Hernán Asorey

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Personal Information

Born in Quilmes, Buenos Aires, Argentina, on February 05th, 1974 (41 years old)
Argentinian, married, two daughters.

Current Positions

Researcher at Laboratorio Detección de Partículas y Radiación (LabDPR), Gerencia Tecnología e Investigación en Altas Energías (Technology and Research in High Energy Physics Department), Centro Atómico Bariloche, Comisión Nacional de Energía Atómica (CNEA)

Associated Professor at Sede Andina, 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

2014-2015 Visiting Professor at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Junior researcher at COLCIENCIAS. years2013-2014 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,
2013-2014 Bucaramanga, Colombia. Assistant Professor at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia. Senior Teaching Assistant (Jefe de Trabajos
2009-2012 Prácticos) at Physics Department, 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.

1992-2001 AIM S.A., metal mechanical industry, R+D department on industrial projects, Buenos Aires, Argentina.

Honours, Awards, Fellowships & Grants

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: Approved and running.

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: Approved.

2014 "MuTe: Muon telescope for Volcanic Muongraphy" proposal for the Colombian Council of Science COLCIENCIAS 660/2014 call (researcher). Status: Approved. Starting 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 and running.

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 and running.

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

2008-2010 Fellowship awarded by the National Council of Scientific and Technical Investigations (CONICET) to obtain a Ph.D. degree.

2006-2007 Fellowship awarded by the Balseiro Foundation and the National Commission of Atomic Energy (FUNC-CNEA).

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:

Pierre Auger Observatory (2006-Present)

See www.auger.org

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

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

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

See lagoproject.org

Principal Investigator since 2013

Environmental and atmospheric variables analysis

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

Research, development and building of three water-Cherenkov detector prototypes for the LAGO project at Centro Atómico Bariloche. One of them will be installed at the Antarctic Peninsula.

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

Cherenkov Telescope Array (CTA) (2010-2013)

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.

ANDES Underground Laboratory (2010-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

Teaching (2009-Present)

See www.ib.edu.ar, www.uis.edu.co, and www.unrn.edu.ar

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

Professor, Introductory Physics course and Introductory Particle Physics course, UIS.

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

Professor, Advanced Mathematical Methods for Physics course, UIS.

Senior teaching assistant, Physics I (introductory physics) course, UNRN.

Teaching assistant, Experimental Physics III and Introduction to nuclear and particle physics courses, Instituto Balseiro (UNC)

Selected Works

During the development of my work within the Pierre Auger Observatory, I have been acting as the Physics coordinator and responsible of one of the full author list papers of the Pierre Auger Collaboration (The Pierre Auger Collaboration, JINST **6** P01003–P01020 (2011)), using the surface detector in a novel way, developed during my Ph.D. thesis, as a tool to study transient solar phenomena and heliospheric modulation of galactic cosmic rays flux.
This list is a personal selection of the works I have been directly involved:

2015 36. The Pierre Auger Collaboration, *The Pierre Auger Cosmic Ray Observatory* NIM A, accepted (2015) arXiv:1502.01323[astro-ph.HE]

2015 35. H. Asorey, L. A. Nunez & C. Sarmiento-Cano, *Exposición Temprana de Nativos Digitales en Ambientes, Metodologías y Técnicas de Investigación en la Universidad* Rev. Ens. Ciencias, submitted (2015) arXiv:1501.04916[physics.ed-ph]

2014 34. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 33. S. Pinilla, H. Asorey & L.A. Núñez, *Cosmic Rays Induced Background Radiation on Board of Commercial Flights*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 32. R. Calderón, H. Asorey & L.A. Núñez for the LAGO Collaboration, *Geant4 based simulation of the Water Cherenkov Detectors of the LAGO Project*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 31. A. Estupiñan, H. Asorey & L.A. Núñez, *Implementing the De-thinning Method for High Energy Cosmic Rays Extensive Air Showers*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 30. The Pierre Auger Collaboration, *earches for Large-scale Anisotropy in the Arrival Directions of Cosmic Rays Detected above Energy of 1019 eV at the Pierre Auger Observatory and the Telescope Array* ApJ **794**(2), 172 (2014)

2014 29. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory (LAGO) project*, in Proc. X COLAGE, Adv. Space Res. submitted, Cusco, Perú, 2014

2014 28. M. Suárez, H. Asorey & Núñez for the LAGO Collaboration, *The rigidity cutoff calculation method for the Sites of the LAGO Project*, in Proc. X COLAGE, Adv. Space Res. submitted, Cusco, Perú, 2014

2014 27. C. Sarmiento, H. Asorey & L. Núñez for the LAGO Collaboration, *The GUANE Array of the LAGO Project: Studying Space Weather Phenomena from Ground Level*, in Proc. X COLAGE, Adv. Space Res. submitted, Cusco, Perú, 2014

2014 26. H. Asorey & S. Dasso for the LAGO Collaboration, *The LAGO Project Space Weather Program*, in Proc. 40th COSPAR Scientific Assembly, Adv. Space Res. submitted, Moscú, Rusia, 2014

2013 25. H. Asorey & L. Núñez, *Astronomy and Astrophysics in the Colombian Andes: the PAS Project* in Proc. XIV Latin American Regional IAU Meeting LARIM2014, Rev. Mex. AA Conf. Series, in press, Florianopolis, Brazil, 2013

2013 24. H. Asorey for the LAGO Collaboration, *The LAGO Solar Project*, in Proc. 33 International Cosmic Ray Conference, in press, Rio de Janeiro, Brazil, 2013

2013 23. 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, in press, Rio de Janeiro, Brazil, 2013

2012 22. H. Asorey & A. López Dávalos, *Fermi Problem: Power developed at the eruption of the Puyehue-Cordón Caulle volcanic system in June 2011*, Amer. Jour. Phys., *submitted*, (2012). 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, Sep. 2011.

2012 21. S. Dasso & H. Asorey, for the Pierre Auger Collaboration, *The scaler mode in the Pierre Auger Observatory to study heliospheric modulation of cosmic rays* , Adv. Space Res. **49** (11), 1563–1569 (2012)

2012 20. 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.

2011 19. The Pierre Auger Collaboration, *The Pierre Auger Observatory Scaler Mode for the Study of the Modulation of Galactic Cosmic Rays due to Solar Activity*, JINST **6** P01003–P01020 (2011). *__Coordinator__

2011 18. The Pierre Auger Collaboration, *The Lateral Trigger Probability function for UHE Cosmic Rays Showers detected by the Pierre Auger Observatory*, Astropart. Phys. **35** (5), 266–276 (2011)

2011 17. 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*, poster presentation in the 96th National Reunion SUF-AFA2011 of the Argentinian Physics Association, Montevideo, Uruguay, 20–23 Sept 2011.

2011 16. H. Asorey[Pierre Auger Collaboration], *Low energy radiation measurements with the water Cherenkov detector array of the Pierre Auger Observatory*, in Proc. 32 International Cosmic Ray Conference, vol. 11 462–465, Beijing, China, 11–18 Ago 2011

2011 15. The Pierre Auger Collaboration, *Search for First Harmonic Modulation in the Right Ascension Distribution of Cosmic Rays Detected at the Pierre Auger Observatory*, Astropart. Phys. **34** 627–639 (2011)

2010 14. J. Blümer & The Pierre Auger Collaboration, *The Northern Site of the Pierre Auger Observatory*, Journal of Physics **12** (3) 035001

2010 13. The Pierre Auger Collaboration, *Measurement of the energy spectrum of cosmic rays above 10^{18} eV using the Pierre Auger Observatory*, Phys. Lett. **B685** 239–246 (2010), arXiv:1002.1975v1[astro-ph.HE]

2010 12. The Pierre Auger Collaboration, *Trigger and Aperture of the Surface Detector Array of the Pierre Auger Observatory*, NIM **A613** 29–39, (2010)

2010 11. H. Asorey[LAGO Collaboration], *The Large Aperture Gamma Ray Burst Observatory (LAGO)*, plenary talk in the 3rd International Workshop of High Energy Physics in the LHC Era HEP2010, Valparaiso, Chile, 4–8 Jan 2010.

2009 10. H. Asorey[Pierre Auger Collaboration], *Cosmic Ray Solar Modulation Studies at the Pierre Auger Observatory*, in Proc. 31th International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 9. The Pierre Auger Collaboration, *Atmospheric effects on extensive air showers observed with the Surface Detector of the Pierre Auger Observatory*, Astropart. Phys. **32**, 89–99, (2009), arXiv:0906.5497v2[astro-ph.IM]

2008 8. The Pierre Auger Collaboration, *Observation of the Suppression of the Flux of Cosmic Rays above* 4×10^{19} *eV.*, PRL **101** 061101 (2008)

2008 7. The Pierre Auger Collaboration, *Upper limit on the cosmic-ray photon flux above* 10^{19} *eV using the surface detector of the Pierre Auger Observatory.*, Astropart. Phys. **29** 243–256 (2008)

2008 6. The Pierre Auger Collaboration, *Correlation of the highest-energy cosmic rays with the positions of nearby active galactic nuclei.*, Astropart. Phys. **29** 188–204 (2008)

2007 5. The Pierre Auger Collaboration, *Correlation of the highest energy cosmic rays with nearby extragalactic objects.*, Science **318** 939–943 (2007)

2008 4. D. Allard *et* al. [LAGO Collaboration], *Use of water-Cherenkov detectors to detect Gamma Ray Bursts at the Large Aperture GRB Observatory (LAGO)*, NIM **A595** 70–72 (2008)

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

2007 2. The Pierre Auger Collaboration, *Anisotropy studies around the galactic centre at EeV energies with the Auger Observatory.*, Astropart. Phys. **27** 244–253 (2007)

2006 1. D. Allard *et* al. [LAGO Collaboration], *The Large Aperture GRB aperture*, in Proc. of the Observational Astronomy in Argentina Workshop, Buenos Aires.

Complete list of Journal papers

2015 60. The Pierre Auger Collaboration, *The Pierre Auger Cosmic Ray Observatory* NIM A, accepted (2015) arXiv:1502.01323[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, accepted (2015) arXiv:1411.6953[astro-ph.HE]

2015 58. H. Asorey, L. A. Nunez *&* C. Sarmiento-Cano, *Exposición Temprana de Nativos Digitales en Ambientes, Metodologías y Técnicas de Investigación en la Universidad* Rev. Ens. Ciencias, submitted (2015) arXiv:1501.04916[physics.ed-ph]

2015 57. The Pierre Auger Collaboration, *Searches for Anisotropies in the Arrival Directions of the Highest Energy Cosmic Rays Detected by the Pierre Auger Observatory*, ApJ, accepted (2015) arXiv:1411.6111[astro-ph.HE]

2015 56. The Pierre Auger Collaboration, *Search for patterns by combining cosmic-ray energy and arrival directions at the Pierre Auger Observatory* Eur. Phys. J. C, submitted (2014) arXiv:1410.0515[astro-ph.HE]

2015 55. 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]

2014 54. 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]

2014 53. The Pierre Auger Collaboration, *Depth of maximum of air-shower profiles at the Pierre Auger Observatory: I. Measurements at energies above $10^{17.8}$ eV* Phys. Rev. **D90** 12, 122005 (2014) arXiv:1409.4809[astro-ph.HE]

2014 52. The Pierre Auger Collaboration, *Searches for Large-scale Anisotropy in the Arrival Directions of Cosmic Rays Detected above Energy of 1019 eV at the Pierre Auger Observatory and the Telescope Array* ApJ **794**(2), 172 (2014) arXiv:1409.3128[astro-ph.HE]

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]

2014 50. The Pierre Auger Collaboration, *Reconstruction of inclined air showers detected with the Pierre Auger Observatory*, J. of Cosmo. Astrop. JCAP **08** 019 (2014) arXiv:1407.3214[astro-ph.HE]

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

2014 48. The Pierre Auger Collaboration, *A search for point sources of EeV photons*, Astrophys. J, **789**(2), 160 (2014)

2014 47. The Pierre Auger Collaboration, *Probing the radio emission from air showers with polarization measurements*, Phys. Rev. **D89** 052002 (2014)

2013 46. The Pierre Auger Collaboration, *Identifying clouds over the Pierre Auger Observatory using infrared satellite data*, Astrop. Phys **50** 92–101 (2013)

2013 45. The Pierre Auger Collaboration, *Bounds on the density of sources of ultra-high energy cosmic rays from the Pierre Auger Observatory*, JCAP, **13** (05) 009–034 (2013), arXiv:1305.1576v1[astro-ph.HE]

2013 44. The Pierre Auger Collaboration, *Techniques for Measuring Aerosol Attenuation using the Central Laser Facility at the Pierre Auger Observatory*, JINST, **8** (04) P04009 (2013), arXiv:1303.5576v1[astro-ph.IM]

2013 43. The CTA Consortium, *Introducing the CTA concept*, Astropart. Phys., **43** (03) 3–18 (2013)

2013 42. The Pierre Auger Collaboration, *Ultra-High Energy Neutrinos at the Pierre Auger Observatory*, AHEP, 2013:708680, 18 pp (2013)

2013 41. The Pierre Auger Collaboration, *Interpretation of the depths of maximum of extensive air showers measured by the Pierre Auger Observatory*, JCAP, **13** (02) 026–041 (2013), arXiv:1301.6637v2[astro-ph.HE]

2013 40. 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 39. 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)

2012 38. The Pierre Auger Collaboration, *A Search for Point Sources of EeV Neutrons*, ApJ **760** (2) 148–159 (2012)

2012 37. The Pierre Auger Collaboration, *Results of a self-triggered prototype system for radio-detection of extensive air showers at the Pierre Auger Observatory*, JINST **7** P11023–P11051 (2012)

2012 36. 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 35. The Pierre Auger Collaboration, *The rapid atmospheric monitoring system of the Pierre Auger Observatory*, JINST **7** P09001–P09014 (2012)

2012 34. 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)

2012 33. The Pierre Auger Collaboration, *Search for Point-like Sources of Ultra-High Energy Neutrinos at the Pierre Auger Observatory and Improved Limit on the Diffuse Flux of Tau Neutrinos*, ApJ **755** (1) L4 (2012)

2012 32. The Pierre Auger Collaboration, *A Search for Anisotropy in the Arrival Directions of Ultra High Energy Cosmic Rays recorded at the Pierre Auger Observatory*, JCAP **04** (040), 1–13 (2012)

2012 31. H. Asorey *&* A. López Dávalos, *Fermi Problem: Power developed at the eruption of the Puyehue-Cordón Caulle volcanic system in June 2011* (2012) arXiv:1109.1165v1[physics.ed-ph]

2012 30. S. Dasso *&* H. Asorey, for the Pierre Auger Collaboration, *The scaler mode in the Pierre Auger Observatory to study heliospheric modulation of cosmic rays* , Adv. Space Res. **49** (11), 1563–1569 (2012)

2012 29. The CTA Consortium, *Design concepts for the Cherenkov Telescope Array CTA: an advanced facility for ground-based high-energy gamma-ray astronomy*, Exper. Astron. **32** (3), 193–316 (2012)

2012 28. The Pierre Auger Collaboration, *Description of atmospheric conditions at the Pierre Auger Observatory using the Global Data Assimilation System (GDAS)*, Astropart. Phys. **35** (9), 591–607 (2012)

2012 27. The Pierre Auger Collaboration, *The effect of the geomagnetic field on cosmic ray energy estimates and large scale anisotropy searches on data from the Pierre Auger Observatory*, JCAP **2011** (022), 1–23 (2012)

2012 26. The Pierre Auger Collaboration, *Search for signatures of magnetically-induced alignment in the arrival directions measured by the Pierre Auger Observatory*, Astropart. Phys. **35** (6), 354–361 (2012)

2011 25. The Pierre Auger Collaboration, *Search for Ultra-High Energy Neutrinos in Highly Inclined Events at the Pierre Auger Observatory*, Phys. Rev. **D84**, 122005, 1–16 (2011) arXiv:1202.1493[astro-ph.HE]

2011 24. The Pierre Auger Collaboration, *The Lateral Trigger Probability function for UHE Cosmic Rays Showers detected by the Pierre Auger Observatory*, Astropart. Phys. **35** (5), 266–276 (2011)

2011 23. The Pierre Auger Collaboration, *Anisotropy and chemical composition of ultra-high energy cosmic rays using arrival directions measured by the Pierre Auger Observatory*, JCAP **06** 022 (2011), arXiv:1101.3048v1[astro-ph.HE]

2011 22. The Pierre Auger Collaboration, *Advanced functionality for radio analysis in the Offline software framework of the Pierre Auger Observatory*, NIM **A635** 92–102 (2011), arXiv:1101.4473v1[astro-ph.HE]

2011 21. The Pierre Auger Collaboration, *Search for First Harmonic Modulation in the Right Ascension Distribution of Cosmic Rays Detected at the Pierre Auger Observatory*, Astropart. Phys. **34** 627–639 (2011)

2011 20. The Pierre Auger Collaboration, *The Pierre Auger Observatory Scaler Mode for the Study of the Modulation of Galactic Cosmic Rays due to Solar Activity*, JINST **6** P01003–P01020 (2011). *__Coordinator__

2010 19. The Pierre Auger Collaboration, *The exposure of the hybrid detector of the Pierre Auger Observatory*, Astropart. Phys. **34**, 368–381 (2011)

2010 18. The Pierre Auger Collaboration, *Update on the correlation of the highest energy cosmic rays with nearby extragalactic matter*,Astropart. Phys. **34**, 314–326 (2010), arXiv:1009.1855v2[astro-ph.HE]

2010 17. The Pierre Auger Collaboration, *The Fluorescence Detector of the Pierre Auger Observatory*, NIM **A620**, 227 (2010), arXiv:0907.4282v1[astro-ph.IM]

2010 16. J. Blümer and The Pierre Auger Collaboration, *The Northern Site of the Pierre Auger Observatory*, Journal of Physics **12** (3) 035001 (2010)

2010 15. The Pierre Auger Collaboration, *A Study of the Effect of Molecular and Aerosol Conditions in the Atmosphere on Air Fluorescence Measurements at the Pierre Auger Observatory*, Astropart. Phys. **33**, 108–129 (2010), arXiv:1002.0366v1[astro-ph.HE]

2010 14. The Pierre Auger Collaboration, *Measurement of the energy spectrum of cosmic rays above 10^{18} eV using the Pierre Auger Observatory*, Phys. Lett. **B685** 239–246 (2010), arXiv:1002.1975v1[astro-ph.HE]

2010 13. The Pierre Auger Collaboration, *Measurement of the Depth of Maximum of Extensive Air Showers above 10^{18} eV*, PRL **104** 091101 (2010)arXiv:1002.0699v1[astro-ph.HE]

2010 12. The Pierre Auger Collaboration, *Trigger and Aperture of the Surface Detector Array of the Pierre Auger Observatory*, NIM **A613** 29–39, (2010)

2009 11. The Pierre Auger Collaboration, *Atmospheric effects on extensive air showers observed with the Surface Detector of the Pierre Auger Observatory*, Astropart. Phys. **32**, 89–99, (2009), arXiv:0906.5497v2[astro-ph.IM]

2009 10. The Pierre Auger Collaboration, *Upper limit on the cosmic-ray photon fraction at EeV energies from the Pierre Auger Observatory.*, Astropart. Phys. **31** 399–406 (2009) arXiv:0903.1127v1 [astro-ph.HE]

2009 9. The Pierre Auger Collaboration, *Limit on the diffuse flux of ultra-high energy tau neutrinos with the surface detector of the Pierre Auger Observatory.*, Phys. Rev. **D79** 10:1–15 (2009)arXiv:0903.3385v1[astro-ph.HE]

2008 8. D. Allard *et* al. [LAGO Collaboration], *Use of water-Cherenkov detectors to detect Gamma Ray Bursts at the Large Aperture GRB Observatory (LAGO)*, NIM **A595** 70–72 (2008)

2008 7. The Pierre Auger Collaboration, *Observation of the Suppression of the Flux of Cosmic Rays above* 4×10^{19} *eV.*, PRL **101** 061101 (2008)

2008 6. The Pierre Auger Collaboration, *Upper limit on the diffuse flux of UHE tau neutrinos from the Pierre Auger Observatory.*, PRL **100** 21101 (2008)

2008 5. The Pierre Auger Collaboration, *Upper limit on the cosmic-ray photon flux above* 10^{19} *eV using the surface detector of the Pierre Auger Observatory.*, Astropart. Phys. **29** 243–256 (2008)

2008 4. The Pierre Auger Collaboration, *Correlation of the highest-energy cosmic rays with the positions of nearby active galactic nuclei.*, Astropart. Phys. **29** 188–204 (2008)

2007 3. The Pierre Auger Collaboration, *Correlation of the highest energy cosmic rays with nearby extragalactic objects.*, Science **318** 939–943 (2007)

2007 2. The Pierre Auger Collaboration, *Anisotropy studies around the galactic centre at EeV energies with the Auger Observatory.*, Astropart. Phys. **27** 244–253 (2007)

2007 1. The Pierre Auger Collaboration, *An upper limit to the photon fraction in cosmic rays above* 10^{19} *eV from the Pierre Auger Observatory.*, Astropart. Phys. **27** 155–168 (2007)

Participation & presentations at Schools & Conferences

2014 41. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 40. S. Pinilla, H. Asorey, L.A. Núñez, *Cosmic Rays Induced Background Radiation on Board of Commercial Flights*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 39. R. Calderón, H. Asorey, L.A. Núñez for the LAGO Collaboration, *Geant4 based simulation of the Water Cherenkov Detectors of the LAGO Project*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 38. A. Estupiñan, H. Asorey, L.A. Núñez, *Implementing the De-thinning Method for High Energy Cosmic Rays Extensive Air Showers*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., submitted, Medellín, Colombia, 2014

2014 37. H. Asorey for the LAGO Collaboration, *The LAGO project*, invited talk in the III Astroparticle Physics Workshop: The future in South America, Sao Paulo, Brazil, 2014

2014 36. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory*, in Proc. X SILAFAE, to appear in Nuc. Phys. B Proc. Supp. submitted, Medellín, Colombia, 2014

2014 35. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory (LAGO) project*, in Proc. X COLAGE, Adv. Space Res. submitted, Cusco, Perú, 2014

2014 34. M. Suárez, H. Asorey *&* Núñez for the LAGO Collaboration, *The rigidity cutoff calculation method for the Sites of the LAGO Project*, in Proc. X COLAGE, Adv. Space Res. submitted, Cusco, Perú, 2014

2014 33. C. Sarmiento, H. Asorey *&* L. Núñez for the LAGO Collaboration, *The GUANE Array of the LAGO Project: Studying Space Weather Phenomena from Ground Level*, in Proc. X COLAGE, Adv. Space Res. submitted, Cusco, Perú, 2014

2014 32. H. Asorey *&* S. Dasso for the LAGO Collaboration, *The LAGO Project Space Weather Program*, in 40th COSPAR Scientific Assembly, Moscú, Rusia, 2014

2014 31. H. Asorey *&* S. Dasso. *Astropartículas en LAGO*, curso de Astropartículas y Física Heliosférica dictado en el marco del Encuentro Astropartículas 2014, Universidad San Francisco de Quito, Quito, Ecuador

2013 30. H. Asorey *&* L. Núñez, *Astronomy and Astrophysics in the Colombian Andes: the PAS Project* in Proc. XIV Latin American Regional IAU Meeting LARIM2014, Florianopolis, Brazil , Rev. Mex. AA **SC44** 107 (2014)

2013 29. 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 28. 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 27. 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 26. 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 25. H. Asorey for the LAGO Collaboration, *The LAGO Solar Project*, in Proc. 33 International Cosmic Ray Conference, in press, Rio de Janeiro, Brazil, 2013

2013 24. 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, in press, Rio de Janeiro, Brazil, 2013

2012 23. 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 22. 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 21. 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 4th International Workshop of High Energy Physics in the LHC Era HEP2012, Valparaiso, Chile, 4–10 Jan 2012.

2011 20. 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 96th National Meeting SUF-AFA2011 of the Argentinian Physics Association, Montevideo, Uruguay, 20–23 Sept 2011.

2011 19. 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 96th National Meeting SUF-AFA2011 of the Argentinian Physics Association, Montevideo, Uruguay, 20–23 Sept 2011.

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

2011 17. The Pierre Auger Collaboration, *The Pierre Auger Observatory III: Other Astrophysical Observations*, in Proc. 32th International Cosmic Ray Conference, Beijing, China, 11–18 Ago 2011.

2010 16. H. Asorey[Pierre Auger Collaboration], *The infill array of the Pierre Auger Observatory*, talk given in the Particle and Fields Division in the 95th National Meeting AFA2010 of the Argentinian Physics Association, Malargüe, Argentina, 28 Sept–01 Oct 2010.

2010 15. 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.

2010 14. H. Asorey[LAGO Collaboration], *The Large Aperture Gamma Ray Burst Observatory (LAGO)*, plenary talk in the 3rd International Workshop of High Energy Physics in the LHC Era HEP2010, Valparaiso, Chile, 4–8 Jan 2010.

2009 13. H. Asorey[Pierre Auger Collaboration], *Cosmic Ray Solar Modulation Studies at the Pierre Auger Observatory*, in Proc. 31th International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 12. The Pierre Auger Collaboration, *Astrophysical Sources of Cosmic Rays and Related Measurements with the Pierre Auger Observatory*, in Proc. 31th International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 11. The LAGO Collaboration, *The Large Aperture GRB Observatory*, in Proc. 31th 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 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. 30th 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 1st 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. Twenty nine technical and physics talks given at the Pierre Auger Collaboration meetings, Malargüe, Argentina.

Internal notes of the Pierre Auger Observatory (GAP Notes)

See www.auger.org/admin/GAP_Notes.

2015 16. H. Asorey, J. J. Blostein, M. Gómez Berisso, I. Sidelnik, *Performance of a Water Cherenkov Detector by using different Neutron Sources*, GAP2015-030.

2014 15. 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 14. H. Asorey, J. Blostein, M. Gómez Berisso, I. Sidelnik, *Performance of a water Cherenkov detector by using a 241AmBe neutron source*, GAP 2013-108.

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.

Human Resources Training

Completed

2015 Master in Physis thesis advisor of Mauricio Suárez Durán at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia

2015 Physics thesis advisor of Alex Estupiñán at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia, Qualification 5/5.

2014 System Engineering thesis advisor of Rafael Laverde at the School of System Engineering, Universidad Industrial de Santander, Bucaramanga, Colombia, Qualification 4.9/5.

2014 Physics thesis advisor of Lic. Jonathan David Bossio Solá, at the Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Buenos Aires (UBA), Qualification 10/10.

Underway

2014 Master in Physis thesis advisor of Christian Sarmiento Cano at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia.

2014 Master in Physis thesis advisor of Yunior Perez at the Physics Department, Universidad de los Andes, Mérida, Venezuela.

2014 Physics thesis advisor of Arturo Núñez at the Physics Department, Universidad de los Andes, Mérida, Venezuela.

2014 Physics thesis advisor of Rolando Calderón Ardila at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia

2014 Physics thesis advisor of Sergio Pinilla at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia.

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

2014 Undergraduate thesis in Physics referee at the Universidad Industrial de Santander (Escuela de Física), 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 Universidad Industrial de Santander (Escuela de Física), Bucaramanga, Colombia, Christian Sarmiento Cano.

Organising & other Academic Activities

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.

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

Outreach & Complementary Activities

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

2014 H. Asorey, "Café Científico" co-organizer , La Casa del Libro Total, Bucaramanga, Colombia

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

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 (B2); French (A1)

Computing skills: Linux and Windows operative system. Preferred editor: VIm.

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

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

References

For references of my work, please contact the following persons:
Dr. Ingomar Allekotte (ingo@cab.cnea.gov.ar)
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Dr. Esteban Roulet (roulet@cab.cnea.gov.ar)

Hernán Asorey
29th April 2015
