for the ET preparatory phase. I am a member of the ET Directorate. I have participated in several EU COST actions and I am involved in three H2020-MSCA projects as part of a collaborative Europe–USA–Asia effort to develop next-generation gravitational-wave detectors.