Hernán Asorey

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Personal Information

Born in Quilmes, Buenos Aires, Argentina, on February 05th, 1974 (44 years old)
Argentinian, married, two daughters.

Current Positions

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

Jefe de Trabajos Prácticos at Insituto Balseiro, Science Department, Universidad Nacional de Cuyo (UNCuyo, licence).

Associated Professor at Sede Andina, Universidad Nacional de Río Negro (UNRN, licence).

Associated Professor at the Double Doctorate in Astrophysics program, Universidad Nacional de San Martín (UNSAM).

Selected for incorporation to CONICET in the CIC-2016 call.

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 Ap-
2005 plication to the Study of Background Radiation. *Advisor*: Dr. Ingomar Allekotte. 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 Temporal 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.

2009-2012 Senior Teaching Assistant (Jefe de Trabajos 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 in industrial projects, Buenos Aires, Argentina.

Honours, Awards, Fellowships & Grants

2015 "Astroparticle Detectors", PICT 2015-2428 Grant (Agencia-MinCyT, Argentina), running

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

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

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

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

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

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

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

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

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

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:

Medical Physics Department, CAB,(2016-Present)

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

Development of simulations and detectors for the calculation and measurement of spatial dose distribution in clinical and high-level dose environments.

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, period 2013-2016

Design and execution of the project new organization

Design and coordination of the LAGO Space Weather program

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

Research, development and building of water-Cherenkov detectors for the LAGO project at Universidad Industrial de Santander and Centro Atómico Bariloche. One of them 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) (2010-2014)

See www.cta-observatory.org

San Antonio de los Cobres site characterization

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

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

See www.andeslab.org

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

Laboratory design.

Teaching (2009-Present)

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

2015-present Associated Profesor, Thermodynamics, Cosmology and Astrophysics, Modern Physics A and Physics II B, Profesorado de Física, Sede Andina, Universidad Nacional de Río Negro (UNRN)

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

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

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

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

2009-2012 Senior teaching assistant, Physics I (introductory physics) course, UNRN.

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

2005 Member of the Academic Committee of the Master in Medical Physics program of the Instituto Balseiro, Universidad Nacional de Cuyo.

Human Resources Training

Underway

2018 PhD thesis advisor "Aplicaciones de detectores de partículas y radiación en Medicina y Geología", Rolando Calderón Ardila at the Universidad de San Martín, Argentina.

2015 PhD thesis coadvisor "Variaciones del flujo de radiación cósmica en el suelo y escenarios geofísicos", Mauricio Suárez Durán at the School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia.

Completed

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.

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

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

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

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

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

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

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

2014 System Engineering thesis advisor "Visualización de Cascadas de Rayos Cósmicos sobre GPUs", Rafael Laverde at the School of System Engineering, Universidad Industrial de Santander, Bucaramanga, Colombia, Qualification 4.8/5.

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

Referee

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, Lukas Niemietz.

2017 Doctoral thesis in Physics proposal referee at the 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 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.

Publications

Selected Works

This list is a personal selection of the published works I have been directly involved:

2018 63. H. Asorey, L. A. Núñez, M. Suarez-Duran *Preliminary Results from The Latin American Giant Observatory Space Weather Simulation Chain* Space Weather **16**(5) 461–475 (2018) arXiv:1802.08867[physics.geo-ph]

2018 62. H. Asorey, L. A. Nunez & 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 61. 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 60. 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 59. H. Asorey, A. Jaimes-Motta, L. A. Núñez, J. Peña-Rodríguez, C. Sarmiento-Cano & M. Súarez-Duran for the LAGO Collaboration, *The Calibration of the GUANE Array: Extensive Air Showers Reconstruction and Space Weather Studies* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA, **49** 145–145 (2017)

2017 58. H. Asorey, A. Balaguera-Rojas, A. Martínez-Méndez, L. A. Núñez, J. Peña-Rodríguez, P. Salgado-Meza, C. Sarmiento-Cano & M. Súarez-Duran, *Astroclimate: A citizen Science Climate Awareness* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA, **49** 144–144 (2017)

2017 57. H. Asorey, A. Balaguera-Rojas, R. Calderón Ardila, L. A. Núñez, J. D. Sanabria-Gómez, M. Súarez-Duran & A. Tapia, *Muon Telescope (MUTE): A first study using Geant4* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA, **49** 144–144 (2017)

2017 56. H. Asorey, L. A. Núñez & M. Súarez-Duran, *A Simulation Chain for the LAGO Space Weather Program* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA, **49** 56–56 (2017) arXiv:1704.07681[physics.space-ph]

2017 55. H. Asorey, A. Balaguera-Rojas, L. A. Núñez, J. D. Sanabria-Gómez, C. Sarmiento-Cano, M. Súarez-Duran, M. Valencia-Otero, & A. Vesga-Ramírez, *Astroparticle Techniques: Colombia active volcano candidates for Muon Telescope* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA, **49** 54–54 (2017) arXiv:1704.04967[physics.geo-ph]

2017 54. H. Asorey, A. Martínez-Méndez, L. A. Núñez & A. Valbuena-Delgado, *LAGO Distributed Network Of Data Repositories* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA **49** 55–55 (2017) arXiv:1704.03885[cs.DL]

2017 53. H. Asorey, L. Núñez, C. Y. Pérez Arias, S. Pinilla, F. Quiñonez & M. Suárez-Durán, *Astroparticle Techniques: Simulating Cosmic Rays induced Background Radiation on Aircrafts* in Proc. XV Latin American Regional IAU Meeting LARIM2016, Cartagena, Colombia, Rev. Mex. AA, **49** 57–57 (2017) arXiv:1704.03419[physics.space-ph]

2017 52. H. Asorey, L. A. Núñez, J. D. Sanabria-Gomez, C. Sarmiento-Cano, D. Sierra-Porta, M. Suarez-Duran, M. Valencia-Otero, A. Vesga-Ramírez, *Muon Tomography sites for Colombia volcanoes* JGR Solid Earth, submitted (2017) arXiv:1705.09884[physics.geo-ph]

2017 51. The Pierre Auger Collaboration, *Muon counting using silicon photomultipliers in the AMIGA detector of the Pierre Auger observatory* JINST **12** P03002 (2017) arXiv:1703.06193[astro-ph.IM]

2017 50. I. Sidelnik & H. Asorey, *LAGO: the Latin American Giant Observatory*, NIM-A **876** 173–175 (2017) arXiv:1703.05337[astro-ph.IM]

2017 49. I. Sidelnik, H. Asorey, J. J. Blostein & M. Gómez Berisso, *Neutron Detection Using a Water Cherenkov Detector with Pure Water and a Single PMT*, NIM-A **876** 153–155 (2017)

2017 48. The Pierre Auger Collaboration, *Impact of atmospheric effects on the energy reconstruction of air showers observed by the surface detectors of the Pierre Auger Observatory* JINST **12** P02006 (2017) arXiv:1702.02835[astro-ph.IM]

2016 47. The Pierre Auger Collaboration, *The Pierre Auger Observatory Upgrade-Preliminary Design Report*, arXiv:1604.03637[astro-ph.IM]

2015 46. H. Asorey for the LAGO Collaboration, *LAGO: the Latin American Giant Observatory*, in Proc. 34th International Cosmic Ray Conference, PoS(ICRC2015)247, The Hague, The Netherlands, 2015

2016 45. H. Asorey, R. Mayo-García, L.A. Núñez, M. Rodríguez-Pascual, A. J. Rubio-Montero, M. Suarez Durán, & L.A. Torres-Niño for the LAGO Collaboration, *The Latin American Giant Observatory: a successful collaboration in Latin America based on Cosmic Rays and computer science domains*, in Proc. 2016 16th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), IEEE Proccedings, pp 707-711, Cartagena, Colombia, 2016, arXiv:1605.09295[astro-ph.IM]

2015 44. I. Sidelnik, H. Asorey, J. J. Blostein, M. Gómez Berisso, H. Arnaldi, M. Sofo Haro, *Detección de Neutrones mediante efecto Cherenkov en Agua*, Actas de la Reunión Anual de la Asociación Argentina de Tecnología Nuclear (2015).

2015 43. H. Asorey & L. A. Núñez, *Astroparticle Physics at Eastern Colombia*, in Proc. César Lattes Meeting, accepted Niterói, Brazil, 2015 arXiv:1510.01305[astro-ph.IM]

2015 42. H. Asorey for the LAGO Collaboration, *LAGO: the Latin American Giant Observatory*, in Proc. 34th International Cosmic Ray Conference, PoS(ICRC2015)247, The Hague, The Netherlands, 2015

2015 41. S. Dasso, A.M. Gulisano, J.J. Masías-Meza & H. Asorey for the LAGO Collaboration, *A Project to Install Water-Cherenkov Detectors in the Antarctic Peninsula as part of the LAGO Detection Network*, in Proc. 34th International Cosmic Ray Conference, PoS(ICRC2015)105, The Hague, The Netherlands, 2015

2015 40. H. Asorey, S. Dasso, L.A. Núñez, Y. Perez, C. Sarmiento & M. Suárez-Durán for the LAGO Collaboration, *The LAGO Space Weather Program: Directional Geomagnetic Effects, Background Fluence Calculations and Multi-Spectral Data Analysis*, in Proc. 34th International Cosmic Ray Conference, PoS(ICRC2015)142, The Hague, The Netherlands, 2015

2015 39. H. Asorey, P. Miranda, A. Núñez-Castiñeyra, L.A. Núñez, J. Salinas, C. Sarmiento-Cano, R. Ticona & A. Velarde for the LAGO Collaboration, *Analysis of Background Cosmic Ray Rate in the 2010-2012 Period from the LAGO-Chacaltaya Detectors*, in Proc. 34th International Cosmic Ray Conference, PoS(ICRC2015)414, The Hague, The Netherlands, 2015

2015 38. H. Asorey, D. Cazar-Ramírez, R. Mayo-García, L.A. Núñez, M. Rodríguez-Pascual & L.A. Torres-Niño for the LAGO Collaboration, *Data Accessibility, Reproducibility and Trustworthiness with LAGO Data Repositories*, in Proc. 34th International Cosmic Ray Conference, PoS(ICRC2015)672, The Hague, The Netherlands, 2015

2014 37. 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 36. 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., accepted, Medellín, Colombia, 2014

2014 35. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory*, in Proc. X SILAFAE, Nuc. Phys. B Proc. Supp., accepted, Medellín, Colombia, 2014

2014 34. S. Pinilla, H. Asorey, L.A. Núñez, *Cosmic Rays Induced Background Radiation on Board of Commercial Flights*, in Proc. X SILAFAE, Nuc. Part. Phys. Proc. **267-269** 418-420 (2015), Medellín, Colombia, 2014

2014 33. 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. Part. Phys. Proc. **267-269** 424-426 (2015), Medellín, Colombia, 2014

2014 32. 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 31. 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 30. 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 29. 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 28. 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

2014 27. H. Asorey, J.I. Castro & A. López Dávalos, *Una deducción analítica simple de la hodógrafa para el problema de Kepler*, Rev. Ens. Fís. **26**(1), 63-73 (2014).

2013 26. 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 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. 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 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.

2011 21. 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 20. 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 19. H. Asorey & A. López Dávalos, *Fermi Problem: Power developed at the eruption of the Puyehue-Cordón Caulle volcanic system in June 2011*, arXiv:1109.1165v1[physics.ed-ph]. Selected as the best arXiv paper of September 2011 by the M.I.T. Technology Review Physics arXiv Blog, (2011)

2011 18. H. Asorey, A. López Dávalos & A. Clúa, *Potencia de la Erupción del Volcán Puyehue como un Problema de Fermi*, Rev. Ens. Fís. **24**(2), 49-54 (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)

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2014 42. 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. Part. Phys. Proc. **267-269** 424-426 (2015), Medellín, Colombia, 2014

2014 41. 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. Part. Phys. Proc. **267-269** 421-423 (2015), Medellín, Colombia, 2014

2014 40. 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 39. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory*, in Proc. X SILAFAE, Medellín, Colombia, 2014

2014 38. H. Asorey for the LAGO Collaboration, *The Latin American Giant Observatory (LAGO) project*, in Proc. X COLAGE, Cusco, Perú, 2014

2014 37. 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, Cusco, Perú, 2014

2014 36. 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, Cusco, Perú, 2014

2014 35. H. Asorey *&* S. Dasso for the LAGO Collaboration, *The LAGO Project Space Weather Program*, in 40th COSPAR Scientific Assembly, Moscú, Rusia, 2014

2014 34. 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 33. 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 32. H. Asorey, *The Universidad Industrial de Santander New Introductory Physics Course*, invited seminary at the XXXI Encontro de Físicos do Norte e Nordeste, Campina Grande, Brasil, 4–8 Nov 2013.

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

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

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

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

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

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

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

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. 32th 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. 32th 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 95th 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 95th 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 3rd 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. 31th 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. 31th 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. 31th International Cosmic Ray Conference, Lodz, Poland, 8–15 Jul 2009.

2009 12. The LAGO Collaboration, *The Large Aperture GRB Observatory*, in Proc. 31th 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. 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. Thirty seven technical and physics talks given at the Pierre Auger Collaboration meetings, Malargüe, Argentina.

Technical Reports of Comisión Nacional de Energía Atómica

2015 2. I. Sidelnik, H. Asorey, J. J. Blostein, M. Gómez Berisso, H. Arnaldi, M. Sofo Haro, *Caraterización de un detector Cherenkov de agua en presencia de fuentes de neutrones de* ^{241}*AmBe y* ^{252}*Cf*, Informe Técnico CNEA, ITE-EN_GIN-FN-001, aprobado 2015.

2017 1. I. Sidelnik, H. Asorey, N. Guarin, H. Arnaldi, J. Lipovetzky, J.J. Blostein, A. Mancilla, G. Anibal, M. Pérez, F. Alcalde, M. Sofo Haro, M. Gómez Berisso, Informe Técnico CNEA, ITE-EN_GIN-FN-003 Rev. 01, aprobado 2017.

Internal notes of the Pierre Auger Observatory (GAP Notes)

See www.auger.org/admin/GAP_Notes.

2018 23. M. Suárez-Durán, H. Asorey, A. Taboada, S. Dasso, L. A. Núñez, *Determination of the muonic component to the Forbush decrease of December 2006*, GAP 2018-031

2018 22. M. Suárez-Durán and H. Asorey and S. Dasso and L.A. Núñez, *Assessing the Geomagnetic Field contribution during two Forbush Decreases: May 2005 and December 2006*, GAP 2018-009

2017 21. A. Valbuena, R. Ramos-Pollán, L.A. Núñez, H. Asorey, *Exploiting Surface Detector Monitoring Data for Surface Temperature Prediction*, GAP 2017-017

2017 20. H. Asorey, *Air density calculation for the new weather data sets of the Auger Observatory*, GAP 2017-008

2016 19. R. Ramos-Pollán, X. Bertou, L.A. Núñez, H. Asorey, *Validating the usage of surface detector GPS position differentials to characterize ionospheric behavior*, GAP 2016-070

2016 18. H. Asorey, E. Roulet, *The new weather data sets for the Auger Observatory Site*, GAP 2016-049

2015 17. H. Asorey, J. J. Blostein, M. Gómez Berisso, I. Sidelnik, *Performance of a Water Cherenkov Detector by using different Neutron Sources*, GAP 2015-030.

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 & other Academic Activities

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

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Additional Information

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

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, 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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Hernán Asorey
11th July 2018
