Dr Hernán Asorey, PhD

Doctor of Physics

Medical Physics Department
Comisión Nacional de Energía Atómica
Instituto de Tecnologías en Detección y Astropartículas (ITeDA)
and
Scientific Computing Unit
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)
(temporal stay)

Comisión Nacional de Energía Atómica
DFM, Centro Atómico Bariloche
ITeDA, Centro Atómico Constituyentes
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)
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Current Positions

2016-2022 Researcher (CNEA TNG 312 - Principal B) at the Medical Physics Department, Gerencia de Física (GF), Comisión Nacional de Energía Atómica (CNEA).

2021-2022 Researcher at the Scientific Computing Unit, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)

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).

Key Performance Indicators (KPIs)

Production 136 publications in peer-reviewed indexed journals; 88 participations and presentations in Schools, Congresses, Conferences, or Symposia; 26 technical reports from CNEA and technical notes from the Pierre Auger Observatory.

Scopus h-index=47, 13,799 citations in 155 articles in peer-reviewed indexed journals, and 50 preprints.

Scholar htot=58, h5=45 (since 2017), i10=126 (i10=103 since 2017), 327 articles indexed in Scholar and 23,521 (11,609 since 2017) in 155 peer-reviewed indexed journals. 88 contributions and presentations in symposia and congresses.

Management Principal Investigator or Co-Investigator in 12 national and international R&D+i projects. Principal Investigator in an international collaboration (2013–2016). Head of the Medical Physics Department of CNEA (2017–2021). Project Manager in 3 international projects.

Awards Two awards for teaching performance.

Patents and books Author of a introductory physics textbook. A national and international patent for a neutron detector.

Education Advisor to 2 postdoctoral researchers, 5 doctoral, 5 master's, and 7 undergraduate physics students.

Education

2012 Doctor in Physics (Ph.D.)
Institution: Particles and Fields Group, Centro Atómico Bariloche (CNEA) – Instituto Balseiro, Universidad Nacional de Cuyo (UNC). *Thesis*: The Water Cherenkov Detectors of the Pierre Auger Observatory
2005 and their Application to the Study of Background Radiation. *Advisor*: Dr. Ingomar Allekotte. Master in Science, Physics
Orientation: High Energy Physics. *Institution*: Particles and Fields Group, Centro Atómico Bariloche (CNEA) – Instituto Balseiro (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
2015-2017 de Energía Atómica (CNEA), by peer choice. Researcher (TNG 422 - Principal C) at the Particles and
2015-2017 Fields Division, GF, GAIYANN, CNEA. Associate Professor of Física Moderna A (2015 y 2017), Física I A (2016), Física II B (Waves, 2015), Física III B (Thermodynamics, 2018-current), and Física IV B (Introduction to Particle Physics, Astrophysics and Cosmology, 2016-current) at the Profesorado de Nivel
2014-2015 Medio y Superior en Física of the Universidad Nacional de Río Negro (UNRN). Invited Professor at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Senior researcher
2013-2014 at COLCIENCIAS. Postdoctoral researcher at Grupo de Investigación en Relatividad y Gravitación and Grupo Halley de Astronomía y Ciencias Aeroespaciales, Physics School, Universidad Industrial de San-
2013-2014 tander, Bucaramanga, Colombia. Junior researcher at COLCIENCIAS. Assistant Professor at the School
2012 of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. 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 Ne-
2010-2012 gro (UNRN). Teaching Assistant at the Science Department, Instituto Balseiro, Universidad Nacional
2004-2005 de Cuyo (UNC). PhD student at the Instituto Balseiro (UNC). Master of Science at the Instituto Bal-
1999-2004 seiro (UNC). Undergraduate student in Physics at the Instituto Balseiro (UNC). Industrial Engineering
1990-2001 studies (first four of five years) at the University of Buenos Aires. Worked in the R&D department of industrial projects at AIM S.A., a metal mechanical industry in Buenos Aires, Argentina.

Honours, Awards, Fellowships and Grants

2015 Award ‘Best Chair Professor of the Faculty of Sciences‘ from the Industrial University of Santander.
2011 Award ‘Best Professor of the Balseiro Institute‘ granted by the Balseiro Foundation.
2022 R+D+i project ‘NEutrones Rápidos para la Explotación de Instalaciones con Dispositivos Atómicos (NEREIDA)‘ (Rapid Neutrons for the Exploitation of Installations with Atomic Devices), Spanish Nuclear Safety Council, Role: Coordinator of the Simulations Group, Status: In progress.
2022 Research project ‘Astroparticle detectors and their applications: muography of large structures and space weather‘, PICT2022-GRF-TI-00498. Role: member of the responsible group. Status: Under evaluation.
2022 Research project ‘Astroparticle simulations and its applications‘, European Grid Infrastructure - Advanced Computing for EOSC (EGI-ACE) Use Case. Role: responsible researcher. Status: In progress.
2021 Research project ‘Modular detectors for background muon imaging‘, Hermanos Agustín y Enrique Rocca Foundation. Role: responsible researcher. Status: In progress.
2021 Research project ‘Use and development of tumor microenvironment-specific ligands coupled to 177Lu for the detection and treatment of primary tumors and metastases‘, Balseiro Foundation and CNEA s/resol 306/21. Role: responsible researcher. Status: In progress.

2020 Research project ‘EOSC synergy – Building capacity, developing capability‘, Horizon 2020 RI project 857647, Role: Member of the LAGO thematic service and WP4 group, Status: Completed.

2020 Research project ‘Development of Muon Radiography Techniques for Densitometric Studies of Objects of Strategic Importance, II‘ ASUTNBA0018565. Role: responsible researcher. Status: In progress.

2020 Research project ‘PlomBOX: an open source metrology device to combat lead pollution in drinking water using biosynthetic sensors‘ GCRF Award R11178. Role: CNEA responsible researcher and project manager. Status: Approved.

2019 Research project ‘Development of Muon Radiography Techniques for Densitometric Studies of Objects of Strategic Importance‘ ASUTNBA0005202. Role: responsible researcher. Status: Approved.

2019 Research project ‘Muon radiography of large structures‘ SIIP2019-C035. Role: responsible researcher. Status: In progress.

2018 Research project ‘Development of radiation detectors‘ PICT 2018-2886 (Argentina Innovadora 2020) Agency. Role: member of the responsible group. Status: In progress.

2017 Research project ‘Development of neutron detectors based on Cherenkov effect in water‘, SECYT 06/C4863 (UNCuyo, Argentina). Role: responsible researcher. Status: Approved.

2016 Research project ‘Astroparticle detectors‘, PICT 2015-2428 (Agency-MinCyT, Argentina). Role: member of the responsible group. Status: Approved.

2015-present Category III professor (2015 call, previously category V, 2010 call) in the Program of Incentives to Teaching Researchers SPU/ME.

2015 Cooperation Project Nivel II (PCB-II) Argentina-Colombia, ‘Application of Muography Techniques for the Study of Volcanic Structures at Risk‘, MinCyT-CONICET-COLCIENCIAS. Role: Co-responsible investi-
2014 gator. Status: approved. Research Project ‘Detection of Nuclear Interactions in CCD for the Search of Dark Matter‘, PICT 2013-2128 (Agency-MinCyT, Argentina). Role: member of the responsible group.
2014 Status: approved. Teaching-Research-Extension Articulation Project of the Industrial University of Santander 2014, with the proposal ‘Introduction to 21st Century Physics, the best way to learn Physics
2014 is by doing Physics‘. Role: Director. Status: approved. Proposal for research project of the Industrial University of Santander 2014, with the proposal ‘GUANE3^{+}: Empowerment of the Guane Array of Astroparticle Detectors of the UIS through Scintillation Detection Techniques for Space Weather Stud-
2015 ies‘. Role: co-director. Status: approved. Research project approved in COLCIENCIAS 660/2014 Call
2014 ‘MuTe: Muon Telescope for Volcanic Muography‘. Status: approved. Mobility Project for Support to Projects with Latin America, COLCIENCIAS 653/2014 call for the Colombia-Argentina Exchange Program, with the proposal: ‘Feasibility of Application of Muography Techniques for the Study of
2013 Volcanic Eruptions‘. Role: co-investigator. Status: approved. Research Project of the FRIDA Foundation with the proposal: ‘Generating an Educational Experience under the Paradigm of Science that can be Replicable for other Organizations and serve as a basis for a future MOOC‘. Role: Co-
2013 responsible investigator. Status: approved. Research Project of the Industrial University of Santander 2013, with the proposal ‘The GUANE Array of Astroparticle Detectors for Solar Activity Studies‘. Role:
2014-2015 Co-director. Status: approved. Postdoctoral Scholarship awarded by the Industrial University of San-
2008-2010 tander, Bucaramanga, Colombia. Type II Graduate Scholarship (CONICET), for the Doctorate in Physics
2006-2008 at the Balseiro Institute (UNC). Type I Graduate Scholarship (CNEA), for the Doctorate in Physics at
2004-2005 the Balseiro Institute (UNC). Master’s Scholarship (CNEA), for the Master’s in Physical Sciences at the
2002-2004 Balseiro Institute (UNC). Undergraduate Scholarship (CNEA), for the Degree in Physics, at the Balseiro Institute (UNC).

Research and Teaching Activities

Since obtaining my Master’s degree in 2005, I have participated in the following projects:

Medical Physics Department, Bariloche Atomic Center (CNEA)

2016–
Present Responsible investigator for CNEA and coordinator of the Simulations Group in the project ‘NEutrones Rápidos para la Explotación de Instalaciones con Dispositivos Atómicos (NEREIDA)‘ (2023–present).

Responsible investigator for CNEA and project manager of 'PlomBOX, an open-source device for lead detection in water' (2019–2022).

Applications of astroparticle detection (I): development of simulations and detectors for spatial dose evaluation and reconstruction in clinical instances, high radiation exposure environments, and fast neutron production facilities.

Development of analysis techniques using artificial intelligence, curation, and anonymization in large volumes of data.

Head of the Medical Physics Department, under the Physics Management and the Non-Nuclear Research and Applications Management, Bariloche Atomic Center (CNEA). Elected by peer researchers who make up the department (2017–2021). The position includes responsibility for executing public funds as well as managing human capital. During my tenure, the department created in 2016 was consolidated, by managing the incorporation or change of workplace for several researchers and students at all levels, while managing and executing funds for the purchase of equipment and supplies for an approximate total of more than 1.5 MUSD and national and international grants for more than 3 MUSD in total.

ITeDA, Constituyentes Atomic Center (CNEA)

2018–Present

Applications of astroparticle simulations: applications in muography, space weather, and design of new radiation detectors and shields.

Applications of astroparticle detection (II): muography of large artificial and natural structures of geophysical interest: volcanic risk assessment in Latin America, mining prospecting, and densitometry in dams and dykes.

Design, construction, and characterization of the directional muon flux measurement experiment for the ANDES underground laboratory. The constructed muon detector will be installed in an operating mine in the Province of San Juan, 330 m below sea level.

LAGO Project (Latin American Giant Observatory)

2007–Present

See http://lagoproject.net

Member of the LAGO Thematic Service in the Horizon-2020 EOSC-Synergy Project for the development and implementation of high-performance computing (HPC) and cloud environments for simulations, data analysis, and integration of the FAIR (*Findable*, *Accessible*, *Interoperable and Reusable*) data paradigm.

Principal Investigator of the LAGO Project, period 2013–2016.

Design and implementation of the current organization of the LAGO Project.

Design and coordination of the space weather program of the LAGO Project.

Design, development, and implementation of the simulations and data analysis program for the detection of transient events (GRBs and Forbush events), background radiation, and atmospheric physics, using the ARTI package.

Design, development, and implementation of the ANNA data analysis package for the project.

Design, development, and implementation of the ACQUA data acquisition package for the LAGO Project detectors.

Research, development, and construction of water Cherenkov detectors at the Universidad Industrial de Santander and the Centro Atómico Bariloche. One of them has been installed and is currently operating on the Antarctic Peninsula.

Design and development of the 'Determination of the Muon Lifetime in Water' experiment for undergraduate and graduate students at universities where the LAGO Project operates.

ANDES Underground Laboratory

2011–2022 *See www.andeslab.org*

Estimation of the expected background radiation at the ANDES Underground Laboratory due to natural radioactivity and high-energy atmospheric muon flux.

Design of the laboratory.

Design and construction of a detector for the directional measurement of the expected muon flux at ANDES. It will be installed in a mine operating 330 m below the surface.

Design of muon vetoes for the neutrino physics and dark matter search experiments to be installed in ANDES.

Pierre Auger Observatory

2006–2022 *See www.auger.org*

Cosmo-Geophysics Working Group Leader at the Pierre Auger Observatory (2014–2018).

Data analysis of the surface detector (SD) array of the Observatory.

Extended Atmospheric Showers Physics.

Development of the event reconstruction chain for events recorded by the SD detector.

Development and applications of low-energy modes (scaler‘ mode and histogram‘mode) for the study of transient astrophysical events (GRBs and Forbush events) and on the short- and long-term modulation of the galactic cosmic ray flux due to solar activity.

Simulations of the detector and cosmic rays for determining the response of the water Cherenkov detectors in low-energy modes.

Data analysis of the atmospheric monitoring system of the Observatory.

Cherenkov Telescope Array (CTA) (2010–2014)

See www.cta-observatory.org

Characterization of the proposed Argentine sites for the installation of the Observatory (San Antonio de los Cobres and Leoncito).

Research and development of an autonomous and remote station for the control and data acquisition of a meteorological station and a sky quality meter, installed in the town of San Antonio de los Cobres, Salta, Argentina.

Teaching (since 2009)

2015–present Associate Professor, courses: Modern Physics A‘ (2015 and 2017) , Physics I A‘(2016), Physics II B (Waves, 2015)‘Physics III B (Thermodynamics, 2018 to present) ‘d Physics IV B (‘troduction to Particle Physics, Astrophysics, and Cosmology, 2016 to present) in the Physics Teaching program, National University of Río Negro (UNRN)

2012–2020 Design and teaching of the courses The Physics of the LAGO Project,‘ Measurement of the Muon Lifetime,‘and Astroparticle Simulations,‘imed at advanced undergraduate and graduate students in Physics and Engineering, taught during the annual meetings of the LAGO Collaboration. These courses are still being taught by some of my former students in LAGO@.

2018–2021 Associate Professor, courses: Astroparticle Physics‘ and Particle Detection Techniques‘ in the Double Doctorate in Astrophysics, National University of San Martín (UNSAM)

2015–2017 Senior Teaching Assistant in the subjects of Introduction to Particle Physics, Nuclear Physics, and Dosimetry‘ and Cosmic Ray Physics‘(in charge) at the Balseiro Institute, National University of Cuyo (UNC).

2014–2015 Visiting Professor in the courses Theoretical Mechanics‘ (graduate level) and Planetary Astronomy‘at the School of Physics, Industrial University of Santander (UIS).

2013–2014 Lecturer (equivalent to interim Assistant Professor) of the courses Introduction to Physics,‘ Introduction to Particle Physics,‘and “Theoretical Mechanics, for the Physics program

2014–2015 Visiting Professor in the courses ‘Theoretical Mechanics‘ (graduate level) and ‘Planetary Astronomy‘ at the School of Physics, Industrial University of Santander (UIS).

2013–2014 Lecturer Professor (equivalent to interim Associate Professor) of the courses ‘Introduction to Physics‘, ‘Introduction to Particle Physics‘ and ‘Theoretical Mechanics‘ for the Physics major at the School of Physics, Industrial University of Santander (UIS).

2014 Design and participation in the ‘Diploma in Astronomy, Astrophysics and Space Sciences‘ at the School of Physics, UIS (Starting in September 2014).

2014 Design and teaching of the course ‘Astroclimate and the problem of Climate Change‘, aimed at Teachers from Schools and High Schools, Industrial University of Santander, Bucaramanga, March 2014.

2012 Head of Practical Works responsible for teaching Physics I A and Physics I B for the Teaching Program of Middle and Higher Education in Physics, National University of Rio Negro.

2009–2011 Head of Practical Works for the courses Physics I A and Physics I B for the Teaching Program of Middle and Higher Education in Physics, National University of Rio Negro.

2010–2012 First assistant in the course ‘Experimental III‘ at the Balseiro Institute, National University of Cuyo (UNC), responsible for the low-energy cosmic ray physics experiment and the muon lifetime measurement, designed by me and using the Nahuelito detector from the LAGO project.

2010–2012 First assistant in the courses ‘Introduction to Nuclear Physics and Particle Physics‘ at the Balseiro Institute, National University of 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. Utilizado actualmente como libro de texto de los cursos de Física IA y Física IB de la Universidad Nacional de Río Negro (UNRN).

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

2022 PhD thesis co-advisor “Inteligencia Artificial y Análisis de Grandes Datos aplicados al estudio de Rayos Cósmicos y Meteorología del Espacio”, Ticiano Torres-Peralta at the Facultad de Ciencias Exactas y Tecnología, Universidad Nacional de Tucumán, Argentina.

2022 Master in Industrial Mathematics co-advisor “Simulaciones de interacción de la radiación con la materia para aplicaciones médicas”, Ing. Osiris de la Caridad Núñez Chongo, Universidad Carlos III de Madrid y CIEMAT, España.

2021

Postdoc 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.

2021 Postdoc 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.

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

2022 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 Institut für Technologie (KIT), Germany.

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 Másperi 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 advisor “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 Physics 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 Physics 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 Physics 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.

Reviewer

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 Física, 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

The list shown below corresponds to a personal selection of the published works in which I was directly involved. In the appendices, I include the complete list of publications and presentations at Congresses and Conferences.

2023 100. N.A. Santos, S. Dasso, A.M. Gulisano, O. Areso, M. Pereira, H. Asorey, L. Rubinstein, for the LAGO collaboration First measurements of periodicities and anisotropies of cosmic ray flux observed with a water-Cherenkov detector at the Marambio Antarctic base Adv. Spa. Res. **71**(6) 2967–2976 (2023)

2023 99. J. Sánchez-Villafrades, J. Peña-Rodríguez, H. Asorey, L. A. Núñez, Characterization and on-field performance of the MuTe Silicon Photomultipliers JINST **2023** 7(1) (2023) arXiv:2102.01119[physics.ins-det]

2023 98. H. Asorey, M. Suárez-Durán and R. Mayo-García, ACORDE: A new application for estimating the dose absorbed by passengers and crews in commercial flights Applied Radiation and Isotopes **196** 110752 (2023).

2022 97. H. Asorey and R. Mayo-García, Calculation of the high-energy neutron flux for anticipating errors and recovery techniques in exascale supercomputer centres J Supercomput, s11227-022-04981-8 (2022).

2022 96. 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 **82**(11) 1019 (2022) arXiv:2010.14591[astro-ph.IM]

2022 95. 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. **2022**(January) 300 (2022)

2022 94. A Taboada, C Sarmiento-Cano, A Sedoski, H AsoreyMeiga, a Dedicated Framework Used for Muography Applications, J. Adv. Inst. Sci. **2022**(January), (2022)

2022 93. 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 .

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2014 16. J. Macias, H. Asorey and S. Dasso, Long term analysis of the Scaler data: Identification of the Solar Cycle at Auger, GAP 2014–117.

2013 15. H. Asorey, J. Blostein, M. Gómez Berisso, I. Sidelnik, Performance of a water Cherenkov detector by using a 241AmBe neutron source, GAP 2013–108.

2012 14. H. Asorey, The Water Cherenkov Detectors of the Pierre Auger Observatory and their Application to the Study of Background Radiation, GAP 2012–131.

2011 13. R. Ravignani, H. Asorey, D. Melo, G. De La Vega, A. Etchegoyen, A. Ferrero, R. F. Gamarra, B. García, M. Josebachuili, F. Sánchez, I. Sidelnik, A. Tapia, B. Wundheiler, Observation of the spectrum with the AMIGA infill, GAP 2011–010.

2009 12. H. Asorey, I. Allekotte, X. Bertou, M. Gómez Berisso, Acceptance of generalised Surface Detector Arrays from real data, GAP 2009–155.

2009 11. H. Asorey, X. Bertou, D. Thomas, M. Mostafá, The OMG Hybrid Event, GAP 2011–154.

2009 10. H. Asorey, I. Allekotte, X. Bertou, M. Gómez Berisso, Determining the acceptance of the Pierre Auger Surface Detector with the Infill Array, GAP 2009–112.

2009 9. I. Allekotte, H. Asorey, M. Gómez Berisso, Improving the determination of the Auger Surface Detector Single Station Trigger Probability from real data, GAP 2009–019.

2008 8. H. Asorey, X. Bertou, Determining the Dynamic Range needed for new Surface Detectors., GAP 2008–117.

2008 7. I. Allekotte, H. Asorey, X. Bertou, M. Gómez Berisso, You thought you understood hexagons?, GAP 2008–114

2008 6. S. Grebe, I. Allekotte, H. Asorey, X. Bertou, P. Buchholz, Robustness of the CDAS reconstruction algorithm., GAP 2008–112.

2008 5. H. Asorey, X. Bertou, First large timescale analysis of Auger SD scaler data: Towards cosmic ray Solar modulation studies., GAP 2008–072.

2007 4. H. Asorey, I. Allekotte, Towards a complete set of weather data., GAP 2007–088.

2006 3. H. Asorey, X. Bertou, E. Roulet, How to improve the SD arrival direction reconstruction by correcting the start-time of individual detectors., GAP 2006–052.

2005 2. H. Asorey, I. Allekotte, M. Gómez Berisso, X. Bertou, Robustness of the angular reconstruction with the Surface Array of the Auger Observatory., GAP 2005–107.

2005 1. H. Asorey, I. Allekotte, M. Gómez Berisso, X. Bertou, Robustness of the energy reconstruction with the Surface Array of the Auger Observatory., GAP 2005–084.

Organising and 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 Committee of the Latino American Centre for Interdisciplinary Training (CELFI) in Translational Medical Physics (CELFI-FIMET) at Instituto Balseiro and Centro Atómico Bariloche.

2018 As the head of the Medical Physics Department, I was selected by the Balseiro Institute and the National Atomic Energy Commission to propose and manage before the Ministry of Science and Technology the creation of a new Latin American Center for Interdisciplinary Training (CELFI) dedicated to the training of undergraduate and graduate students and young researchers in Latin America 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 and 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 and 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 and 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 and 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 Río 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); Italian (beginner); Chinese (beginner)

Computing skills: Computing at High Performance Computing and cloud-based computing environments. Big Data, FAIR paradigm, medical imaging processing and analysis and Machine Learning.

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

Technical computing and data analysis software skills: root, gnuplot, Mathematica, AutoCAD engineering design software.

References

For references of my work, please contact the following persons:

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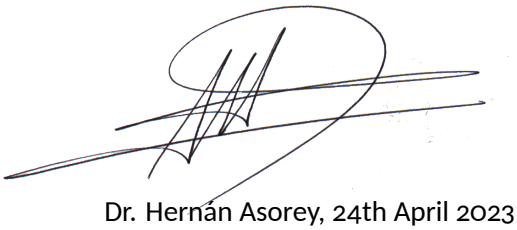
Prof. Analía Cutsaimanis (acutsaimanis@unrn.edu.ar)

Dr. Luis A. Núñez (lnunez@uis.edu.co)



Dr. Hernán Asorey, 24th April 2023

Appendix: Complete list of publications

Complete list of Journal papers

2023 136. N.A. Santos, S. Dasso, A.M. Gulisano, O. Areso, M. Pereira, H. Asorey, L. Rubinstein, for the LAGO collaboration First measurements of periodicities and anisotropies of cosmic ray flux observed with a water-Cherenkov detector at the Marambio Antarctic base Adv. Spa. Res. **7**1(6) 2967–2976 (2023)

2023 135. J. Sánchez-Villafrades, J. Peña-Rodríguez, H. Asorey, L. A. Núñez, Characterization and on-field performance of the MuTe Silicon Photomultipliers Journal of Instrumentation **2**023 7(1) (2023) arXiv:2102.01119[physics.ins-det]

2023 134. H. Asorey, M. Suárez-Durán and R. Mayo-García, ACORDE: A new application for estimating the dose absorbed by passengers and crews in commercial flights Applied Radiation and Isotopes **1**96 110752 (2023).

2023 133. The Pierre Auger Collaboration, Limits to Gauge Coupling in the Dark Sector Set by the Nonobservation of Instanton-Induced Decay of Super-Heavy Dark Matter in the Pierre Auger Observatory Data, Phys. Rev. Lett **1**30 061001 (2023)

2022 132. H. Asorey and R. Mayo-García, Calculation of the high-energy neutron flux for anticipating errors and recovery techniques in exascale supercomputer centres J Supercomput, s11227-022-04981-8 (2022).

2022 131. The Pierre Auger Collaboration, A Catalog of the Highest-Energy Cosmic Rays Recorded During Phase I of Operation of the Pierre Auger Observatory, Astrop. Journ. Supp. *a*ccepted (2022) arXiv:2211.16020[astro-ph.HE]

2022 130. 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 **8**2(11) 1019

2022 129. The Pierre Auger Collaboration, Arrival Directions of Cosmic Rays above 32 EeV from Phase One of the Pierre Auger Observatory, Astrop. Jour. **9**35(2) 170 (2022)

2022 128. The Pierre Auger Collaboration, Cosmological implications of photon-flux upper limits at ultra-high energies in scenarios of Planckian-interacting massive particles for dark matter, Phys. Rev. D *a*ccepted (2022) arXiv:2208.02353[astro-ph.HE]

2022 127. The Pierre Auger Collaboration, Search for Spatial Correlations of Neutrinos with Ultra-high-energy Cosmic Rays, Astrop. Jour. **9**34(2) 164 (2022)

2022 126. The Pierre Auger Collaboration, A Search for Photons with Energies Above 2×10^{17} eV Using Hybrid Data from the Low-Energy Extensions of the Pierre Auger Observatory, Astrop. Jour. **9**33(2) 125 (2022)

2022 125. The Pierre Auger Collaboration, Limits to gauge coupling in the dark sector set by the non-observation of instanton-induced decay of Super-Heavy Dark Matter in the Pierre Auger Observatory data, Phys. Rev. Lett. *in* press, arXiv:2203.08854[astro-ph.HE]

2022 124. 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. **2022**(January) 300 (2022)

2022 123. A Taboada, C Sarmiento-Cano, A Sedoski, H AsoreyMeiga, a Dedicated Framework Used for Muography Applications, J. Adv. Inst. Sci. **2022**(January), (2022)

2022 122. 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. 2022(June), (2022). arXiv:2201.11160[astro-ph.IM]

2022 121. The Pierre Auger Collaboration, Testing effects of Lorentz invariance violation in the propagation of astroparticles with the Pierre Auger Observatory JCAP **01** 023 (2022)

2021 120. 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 119. 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 118. The Pierre Auger Collaboration, Design and implementation of the AMIGA embedded system for data acquisition Journal of Instrumentation **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 Journal of Instrumentation **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 Journal of Instrumentation **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 Journal of Instrumentation **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 Journal of Instrumentation **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 Journal of Instrumentation **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 Journal of Instrumentation **15** P10021 (2020)

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)

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 Journal of Instrumentation **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 and H Asorey, Design and construction of MuTe: a hybrid Muon Telescope to study Colombian Volcanoes, Journal of Instrumentation **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) e2019-EA-000582 (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 and 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 and 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 and 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 and H Asorey, Simulated Response of MuTe, a Hybrid Muon Telescope, Journal of Instrumentation **15** O8004 (2020)

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)

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 Observatory, JCAP **2018**(10) 026 (2018) arXiv:1806.05386[astro-ph.IM]

2018 88. H. Asorey, L. A. Nunez and C. Sarmiento-Cano, Early Exposure of Digital Natives to Environments, Methodologies and Research Techniques in University Physics Rev. Bras Ensino Fís **40**(4) e5407 (2018) arXiv:1501.04916[physics.ed-ph]

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)

2018 86. The Pierre Auger Collaboration, An Indication of Anisotropy in Arrival Directions of Ultra-high-energy Cosmic Rays through Comparison to the Flux Pattern of Extragalactic Gamma-Ray Sources, ApJ **L853**(2) L29 (2018) arXiv:1801.06160[astro-ph.CO]

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, Journal of Instrumentation **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 Journal of Instrumentation **12** P03002 (2017) arXiv:1703.06193[astro-ph.IM]

2017 78. I. Sidelnik and 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 and M. Gómez Berisso, Neutron Detection Using a Water Cherenkov Detector with Pure Water and a Single PMT, NIM-A **876** 153–155 (2017)

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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)

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

2015 60. The Pierre Auger Collaboration, Improved limit to the diffuse flux of ultrahigh energy neutrinos from the Pierre Auger Observatory Phys. Rev. **D91**, 092008 (2015) arXiv:1504.05397[astro-ph.HE]

2015 59. The Pierre Auger Collaboration, Large scale distribution of ultra high energy cosmic rays detected at the Pierre Auger Observatory with zenith angles up to 80 degrees ApJ **802**, 111 (2015) arXiv:1411.6953[astro-ph.HE]

2015 58. The Pierre Auger Collaboration, Searches for Anisotropies in the Arrival Directions of the Highest Energy Cosmic Rays Detected by the Pierre Auger Observatory, ApJ **804**, 15 (2015)

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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)

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2013 29. H. Asorey and 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. 33th International Cosmic Ray Conference, Rio de Janeiro, Brazil, ICRC2013-0856 (2013)

2013 27. H. Asorey, D. Melo et al., Characterization of San Antonio de los Cobres for a Cherenkov telescope array in energy range from 20 GeV to 130 GeV, in Proc. 33 International Cosmic Ray Conference, Rio de Janeiro, Brazil, ICRC2013-1236 (2013)

2012 26. H. Asorey, Astropartículas en América Latina, invited talk at the Tercer Conferencia Colombiana de Astronomía y Astrofísica, COCOA2012, Bucaramanga, Colombia, 5–8 Nov 2012.

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 for the 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 and 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)

2011 21. I. Allekotte, H. Arnaldi, H. Asorey, X. Bertou, M. Gómez Berisso, M. Sofo Haro, Development of ultra-fast and ultra low power consumption electronics in the Bariloche Particle and Radiation Detection Laboratory, póster presentation in the 96^{th} National Meeting SUF-AFA2011 of the Argentinian Physics Association, Montevideo, Uruguay, 20–23 Sept 2011.

2011 20. H. Asorey[Pierre Auger Collaboration], Low energy radiation measurements with the water Cherenkov detector array of the Pierre Auger Observatory, in Proc. 32nd International Cosmic Ray Conference, vol. 11 462–465, Beijing, China, 11–18 Ago 2011

2011 19. The Pierre Auger Collaboration, The Pierre Auger Observatory III: Other Astrophysical Observations, in Proc. 32nd International Cosmic Ray Conference, Beijing, China, 11–18 Ago 2011.

2010 18. H. Asorey[Pierre Auger Collaboration], The infill array of the Pierre Auger Observatory, talk given in the Particle and Fields Division in the 95^{th} National Meeting AFA2010 of the Argentinian Physics Association, Malargüe, Argentina, 28 Sept–01 Oct 2010.

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

2010 16. H. Asorey[LAGO Collaboration], The Large Aperture Gamma Ray Burst Observatory (LAGO), plenary talk in the 3^{rd} International Workshop of High Energy Physics in the LHC Era HEP2010, Valparaiso, Chile, 4–8 Jan 2010.

2009 15. H. Asorey[Pierre Auger Collaboration], Cosmic Ray Solar Modulation Studies at the Pierre Auger Observatory, in Proc. 31st International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 14. The Pierre Auger Collaboration, Astrophysical Sources of Cosmic Rays and Related Measurements with the Pierre Auger Observatory, in Proc. 31st International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 13. The LAGO Collaboration,Operating Water Cherenkov Detectors in high altitude sites for the Large Aperture GRB Observatory, in Proc. 31st International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 12. The LAGO Collaboration, The Large Aperture GRB Observatory, in Proc. 31st International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 11. The LAGO Collaboration,Water Cherenkov Detectors response to a Gamma Ray Burst in the Large Aperture GRB Observatory, in Proc. 31st International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 10. H. Asorey[Pierre Auger Collaboration], The Acceptance of the Pierre Auger Observatory, poster presentation in the VII Latin American 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., Looking for the high energy component of GRBs at the Large Aperture GRB Observatory, in Proc. $30^{\rm th}$ 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 $1^{\rm st}$ 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.