Hernán Asorey

Medical Physics Department
Instituto de Tecnologías en Detección y Astropartículas (ITeDA)
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Personal Information

Born in Quilmes, Buenos Aires, Argentina, on February 05th, 1974 (48 years old)

Current Positions

2021-current Researcher at the Unidad de Informática Científica, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)

2021-current Researcher (CNEA TNG 312 - Principal B) at the Medical Physics Department, Gerencia de Física (GF), and at Instituto de Tecnologías en Detección y Astropartículas (ITeDA), Gerencia de Área de Investigaciones y Aplicaciones No Nucleares (GAIYANN), Comisión Nacional de Energía Atómica (CNEA).

2018-current Associated Professor of the Física III B (Thermodynamics) and Física IV B (Introduction to Particle Physics, Astrophysics and Cosmology) courses of the Profesorado de Nivel Medio y Superior en Física of the Universidad Nacional de Río Negro (UNRN).

Education

2012 Doctor in Physics (Ph.D.)
Institution: Particles and Fields Group, Centro Atómico Bariloche - Instituto Balseiro, CNEA-UNC. *Thesis*: The Water Cherenkov Detectors of the Pierre Auger Observatory and their Application to the Study of Background Radiation. *Advisor*: Dr. Ingomar Allekotte.

2005 Master in Science, Physics
Orientation: High Energy Physics. *Institution*: Particles and Fields Group, Instituto Balseiro, Centro Atómico Bariloche (CNEA-UNC). *Thesis*: Event Reconstruction with the Surface Detectors of the Pierre Auger Observatory. *Advisor*: Dr. Ingomar Allekotte

2004 "Licenciado" in Physics
Institution: Instituto Balseiro, Centro Atómico Bariloche (CNEA-UNC)

Previous positions

2017-2021 Head of the Medical Physics Department, Gerencia de Física (GF), Gerencia de Área de Investigaciones y Aplicaciones No Nucleares (GAIYANN), Centro Atómico Bariloche (CAB), Comisión Nacional de Energía Atómica (CNEA), peer choice.

2015-2017 Researcher (TNG 422 - Principal C) at the Particle and Fields Division, Gerencia de Física (GF),

Gerencia de Área de Investigaciones y Aplicaciones No Nucleares (GAIYANN), Comisión Nacional de Energía Atómica (CNEA).

2015-2017 Associated Professor of the Física Moderna A (2015 y 2017), Física I A (2016), Física II B (Waves, 2015), Física III B (Thermodynamics, 2018-current), Física IV B (Introduction to Particle Physics, Astrophysics and Cosmology, 2016-current) of the Profesorado de Nivel Medio y Superior en Física of the Universidad Nacional de Río Negro (UNRN).

2014-2015 Invited Professor at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Junior researcher at COLCIENCIAS.

2013-2014 Post-doctoral researcher at Grupo de Investigación en Relatividad y Gravitación and Grupo Halley de Astronomía y Ciencias Aeroespaciales, Physics School, Universidad Industrial de Santander, Bucaramanga, Colombia.

2013-2014 Assistant Professor at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia.

2012 Senior Teaching Assistant (Jefe de Trabajos Prácticos) in charge of the Física I A and Física I B (Introduction to Physics) courses of the Profesorado de Nivel Medio y Superior en Física, Universidad Nacional de Río Negro (UNRN)

2009-2011 Senior Teaching Assistant (Jefe de Trabajos Prácticos), courses Física I A and Física I B (Introduction to Physics) of the Profesorado de Nivel Medio y Superior en Física, Universidad Nacional de Río Negro (UNRN)

2010-2012 Teaching Assistant at Science Department, Instituto Balseiro, Universidad Nacional de Cuyo (UNC)

2006-2012 Ph.D. student, Instituto Balseiro (UNC).

2004-2005 Master in Science, Instituto Balseiro (UNC).

2002-2004 Physics undergraduate student, Instituto Balseiro (UNC).

1992-1996 Industrial Engineering (first four of five years). University of Buenos Aires.

1990-2001 AIM S.A., metal mechanical industry, R+D department in industrial projects, Buenos Aires, Argentina.

Honours, Awards, Fellowships & Grants

2015 Universidad Industrial de Santander "2013-2014 Best Professor of the Science Faculty Award" for outstanding teaching skills at School of Physics

2011 Balseiro Foundation "Best Teacher Award" for outstanding teaching skills at Instituto Balseiro.

2022 "Detectores de astropartículas y sus aplicaciones: muongrafía de grandes estructuras y meteorología espacial", PICT2021-GRF-TII-00301, under evaluation

2022 "Astroparticle simulations and its applications", European Grid Infrastructure - Advanced Computing for EOSC (EGI-ACE) Use Case, under evaluation

2021 "Detectores modulares para imágenes con Muones de fondo", Fundación Hermanos Agustín y Enrique Rocca, running.

2021 "Utilización y desarrollo de ligandos específicos del microambiente tumoral acoplados a 177Lu para la detección y tratamiento de tumores primarios y metástasis", Fundación Balseiro & CNEA s/resol 306/21, running.

2020 "EOSC synergy – Building capacity, developing capability", Horizon 2020 RI project 857647, Thematic Service Leadership, running.

2020 "Desarrollo de Técnicas de Muongrafía para Estudios Densitométricos de Objetos de Importancia Estratégica, II" ASUTNBA0018565, running.

2020 "PlomBOX: un dispositivo de metrología de código abierto para combatir la contaminación por plomo en el agua potable mediante sensores biosintéticos" GCRF Award R11178, running.

2019 "Desarrollo de Técnicas de Muongrafía para Estudios Densitométricos de Objetos de Importancia Estratégica" ASUTNBA0005202, running.

2019 "Muongrafía de grandes estructuras" SIIP2019-C035, approved.

2018 "Desarrollo de detectores de radiación" PICT 2018-2886 (Argentina Innovadora 2020) Agencia, approved.

2017 "Desarrollo de detectores de neutrones basados en efecto Cherenkov en agua", SECYT 06/C4863

(UNCuyo, Argentina), approved.

2016 "Astroparticle Detectors", PICT 2015-2428 Grant (Agencia-MinCyT, Argentina), approved.

2010-presente Admission in the Researcher Professors Incentive Programs SPU/ME (Cat V, 2010 call; cat, III 2015 call, current).

2015 Argentina-Colombia Cooperation Project Level II (PCB-II), "Aplicación de Técnicas de Muongrafía para el Estudio de Estructuras Volcánicas de Riesgo", MinCyT-CONICET-COLCIENCIAS: approved.

2014 "Nuclear Interactions Detections in CCDs for Dark Matter Search", PICT 2013-2128 Grant (Agencia-MinCyT, Argentina): finished and approved.

2014 "Teaching-Research Articulation Project" internal proposal for the Universidad Industrial de Santander 2014, with the proposal "Introduction to XXI Century Physics: the best way to learn physics is doing physics" (Director). Status: finished and approved.

2014 "GUANE3^+: Upgrade of the UIS GUANE Array of Water Cherenkov Astroparticle Detectors by the incorporation of plastic scintillators for Space Weather Studies" internal research proposal for the Universidad Industrial de Santander (co-director). Status: finished and approved.

2014 "MuTe: Muon telescope for Volcanic Muongraphy" proposal for the Colombian Council of Science COLCIENCIAS 660/2014 call (researcher). Status: approved (started in 2015).

2014 "Study of the Factibility of Volcanic Muongraphy techniques" proposal for the Colombian Council of Science COLCIENCIAS 653/2014 call (researcher). Status: Selected.

2013 "Generate an Educative Experience under the Citizen Science paradigma as the base for a future MOOC" proposal for FRIDA Foundation 2014 call (researcher). Status: approved.

2013 "The GUANE Array of Astroparticle Detectors for Space Weather Studies" (co-director) internal proposal for the Universidad Industrial de Santander 2013 (co-director). Status: approved.

2008-2019 Posdoctoral fellowship, Universidad Industrial de Santander, Bucaramanga, Colombia. Fellowship awarded by the National Council of Scientific and Technical Investigations (CONICET) to obtain a Ph.D. degree.

2006-2008 Fellowship awarded by the Balseiro Foundation and the National Commission of Atomic Energy (FUNC-CNEA).

2004-2005 Fellowship awarded by the National Commission of Atomic Energy (CNEA) to obtain a Master degree in Physics.

2002-2004 Fellowship awarded by the National Commission of Atomic Energy (CNEA) to obtain a Master to study "Licenciatura en Física" at Instituto Balseiro.

Research & Teaching Activities

Since I have earned my master degree in December 2005, I have been involved in the following projects:

Medical Physics Department, CAB,(2016-Present)

Project manager of the PlomBOX project, an open device to measure lead in water

Astroparticle detection applications (I): development of simulations and detectors for the calculation and measurement of spatial dose distribution in clinical and high-level dose environments.

Development of new artificial-intelligence-based big data analysis, big data curation and big data anonymization.

Head of the Medical Physics Department (GF-GAIYANN-CNEA). Elected by the members of the Department (2017-2021).

ITeDA, CAC,(2018-Present)

Astroparticle detection applications (II): muography of big artificial and geological buildings: applications to volcanic risk assesment, mining prospecting and dams densitometry

Astroparticle simulations applications: application in muography, space weather and new radiation detectors and shielding designs.

Latin American Giant Observatory (LAGO) (2007-Present)

See lagoproject.net

Responsible of the LAGO Thematic Service at the Horizon 2020 EOSC-Synergy project.

Principal Investigator, 2013-2016

Design and execution of the project new organization

Design and coordination of the LAGO Space Weather program

Simulations and data analysis for the detection of transient events (GRB and Forbush events), background radiation and atmospheric physics.

Research, development and building of water-Cherenkov detectors for the LAGO project at Universidad Industrial de Santander and Centro Atómico Bariloche. One of them is currently installed and is operating at the Antarctic Peninsula.

Design and coordination of the experiment "Measurement of Muon Lifetime in Water", done by undergraduate students at Instituto Balseiro.

ANDES Underground Laboratory (2010-2013, 2015-2016, 2018-present)

See www.andeslab.org

Estimation and measurements of the expected backgrounds at the ANDES underground lab due to natural radioactivity and high energy atmospheric muons.

Laboratory design.

Muon veto for the ANDES experiments design

Pierre Auger Observatory (2006-Present)

See www.auger.org

Task leader of the "Cosmo-Geophysics" task of the Pierre Auger Observatory, 2014-2018

Data analysis of the Surface Detector

Extensive Atmospheric Shower Physics

Development of the reconstruction event chain of the Surface Detector

Development and applications of the low energy modes (scaler and histogram modes) of the surface detectors of the Pierre Auger Observatory, for the study of transient events (Gamma Ray Bursts and Forbush events), and short and long term modulation of the galactic cosmic rays flux due to solar activity

CORSIKA and detector simulations, oriented to determine the water-Cherenkov response working in the low energy modes

Data analysis of the weather monitoring system of the Pierre Auger Observatory

Cherenkov Telescope Array (CTA) (2010-2014)

See www.cta-observatory.org

San Antonio de los Cobres site characterization

Research and development of the autonomous station for control and data acquisition of the weather station and sky quality meter installed in San Antonio de los Cobres, Argentina, one of the site candidates for the CTA observatory.

Teaching (2009-Present)

2015-present Associated Professor, Thermodynamics, Cosmology and Astrophysics, Modern Physics A and Wave Physics, Profesorado de Nivel Medio y Superior en Física, Sede Andina, Universidad Nacional de Río Negro (UNRN)

2012-2020 Lecturer of the "La Física del Proyecto LAGO", "Medición de la Vida Media del Muón" y "Simulaciones de Astropartículas" physics courses for graduate and posgraduate physics students. These courses were dictated during the annual meetings of the LAGO collaboration, and are still being dictated by some of my former students at LAGO.

2017-2021 Associated Professor, Astroparticle physics, Particle detection techniques, Double Doctorate in Astrophysics program, Universidad Nacional de San Martín (UNSAM)

2016-2020 Member of the Academic Committee of the Master in Medical Physics program of the Instituto Balseiro, Universidad Nacional de Cuyo (UNC).

2015-2017 Senior Teaching assistant (Jefe de Trabajos Prácticos), "Introduction to nuclear, particle physics and dosimetry" and "Cosmic Rays Physics" (lecturer) courses, Instituto Balseiro, Universidad Nacional de Cuyo (UNC)

2014-2015 Professor, Classical Mechanics (Graduate) and General Astronomy, School of Physics, UIS.

2013-2014 Professor, Introductory Physics course and Introductory Particle Physics course, UIS.

2014 Design and lecture of the course "Astro-meteorology and Climate Change", intended for High Schools teachers, UIS, March 2014.

2013 Professor, Advanced Mathematical Methods for Physics course, UIS.

2009-2012 Senior teaching assistant (Jefe de Trabajos Prácticos), Physics I A & B (introductory physics) course, UNRN.

2010-2012 Teaching assistant, Experimental Physics III and Introduction to nuclear and particle physics courses, Instituto Balseiro, Universidad Nacional de Cuyo (UNC)

Books, chapters and patents

2020 3. H. Asorey, C. Graziosi, A. López Dávalos, Física IA. De las galaxias a los quarks, Colección Lecturas de Cátedra, Editorial UNRN, 334 pg, Viedma, Argentina, ISBN 978-987-4960-29-0, 2020

2020 2. H. Asorey, I. Sidelnik, J.J. Blostein, M. Gómez Berisso, J. Lipovetzky, M. Sofo Haro; M. Pérez; L.H. Arnaldi; F. Alcalde, PCT/IB2020/050869: "Usage of Water Cherenkov Detectors for the detection of Neutrons and Gamma Radiation"

2019 1. H. Asorey, I. Sidelnik, J.J. Blostein, M. Gómez Berisso, J. Lipovetzky, M. Sofo Haro; M. Pérez; L.H. Arnaldi; F. Alcalde, AR20190100279: "DETECTOR DE NEUTRONES Y RADIACIÓN GAMMA MEDIANTE EL EMPLEO DE UN DETECTOR CHERENKOV EN AGUA"

Human Resources Training

Underway

2021 Posdoc fellowship advisor "Estudios de aplicación de técnicas de detección de radiación cósmica para la detección materiales con alto número atómico", Dr. Christian Sarmiento-Cano at the ITeDA, Argentina.

2021 PhD thesis advisor "Estudios de aplicación de técnicas de detección de radiación cósmica para la detección de radiación gamma y materiales con alto número atómico", Johan Serrano Contreras at the Instituto Sábato, Universidad Nacional de San Martín, Argentina.

2020 Posdoc fellowship advisor "Caracterización de Experimentos de Búsqueda de Materia Oscura y Física de Neutrinos con proyección al Laboratorio Subterráneo ANDES", Dr. Álvaro Taboada at the ITeDA, Argentina.

2019 PhD double doctoral thesis in Physics co-advisor "Performance of the Upgraded Surface Detector of the Pierre Auger Observatory", Alexander Streich at the Universidad Nacional de San Martín, Argentina and Karlsruher Instituts für Technologie (KIT), Germany.

2018 PhD thesis advisor "Desarrollo de Técnicas de Muongrafía para Estudios Densitométricos de Objetos de Importancia Estratégica", Rolando Calderón Ardila at the Instituto Sábato, Universidad Nacional de San Martín, Argentina.

Completed

2021 PhD thesis co-advisor "Diseño y calibración de un telescopio de muones híbrido para estudios vulcanológicos", Jesús Peña Rodríguez at the Universidad Industrial de Santander (UIS), Bucaramanga, Colombia. Qualification 5/5 Thesis awarded with a Honorific Mention at UIS.

2020 Physics thesis advisor "Estimación del flujo de muones en el laboratorio subterráneo ANDES", Lic. Carmina Perez Bertolli, at the Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Buenos Aires (UBA), Qualification 10/10. Winner of the 2020 Masperi Prize, awarded to the best Undergraduate Thesis in Physics presented at the 105th Annual Meeting of the Argentinian Physics Association, Córdoba, Argentina, 2020.

2019 PhD thesis coadvisor "Variaciones del flujo de radiación cósmica en el suelo y en escenarios geofísicos", Mauricio Suárez Durán at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Qualification 5/5

2017 Master in Sciences thesis co-advisor "Eficiencia de un detector Cherenkov en agua para la detección de neutrones", Nicolás Guarín at the Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina. Qualification 10/10

2015 Master in Physis thesis advisor "Aplicaciones en Meteorología Espacial de los Datos del Proyecto LAGO", Yunior Perez at the Physics Department, Universidad de los Andes, Mérida, Venezuela, Qualification 20/20, Thesis Awarded with a Publication Mention (Honored Mention) at ULA .

2015 Master in Physis thesis advisor of "Búsqueda de Fuentes de Astropartículas en los Datos de la Colaboración LAGO", Christian Sarmiento-Cano at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Qualification 5/5, Thesis Awarded with the Meritorious Mention.

2015 Master in Physis thesis advisor of "Modulación de Rayos Cósmicos Galácticos a nivel del suelo por cambios en el Campo Geomagnético y aplicaciones a Meteorología Espacial en el Proyecto LAGO", Mauricio Suárez Durán at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Qualification 5/5, Thesis Awarded with a Meritorious Mention.

2015 Physics thesis advisor of "Meteorología Espacial y la Navegación Aérea", Sergio Pinilla at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Qualification 5/5, Award-winning thesis.

2015 Physics thesis advisor "Sensibilidad del Proyecto LAGO a Señales Gamma provenientes del Centro de la Galaxia", Arturo Núñez at the Physics Department, Universidad de los Andes, Mérida, Venezuela, Qualification 20/20.

2015 Physics thesis advisor "Método de *Thinning* y *Dethinning* para Lluvias de Primarios de Alta Energía", Alex Estupiñán at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia, Qualification 5/5, Award-winning thesis.

2015 Physics thesis advisor "Simulación de los detectores Cherenkov en agua de la colaboración LAGO", Rolando Calderón Ardila at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia, Qualification 4.8/5.

2014

System Engineering thesis advisor "Visualización de Cascadas de Rayos Cósmicos sobre GPUs", Rafael Laverde at the School of System Engineering, Universidad Industrial de Santander, Bucaramanga, Colombia, Qualification 4.8/5.

2014 Physics thesis advisor "Estudios de la Respuesta del Arreglo de Detectores de Superficie del Observatorio Pierre Auger de Rayos Cósmicos", Lic. Jonathan David Bossio Solá, at the Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Buenos Aires (UBA), Qualification 10/10.

Referee

2021 Double Doctoral thesis in Physics referee at the Karlsruher Institut für Technologie (KIT, Karlsruhe Institute of Technology), Karlruhe, Alemania, and the Instituto Sábato, Universidad Nacional de San Martín; Dr Martin Schimassek.

2020 Master in Physics referee at the Instituto Balseiro, Universidad Nacional de Cuyo (UNC), San Carlos de Bariloche, Argentina, Franco Cometto.

2020 Master in Medical Physics referee at the Instituto Balseiro, Universidad Nacional de Cuyo (UNC), San Carlos de Bariloche, Argentina, Ian Pasquevich.

2020 Master in Physics referee at the Instituto Balseiro, Universidad Nacional de Cuyo (UNC), San Carlos de Bariloche, Argentina, Micaela Kortsarz.

2020 Master in Physics referee at the Instituto Balseiro, Universidad Nacional de Cuyo (UNC), San Carlos de Bariloche, Argentina, Nicolás Ávalos

2018 Double Doctoral thesis in Physics referee at the Karlsruher Institut für Technologie (KIT, Karlsruhe Institute of Technology), Karlruhe, Alemania, and the Instituto Sábato, Universidad Nacional de San Martín; Dr Sarah Müller.

2018 Doctoral thesis in Physics referee at the Instituto Balseiro, Universidad Nacional de Cuyo (UNC), San Carlos de Bariloche, Argentina, María da Fonseca.

2017 Licenciado en Física thesis referee at the Departamento de Física, Universidad Nacional de Buenos Aires, Buenos Aires Argentina, Yanina Biondi.

2017 Master in Medical Physics thesis referee at the Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina, Melisa Jimenez.

2017 Master in Medical Physics thesis referee at the Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina, David Tolabin.

2017 Doctoral thesis in Physics referee at the Karlsruher Institut für Technologie (KIT, Karlsruhe Institute of Technology), Karlruhe, Alemania, and the Instituto Sábato, Universidad Nacional de San Martín; Dr Martin Schimassek, Lukas Niemietz.

2017 Doctoral thesis in Physics proposal referee at the Escuela de Fisica, Universidad Industrial de Santander (UIS), Bucaramanga, Colombia, Anamaría Navarro.

2017 Alternate referee of Regular Professor call 504593/15 in the Physics Department at the Universidad de Buenos Aires (UBA), Buenos Aires, Argentina.

2017 Doctoral thesis in Physics referee at the Universidad de Buenos Aires (UBA), Buenos Aires, Argentina, Federico Izraelevitch.

2017 Doctoral thesis in Physics referee at the Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Aliné Galindo Téllez.

2014 Undergraduate thesis in Physics referee at the Escuela de Física, Universidad Industrial de Santander, Bucaramanga, Colombia, Juan Felipe Zárate Chahin.

2014 Undergraduate thesis in Physics referee at the Escuela de Física, Universidad Industrial de Santander, Bucaramanga, Colombia, Harold Andréz Peña Herazo.

2012 Master in Physics thesis referee at the Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina, Lucas Micheletti.

2012 Master in Physics thesis referee at the Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina, Manuel Gonzalez.

2012 Undergraduate thesis in Physics referee at the Escuela de Física, Universidad Industrial de Santander, Bucaramanga, Colombia, Christian Sarmiento Cano.

Publications

Selected Works

This list is a personal selection of the published works I have been directly involved. In the appendix I include a complete list of publications and presentations at Congresses and Conferences.

2022 100. C. Sarmiento-Cano, M. Suárez-Durán, R. Calderón-Ardila, A. Vásquez-Ramírez, A. Jaimes-Motta, S. Dasso, I. Sidelnik, L. A. Núñez, H. Asorey, for the LAGO Collaboration, The ARTI Framework: Cosmic Rays Atmospheric Background Simulations Eur. J. Phys C submitted (2022) arXiv:2010.14591[astro-ph.IM]

2022 99. A Taboada, C Sarmiento-Cano, A Sedoski, H AsoreyMeiga, a Dedicated Framework Used for Muography Applications, J. Adv. Inst. Sci. **2022** 01 (2022)

2022 98. C. Pérez Bertolli, C. Sarmiento-Cano and H. Asorey, Estimación del Flujo de Muones en el Laboratorio Subterráneo ANDES, ANALES AFA **32** (4) 106–111 (2022). Másperi Price 2020 .

2022 97. A. Días for the TRACE Collaboration, PlomBOX - development of a low-cost CMOS device for environmental monitoring, in Proceedings of the 17 International Conference on Environmental Science & Technology, 2021, Athens, Greece, in press , (2022). arXiv:2201.03348[physics.ins-det]

2022 96. R. Calderon-Ardila, H. Asorey, A. Almela, A. Sedoski, C. Varela, N. Leal and M. Gomez-Berisso Development of Mudulus, a Muography detector based on double-synchronized electronics for Geophysical applications, J. Adv. Inst. Sci. submitted , (2022)

2022 95. J. Peña-Rodríguez, P. A. Salgado-Meza, H. Asorey, L. A. Núñez, A. Núñez-Castiñeyra, C. Sarmiento-Cano, M. Suárez-Durán RACIMO@Bucaramanga: A Citizen Science Project on Data Science and Climate Awareness, JINST submitted , (2022). arXiv:2203.05431[astro-ph.IM]

2022 94. J. Peña-Rodríguez, A. Vesga-Ramírez, A. Vásquez-Ramírez, M. Suárez-Durán, R. de León-Barrios, D. Sierra-Porta, R. Calderón-Ardila, J. Pisco-Guavabe, H. Asorey, J. D. Sanabria-Gómez, L. A. Núñez Muography in Colombia: simulation framework, instrumentation and data analysis, J. Adv. Inst. Sci. in press , (2022). arXiv:2201.11160[astro-ph.IM]

2021 93. A.J. Rubio-Montero, R. Pagán-Muñoz, R. Mayo-García, A. Pardo-Diaz, I. Sidelnik, H. Asorey, A Novel Cloud-Based Framework For Standardized Simulations In The Latin American Giant Observatory (LAGO), in IEEE Proceedings of the 2021 Winter Simulation Conference (WSC), (2021). arXiv:2204.02716[astro-ph.IM]

2021 92. H. Asorey for the MuAr group (A. Almela et al), Muography developments within the MuAR project: advances in simulations and new detectors designs, in International Workshop on Cosmic-Ray Muography (Muography2021), Ghent, Belgium, 2021.

2021 91. H. Asorey, R. Calderón-Ardila, R. Mayo-García, L.A. Núñez, R. Pagán-Muñoz, A.J. Rubio-Montero, C. Sarmiento-Cano, I. Sidelnik, M. Suárez-Durán and A. Taboada, for the LAGO Collaboration, Extensive Air Showers Simulations: Applications to Geophysics and Astroparticle Physics, in XII Latin American Conference on Space Geophysics (COLAGE 2021), Villarrica, Chile, 2021.

2021 90. A.J. Rubio-Montero, R. Pagán-Muñoz, R. Mayo-García, A. Pardo-Diaz, I. Sidelnik, H. Asorey for the LAGO Collaboration, The EOSC-Synergy cloud services implementation for the Latin American Giant Observatory (LAGO), in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)261, Berlín, Germany, 2021.

2021 89. L. Otiniano, H. Asorey, C. Sarmiento-Cano, I. Sidelnik and M. Suárez-Duran for the LAGO Collaboration, Simultaneous particles influence on the LAGO's Water Cherenkov Detectors signals, in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)267, Berlín, Germany, 2021.

2021 88. R de Leon-Barrios, J Peña-Rodríguez, JD Sanabria-Gómez, A Vásquez-Ramírez, R Calderón-Ardila, C Sarmiento-Cano, A Vesga-Ramirez, D Sierra-Porta, M Suárez-Durán, H Asorey, Luis A Núñez Muography for the Colombian Volcanoes, in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)280, Berlín, Germany, 2021.

2021 87. J Peña-Rodríguez, R de León-Barrios, A Ramírez-Muñóz, D Villabona-Ardila, M Suárez-Durán, A Vásquez-Ramírez, H Asorey, LA Núñez, Muography background sources: simulation, characterization, and machine-learning rejection, in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)400, Berlín, Germany, 2021.

2021 86. J Peña-Rodríguez, R de León-Barrios, A Ramírez-Muñóz, D Villabona-Ardila, M Suárez-Durán, A Vásquez-Ramírez, H Asorey, LA Núñez, Muography background sources: simulation, characterization, and machine-learning rejection, in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)400, Berlín, Germany, 2021.

2021 85. C. Sarmiento-Cano, H. Asorey, J. Sacahui, L. Otiniano, I. Sidelnik for the LAGO Collaboration, The Latin American Giant Observatory (LAGO) capabilities for detecting Gamma Ray Bursts, in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)929, Berlín, Germany, 2021.

2021 84. N.A. Santos, S. Dasso, A.M. Gulisano, O. Areso, M. Pereira and H. Asorey for the LAGO Collaboration, Observations of the cosmic ray detector at the Argentine Marambio base in the Antarctic Peninsula, in Proc. 37th International Cosmic Ray Conference ICRC2021, PoS(ICRC2021)304, Berlín, Germany, 2021.

2021 83. A Vesga-Ramírez, JD Sanabria-Gómez, D Sierra-Porta, L Arana-Salinas, H Asorey, VA Kudryavtsev, R Calderón-Ardila, LA Núñez, Simulated Annealing for Volcano Muography, Journal of South American Earth Sciences **109** 103248 (2021) arXiv:2005.08295[physics.geo-ph]

2021 82. J. Sánchez-Villafrades, J. Peña-Rodríguez, H. Asorey, L. A. Núñez, Characterization and on-field performance of the MuTe Silicon Photomultipliers JINST submitted (2021) arXiv:2102.01119[physics.ins-det]

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Organising & other Academic Activities

2022 Chair of the scientific committee of the XIII LAGO Workshop Tucumán 2022, San Miguel de Tucumán, Argentina, 2022.

2019 Chair of the organizing committee of the first school CELFI FIMET: *Updates in Oncology: an interdisciplinary perspective of cancer diagnosis, treatment, and research*, ONCO-2019, San Carlos de Bariloche

2018 Coordinator and member of the Commitee of the Latinoamerican Centre for Interdisciplinary Training (CELFI) in Traslational Medical Physics (CELFI-FIMET) at Instituto Balseiro and Centro Atómico Bariloche.

2018 As the head of the medical physics department, I was selected by Instituto Balseiro and Comisión Nacional de Energía Atómica to make the proposal and manage the creation of a new Latin American Centers for Interdisciplinary Training (CELFI) dedicated to the training and education of students, undergraduate, postgraduate and young Latin American researchers in Translational Medical Physics (CELFI-FIMET).

2016 Member of the local organising committee of the "Escuela Jose Antonio Balseiro 2016: Nuevas Tendencias de Investigación en Física Médica", Instituto Balseiro, Centro Atómico Bariloche, Bariloche, Argentina, 03-28 Oct. 2016.

2014 Chair of the local organising committee of the Auger Annual Meeting, Malargüe, Argentina, Noviembre 2014.

2011 Member of the local organising committee of the "First International Workshop for the Design of the ANDES Underground Laboratory", Centro Atómico Constituyentes, Buenos Aires, Argentina, 11-14 April 2011.

2010 Member of the local organising committee of the "XI ICFA School on Instrumentation in Elementary Particle Physics", San Carlos de Bariloche, Argentina, Jan 2010.

2010 Member of the local organising committee of the "95ª Reunión Nacional de Física de la Asociación Argentina de Física", Malargüe, Argentina, Sept-Oct 2010.

2009 Member of the local organising committee of the "VII Simposio Latinoamericana de Física de Altas Energías SILAFAE 2009", San Carlos de Bariloche, Argentina, Jan 2009.

2017-2020 Member of the Master in Medical Physics Academic Committee at Instituto Balseiro, Universidad Nacional de Cuyo.

2005 Member of the Instituto Balseiro Academic Council, elected by the Physics students.

Outreach & Complementary Activities

2020 H. Asorey, Energía, Sociedad de Consumo y Cambio Climático, Ciclo de charlas organizadas por el grupo Halley de Astronomía y Ciencias Aeroespaciales durante la pandemia del COVID-19.

2017-2018 H. Asorey, Energía, Humanidad y Cambio Climático, Ciclo de charlas en escuelas de educación media, San Carlos de Bariloche, Argentina.

2015 H. Asorey, Energía, Humanidad y Cambio Climático, "XIII Semana Nacional de la Ciencia y la Tecnología", Sede Andina, Universidad Nacional de Río Negro, Bariloche, Argentina.

2015 H. Asorey & A. Cutsaimanis, "¿Qué onda con las ondas?", Training course for Secondary School Teachers Instituto Nacional de Formación Docente (INFOD), Ministerio de Educación, Viedma, Río Negro. Role: professor and trainer.

2009-2015 H. Asorey, Física ReConocida Physics blog in spanish and facebook group.

2013-2014 H. Asorey & L. Núñez, Física para todos, Introductory physics blog, School of Physics, Universidad Industrial de Santander.

2014 H. Asorey, *Energía, Humanidad y Cambio Climático*, "Café Científico", La Casa del Libro Total, Bucaramanga, Colombia

2011 H. Asorey & A. López Dávalos, *Fermi Problem: Power developed at the eruption of the Puyehue-Cordón Caulle volcanic system in June 2011*, arXiv:1109.1165v1[physics.ed-ph]. Selected as the best arXiv paper of September 2011 by the M.I.T. Technology Review Physics arXiv Blog, (2011)

2011 H. Asorey, A. Clúa, A. López Dávalos Cien millones de toneladas en un sólo día, Clarín (national circulation newspaper), 2011. Reproduced in hundreds of Argentinian and international newspapers and media.

2011 H. Asorey, *Viviendo con una estrella*, Solar physics and space weather phenomena talk, oriented to general public and high-school students of the Rio Negro Province. Start: March-2011

2010 *Distinguen trabajo de Investigadores del Centro Atómico Bariloche* (H. Asorey, X. Bertou, M. Gómez Berisso), El Cordillerano, Bariloche 2000 y ANBariloche.

2010 Laura García, *Red Latinoamericana de Detectores para Estudiar Radiación Gamma* (H. Asorey, X. Bertou, M. Gómez Berisso), El Cordillerano, Bariloche 2000 y ANBariloche, 2010.

2009 H. Asorey, *Astrophysics for everyone*, bimonthly column in the "Nature and technology" local magazine.

2008 H. Asorey, *The Pierre Auger Observatory: a look to the Universe to the highest energies*, invited general public talk, National University of Quilmes, Argentina, April 2008.

Additional Information

Languages: Spanish (Native); English (C1); French (A1); Chinese (beginner)

Computing skills: Computing at High Performance Computing and cloud-based computing environments.

Programming skills: C/C++, Python, HTML, PHP, Perl, SQL, and Bash.

Technical computing and data analysis software skills: root, gnuplot, Mathematica, AutoCAD engineering design software. Big Data, FAIR paradigm, and Machine Learning.

References

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Prof. Analía Cutsaimanis (acutsaimanis@unrn.edu.ar)

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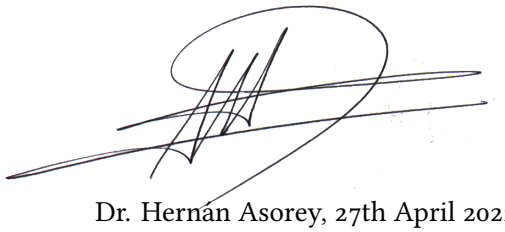

Dr. Hernán Asorey, 27th April 2022

Appendix: Complete list of publications

Complete list of Journal papers

2022 127. C. Sarmiento-Cano, M. Suárez-Durán, R. Calderón-Ardila, A. Vásquez-Ramírez, A. Jaimes-Motta, S. Dasso, I. Sidelnik, L. A. Núñez, H. Asorey, for the LAGO Collaboration, The ARTI Framework: Cosmic Rays Atmospheric Background Simulations Eur. J. Phys C submitted (2022) arXiv:2010.14591[astro-ph.IM]

2022 126. R. Calderon-Ardila, H. Asorey, A. Almela, A. Sedoski, C. Varela, N. Leal and M. Gomez-Berisso Development of Mudulus, a Muography detector based on double-synchronized electronics for Geophysical applications, J. Adv. Inst. Sci. submitted , (2022)

2022 125. A Taboada, C Sarmiento-Cano, A Sedoski, H AsoreyMeiga, a Dedicated Framework Used for Muography Applications, J. Adv. Inst. Sci. **2022** 01 (2022)

2022 124. J. Peña-Rodríguez, P. A. Salgado-Meza, H. Asorey, L. A. Núñez, A. Núñez-Castiñeyra, C. Sarmiento-Cano, M. Suárez-Durán RACIMO@Bucaramanga: A Citizen Science Project on Data Science and Climate Awareness, JINST submitted , (2022). arXiv:2203.05431[astro-ph.IM]

2022 123. J. Peña-Rodríguez, A. Vesga-Ramírez, A. Vásquez-Ramírez, M. Suárez-Durán, R. de León-Barrios, D. Sierra-Porta, R. Calderón-Ardila, J. Pisco-Guavabe, H. Asorey, J. D. Sanabria-Gómez, L. A. Núñez Muography in Colombia: simulation framework, instrumentation and data analysis, J. Adv. Inst. Sci. in press , (2022). arXiv:2201.11160[astro-ph.IM]

2022 122. The Pierre Auger Collaboration, Testing effects of Lorentz invariance violation in the propagation of astroparticles with the Pierre Auger Observatory JCAP **01** (2022) 023 arXiv:2112.06773[astro-ph.HE]

2021 121. The Pierre Auger Collaboration, The energy spectrum of cosmic rays beyond the turn-down around 10^{17} eV as measured with the surface detector of the Pierre Auger Observatory Eur. Phys. J. **C81** 966 (2021)

2021 120. A Vesga-Ramírez, JD Sanabria-Gómez, D Sierra-Porta, L Arana-Salinas, H Asorey, VA Kudryavtsev, R Calderón-Ardila, LA Núñez, Simulated Annealing for Volcano Muography, Journal of South American Earth Sciences **109** 103248 (2021) arXiv:2005.08295[physics.geo-ph]

2021 119. J. Sánchez-Villafrades, J. Peña-Rodríguez, H. Asorey, L. A. Núñez, Characterization and on-field performance of the MuTe Silicon Photomultipliers JINST submitted (2021) arXiv:2102.01119[physics.ins-det]

2021 118. The Pierre Auger Collaboration, Design and implementation of the AMIGA embedded system for data acquisition JINST **16** T07008 (2021) arXiv:2101.11747[astro-ph.IM]

2021 117. The Pierre Auger Collaboration, Deep-learning based reconstruction of the shower maximum Xmax using the water-Cherenkov detectors of the Pierre Auger Observatory JINST **16** P07019 (2021) arXiv:2101.02946[astro-ph.IM]

2021 116. The Pierre Auger Collaboration, Extraction of the muon signals recorded with the surface detector of the Pierre Auger Observatory using recurrent neural networks JINST **16** P07016 (2021) arXiv:2103.11983[hep-ex]

2021 115. The Pierre Auger Collaboration, The FRAM robotic telescope for atmospheric monitoring at the Pierre Auger Observatory JINST **16** P06027 (2021) arXiv:2101.11602[astro-ph.IM]

2021 114. The Pierre Auger Collaboration, Measurement of the Fluctuations in the Number of Muons in Extensive Air Showers with the Pierre Auger Observatory Phys. Rev. Lett. **126** 152002 (2021) arXiv:2102.07797[hep-ex]

2021 113. The Pierre Auger Collaboration, Calibration of the underground muon detector of the Pierre Auger Observatory JINST **16** P04003 (2021) arXiv:2012.08016[astro-ph.IM]

2021 112. The Pierre Auger Collaboration, Design, upgrade and characterization of the silicon photomultiplier front-end for the AMIGA detector at the Pierre Auger Observatory JINST **16** P01026 (2021) arXiv:2011.06633[astro-ph.IM]

2020 111. The Pierre Auger Collaboration, Reconstruction of Events Recorded with the Surface Detector of the Pierre Auger Observatory JINST **15** P10021 (2020) arXiv:2007.04139[astro-ph.IM]

2020 110. The Pierre Auger Collaboration, A Search for Ultra-high-energy Neutrinos from TXS 0506+056 Using the Pierre Auger Observatory ApJ **902** 105 (2020) arXiv:2010.10953[astro-ph.HE]

2020 109. The Pierre Auger Collaboration, Features of the cosmic-ray energy spectrum above 2.5×10^{18} eV using the Pierre Auger Observatory Phys. Rev. Lett. **125** 121106 (2020) arXiv:2008.06488[astro-ph.HE]

2020 108. The Pierre Auger Collaboration, Measurement of the cosmic-ray energy spectrum above 2.5×10^{18} eV using the Pierre Auger Observatory Phys. Rev. **D 102** 062005 (2020) arXiv:2008.06486[astro-ph.HE]

2020 107. The Pierre Auger Collaboration, The Pierre Auger Observatory and its Upgrade Sci. Rev. End World **1** (4) 31 (2020)

2020 106. The Pierre Auger Collaboration, Studies on the response of a water-Cherenkov detector of the Pierre Auger Observatory to atmospheric muons using an RPC hodoscope JINST **15** P09002 (2020) arXiv:2007.04139[astro-ph.IM]

2020 105. The Pierre Auger Collaboration, Direct measurement of the muonic content of extensive air showers between 2×10^{17} and 2×10^{18} eV at the Pierre Auger Observatory Eur. Phys. J. **C80** 751 (2020)

2020 104. The Pierre Auger Collaboration, Search for magnetically-induced signatures in the arrival directions of ultra-high-energy cosmic rays measured at the Pierre Auger Observatory JCAP **2020** (06) 017 (2020) arXiv:2004.10591[astro-ph.HE]

2020 103. J Peña-Rodríguez, J Pisco-Guabave, D Sierra-Porta, M Suárez-Durán, M Arenas-Flórez, LM Pérez-Archila, JD Sanabria-Gómez, LA Núñez & H Asorey, Design and construction of MuTe: a hybrid Muon Telescope to study Colombian Volcanoes, JINST **15** P09006 (2020) arXiv:2004.09364[physics.ins-det]

2020 102. The Pierre Auger Collaboration, A 3-Year Sample of Almost 1,600 Elves Recorded Above South America by the Pierre Auger Cosmic-Ray Observatory, Earth and Space Science 7(4) e2019EA000582 (2020)

2020 101. The Pierre Auger Collaboration, Cosmic-Ray Anisotropies in Right Ascension Measured by the Pierre Auger Observatory , ApJ **891**(2) 142 (2020) arXiv:2002.06172[astro-ph.HE]

2020 100. Iván Sidelnik, Hernán Asorey, Nicolás Guarin, Mauricio Suaréz Durán, José Lipovetzky, Luis Horacio Arnaldi, Martín Pérez, Miguel Sofo Haro, Mariano Gómez Berisso, Fabricio Alcalde Bessia *&* Juan Jerónimo Blostein, Enhancing neutron detection capabilities of a water Cherenkov detector, NIM **A955** 163172 (2020)

2020 99. Iván Sidelnik, Hernán Asorey, Nicolás Guarin, Mauricio Suaréz Durán, Mariano Gómez Berisso, José Lipovetzky *&* Juan Jerónimo Blostein, Simulation of 500 MeV neutrons by using NaCl doped Water Cherenkov detector, Adv. Space Res. **65**(9) 2216-2222 (2020)

2020 98. Iván Sidelnik, Hernán Asorey, Nicolás Guarin, Mauricio Suaréz Durán, Fabricio Alcalde Bessia, Luis Horacio Arnaldi, Mariano Gómez Berisso, José Lipovetzky, Martín Pérez, Miguel Sofo Haro *&* Juan Jerónimo Blostein, Neutron detection capabilities of Water Cherenkov Detectors, NIM **A952** 161962 (2020)

2020 97. A Vásquez-Ramírez, M Suárez-Durán, A Jaimes-Motta, R Calderón-Ardila, J Peña-Rodríguez, J Sánchez-Villafrades, JD Sanabria-Gómez, L. A. Núñez *&* H Asorey, Simulated Response of MuTe, a Hybrid Muon Telescope, JINST **15** O8004 (2020) arXiv:1912.10081[physics.ins-det]

2019 96. The Pierre Auger Collaboration, Limits on point-like sources of ultra-high-energy neutrinos with the Pierre Auger Observatory, JCAP **2019**(11) 004 (2019) arXiv:1906.07419[astro-ph.HE]

2019 95. The Pierre Auger Collaboration, Data-driven estimation of the invisible energy of cosmic ray showers with the Pierre Auger Observatory, PRD **100**082003 (2019) arXiv:1901.08040[astro-ph.IM]

2019 94. The Pierre Auger Collaboration, Probing the origin of ultra-high-energy cosmic rays with neutrinos in the EeV energy range using the Pierre Auger Observatory, JCAP **2019**(10) 022 (2019) arXiv:1906.07422[astro-ph.HE]

2019 93. The Pierre Auger Collaboration, Measurement of the average shape of longitudinal profiles of cosmic-ray air showers at the Pierre Auger Observatory, JCAP **2019**(03) 018 (2019) arXiv:1811.04660[astro-ph.HE]

2018 92. H Asorey, R Calderón-Ardila, K Forero-Gutiérrez, et al., miniMuTe: A muon telescope prototype for studying volcanic structures with cosmic ray flux, Scientia et technica **23**(3) 386-391 (2018) arXiv:1811.04660[astro-ph.HE]

2018 91. H. Asorey, R. Calderón-Ardila, C. R. Carvajal-Bohorquez, et al Astroparticle projects at the Eastern Colombia region: facilities and instrumentation, Scientia et technica **23**(3) 392–397 (2018)

2018 90. The Pierre Auger Collaboration, Large-scale cosmic-ray anisotropies above 4 EeV measured by the Pierre Auger Observatory, APJ **868**(1) 4 (2018) arXiv:1808.03579[astro-ph.IM]

2018 89. The Pierre Auger Collaboration, Observation of inclined EeV air showers with the radio detector of the Pierre Auger Observatoryi, JCAP **2018**(10) 026 (2018) arXiv:1806.05386[astro-ph.IM]

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2018 87. H. Asorey, L. A. Núñez, M. Suarez-Duran Preliminary Results from The Latin American Giant Observatory Space Weather Simulation Chain Space Weather **16**(5) 461–475 (2018) arXiv:1802.08867[physics.geo-ph]

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2017 85. The Pierre Auger Collaboration, Inferences on mass composition and tests of hadronic interactions from 0.3 to 100 EeV using the water-Cherenkov detectors of the Pierre Auger Observatory, Phys. Rev. D **96** 122003 (2017) arXiv:1710.07249[astro-ph.HE]

2017 84. The Pierre Auger Collaboration, Observation of a large-scale anisotropy in the arrival directions of cosmic rays above 8×10^{18} eV, Science **357**(6357) 1266–1270 (2017) arXiv:1709.07321[astro-ph.HE]

2017 83. The Pierre Auger Collaboration, Calibration of the Logarithmic-Periodic Dipole Antenna (LPDA) Radio Stations at the Pierre Auger Observatory using an Octocopter, JINST **12** T10005 (2017) arXiv:1702.01392[astro-ph.IM]

2017 82. The Pierre Auger Collaboration, Spectral calibration of the fluorescence telescopes of the Pierre Auger Observatory, Astropart Phys **95** 44–56 (2017) arXiv:1709.01537[astro-ph.IM]

2017 81. The Pierre Auger Collaboration, Combined fit of spectrum and composition data as measured by the Pierre Auger Observatory, JCAP**04** 038 (2017) arXiv:1612.07155[astro-ph.HE]

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2017 79. The Pierre Auger Collaboration, Muon counting using silicon photomultipliers in the AMIGA detector of the Pierre Auger observatory JINST **12** P03002 (2017) arXiv:1703.06193[astro-ph.IM]

2017 78. I. Sidelnik *&* H. Asorey, LAGO: the Latin American Giant Observatory, NIM-A **876** 173–175 (2017) arXiv:1703.05337[astro-ph.IM]

2017 77. I. Sidelnik, H. Asorey, J. J. Blostein *&* M. Gómez Berisso, Neutron Detection Using a Water Cherenkov Detector with Pure Water and a Single PMT, NIM-A **876** 153–155 (2017)

2017 76. The Pierre Auger Collaboration, Impact of atmospheric effects on the energy reconstruction of air showers observed by the surface detectors of the Pierre Auger Observatory JINST **12** P02006 (2017) arXiv:1702.02835[astro-ph.IM]

2017 75. The Pierre Auger Collaboration, Ultrahigh-energy neutrino follow-up of gravitational wave events GW150914 and GW151226 with the Pierre Auger Observatory Phys. Rev. **D94** 122007 (2016) arXiv:1608.07378[astro-ph.HE]

2017 74. The Pierre Auger Collaboration, Multi-resolution anisotropy studies of ultrahigh-energy cosmic rays detected at the Pierre Auger Observatory JCAP **06** 026 (2017) arXiv:1611.06812[astro-ph.HE]

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2016 65. The Pierre Auger Collaboration, Measurement of the Radiation Energy in the Radio Signal of Extensive Air Showers as a Universal Estimator of Cosmic-Ray Energy Phys. Rev. Lett. **116**, 241101 (2016) arXiv:1605.02564[astro-ph.HE]

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2016 63. The Pierre Auger Collaboration, Search for correlations between the arrival directions of IceCube neutrino events and ultrahigh-energy cosmic rays detected by the Pierre Auger Observatory and the Telescope Array JCAP **01** 037 (2016) arXiv:1511.09408[astro-ph.HE]

2015 62. The Pierre Auger Collaboration, Measurement of the cosmic ray spectrum above 4×10^{18} eV using inclined events detected with the Pierre Auger Observatory JCAP **08** 049 (2015) arXiv:1503.07786[astro-ph.HE]

2015 61. The Pierre Auger Collaboration, The Pierre Auger Cosmic Ray Observatory NIM **A 798** 172–213 (2015) arXiv:1502.01323[astro-ph.HE]

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2015 57. The Pierre Auger Collaboration, Search for patterns by combining cosmic-ray energy and arrival directions at the Pierre Auger Observatory Eur. Phys. J., **C75** 269 (2015) arXiv:1410.0515[astro-ph.HE]

2015 56. The Pierre Auger Collaboration, Muons in air showers at the Pierre Auger Observatory: Mean number in highly inclined events Phys. Rev. **D91** 3, 032003 (2015) arXiv:1408.1421[astro-ph.HE], Errata: Phys. Refv. **D91** 059901 (2015)

2014 55. The Pierre Auger Collaboration, Depth of maximum of air-shower profiles at the Pierre Auger Observatory: II. Composition implications Phys. Rev. **D90** 12, 122006 (2014) arXiv:1409.5083[astro-ph.HE]

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2014 53. H. Asorey, J.I. Castro & A. López Dávalos, Una deducción analítica simple de la hodógrafa para el problema de Kepler, Rev. Ens. Fís. **26**(1), 63-73 (2014).

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2014 51. The Pierre Auger Collaboration, Muons in air showers at the Pierre Auger Observatory: Measurement of atmospheric production depth Phys. Rev. D **90**(1), 012012 (2014) arXiv:1407.5919[astro-ph.HE]

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2014 49. The Pierre Auger Collaboration, A Targeted Search for Point Sources of EeV Neutrons, Astrophys. J. Letters **789**(2), L34 (2014)

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2014 47. The Pierre Auger Collaboration, Origin of atmospheric aerosols at the Pierre Auger Observatory using studies of air mass trajectories in South America, Atmospheric Research **149**, 120-135 (2014)

2014 46. The Pierre Auger Collaboration, Probing the radio emission from air showers with polarization measurements, Phys. Rev. **D89** 052002 (2014)

2013 45. The Pierre Auger Collaboration, Identifying clouds over the Pierre Auger Observatory using infrared satellite data, Astrop. Phys **50** 92–101 (2013)

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2013 41. The Pierre Auger Collaboration, Ultra-High Energy Neutrinos at the Pierre Auger Observatory, AHEP, 2013:708680, 18 pp (2013)

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2013 39. The Pierre Auger Collaboration, Constraints on the origin of cosmic rays above 10^{18} eV from large scale anisotropy searches in data of the Pierre Auger Observatory, ApJL, **762** (1) L13 (2013), arXiv:1212.3083v1[astro-ph.HE]

2012 38. The Pierre Auger Collaboration, Large scale distribution of arrival directions of cosmic rays detected above 10^{18} eV at the Pierre Auger Observatory, ApJS **203** (2) 34 (2012)

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2012 35. The Pierre Auger Collaboration, Antennas for the detection of radio emission pulses from cosmic-ray induced air showers at the Pierre Auger Observatory, JINST **7** P10011–P10022 (2012)

2012 34. The Pierre Auger Collaboration, The rapid atmospheric monitoring system of the Pierre Auger Observatory, JINST **7** P09001–P09014 (2012)

2012 33. The Pierre Auger Collaboration, Measurement of the Proton-Air Cross Section at $\sqrt{s} = 57$ TeV with the Pierre Auger Observatory, PRL **109** 062002–062011 (2012)

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2018 70. Participante en el I Simposio Argentino de Radiocirugía AAR 2018, Universidad de Buenos Aires, Agosto 2018.

2018 69. H. Asorey, R. Calderón-Ardila, L.A. Núñez, J. Peña-Rodríguez, J. Pisco, J.D. Sanabria Gómez, C. Sarmiento-Cano, D. Sierra-Porta, M. Suárez-Durán, A. Vásquez-Ramírez Cosmic Rays and Inner Structure of Colombian Volcanoes in Proc. XI Latin American Conference on Space Geophysics (XI COLAGE), Buenos Aires, Argentina

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2013 32. H. Asorey, The Universidad Industrial de Santander New Introductory Physics Course, invited seminary at the XXXI Encontro de Físicos do Norte e Nordeste, Campina Grande, Brasil, 4–8 Nov 2013.

2013 31. H. Asorey, Muon Lifetime Measurements using the LAGO Water Cherenkov Detectors: a Tool to Introduce Particle Physics Concepts and Analysis Methods in Undergraduate Physics Courses, invited seminary at the XXXI Encontro de Físicos do Norte e Nordeste, Campina Grande, Brasil, 4–8 Nov 2013.

2013 30. H. Asorey, Astroparticles in Latin America, invited talk at the XXXI Encontro de Físicos do Norte e Nordeste, Campina Grande, Brasil, 4–8 Nov 2013.

2013 29. H. Asorey *&* L. Núñez, The "Polo de Astronomía Social" (PAS) Project: High Energy Astrophysics in the Colombian Andes invited talk in the Workshop Astronomía en los Andes, Bogotá, Colombia, 2013.

2013 28. H. Asorey for the LAGO Collaboration, The LAGO Solar Project, in Proc. 33 International Cosmic Ray Conference, in press, Rio de Janeiro, Brazil, 2013

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2012 25. H. Asorey, M. Arribere, X. Bertou, M. Gómez Berisso, F. Sánchez, Expected Backgrounds at the ANDES Underground Laboratory plenary talk given at the Third International Workshop for the Design of the ANDES Underground Laboratory, Valparaiso, Chile, 11–12 Jan 2012.

2012 24. H. Asorey [Pierre Auger Collaboration], Heliospheric Modulation of Cosmic Rays Observed by the Pierre Auger Observatory and the LAGO Project, parallel talk given at the 4^{th} International Workshop of High Energy Physics in the LHC Era HEP2012, Valparaiso, Chile, 4–10 Jan 2012.

2011 23. H. Asorey, Fermi Problem: Power developed at the eruption of the Puyehue-Cordón Caulle volcanic system in June 2011, talk given in the Physics Education Division during the 96^{th} National Meeting SUF-AFA2011 of the Argentinian Physics Association, Montevideo, Uruguay, 20–23 Sept 2011.

2011 22. H. Asorey, A. López Dávalos & A. Clúa, Potencia de la Erupción del Volcán Puyehue como un Problema de Fermi, plenary talk given in the XVII Physics Education National Meeting APFA 2011 of the Argentinian Professors in Physics Association, Villa Giardino, Argentina, Oct 2011. Rev. Ens. Fís. **24**(2), 49-54 (2011)

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2010 17. H. Asorey, J. Castro, A. López Dávalos, Kepler, Newton, Feynman, póster presentation in the 95th National Meeting AFA2011 of the Argentinian Physics Association, Malargüe, Argentina, 28 Sept–01 Oct 2010.

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2009 10. H. Asorey[Pierre Auger Collaboration], The Acceptance of the Pierre Auger Observatory, poster presentation in the VII Latinamerican Symposium of High Energy Physics SILAFAE 2009, San Carlos de Bariloche, Argentina, 14-21 Jan 2009.

2008 9. XVI Course of the ISCRA (International School of Cosmic Ray Astrophysics) 2008: "Gamma Ray and Cosmic Ray Astrophysics: From below GeV to beyond EeV Energies", Erice, Italia, Julio 2008

2008 8. Invited talk "Towards Cosmic ray Solar Modulation Studies", University of Siegen, Siegen, Germany, 2008.

2007 7. D. Allard et al. [LAGO Collaboration], Looking for the high energy component of GRBs at the Large Aperture GRB Observatory, in Proc. 30^{th} International Cosmic Ray Conference, Mérida, Mexico, 3-11 Jul 2007.

2007 6. IV Latin American School of Strings LASS 07, San Carlos de Bariloche, January 2007.

2006 5. H. Asorey[Pierre Auger Collaboration], The Surface Detector Array of the Pierre Auger Observatory, parallel talk in the 1^{st} International Workshop of High Energy Physics in the LHC Era HEP2006, Valparaiso, Chile, 12–17 Dec 2006.

2006 4. D. Allard et al. [LAGO Collaboration], The Large Aperture GRB aperture, in Proc. of the Observational Astronomy in Argentina Workshop, Buenos Aires.

2005 3. Third CERN-CLAF Latin American School Of High Energy Physics, CERN, Malargüe, Argentina. Poster: "Event Reconstruction using the Surface Detectors At UHECR Pierre Auger Observatory"

2004 2. Sixth J. J. Giambiagi Winter School on Particle Physics, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires. July 2004.

2005-2015 1. Thirty seven technical and physics talks given at the Pierre Auger Collaboration meetings, Malargüe, Argentina.