

Curriculum vitae

Dr. Sabrina Casanova

Nationality : Italian
Family Status : married, one child
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69120 Heidelberg, Germany
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Academic Record

August 2004 Certification as teacher of physics in the Italian high school system
(Abilitazione all'Insegnamento della Fisica nella Scuola Secondaria Superiore)
Date : 31st August 2004

July 2001 PhD in Physics (Dottorato di ricerca in Fisica)
Universita' degli Studi di Pavia, Italy and
Bergische University of Wuppertal, Germany
Title: *Analysis of non-forward quark-quark correlator*
Supervisors : Prof S. Boffi and Dr R.Jakob
Graduation Date : 31st July 2001

April 1997 First Degree (Laurea in Fisica)
Universita' La Sapienza di Roma, Italy
Title: *On the geometrization of spinorial fields*
Supervisors : Prof R. Ruffini and Dr G. Montani
Graduation Date : 17th April 1997

Employment

- since March 2012 PostDoctoral Research Assistant
at Max Planck Institut für Kernphysik, Heidelberg, Germany
- Sep 2011 – Feb 2012 Ville de Paris Fellow
at the der University Paris VII, Paris, France
- Sep 2010 – Aug 2011 PostDoctoral Research Assistant
at Ruhr Universität Bochum, Germany
Visiting Scientist
at Max Planck Institut für Kernphysik, Heidelberg, Germany
- June 2008 – Aug 2010 Marie Curie Fellow
at Max Planck Institut für Kernphysik, Heidelberg, Germany
- Dec 2006 – May 2008 PostDoctoral Research Assistant
at Max Planck Institut für Kernphysik, Heidelberg, Germany
- Nov 2004 – Nov 2006 PostDoctoral Research Assistant
at Los Alamos National Laboratory, Los Alamos, US
- Oct 2003 – Oct 2004 Physics teaching position
Istituto Superiore Sant'Elia, Cantu, Italy
- Sep 2001 – Sep 2003 PostDoctoral Research Assistant
at Max Planck Institut für Radioastronomie in Bonn, Germany

Refereed Publications (non including HESS Publications)

- 1) *Gamma-ray signatures of cosmic ray acceleration, propagation, and confinement in the era of CTA*
F. Acero, A. Bamba, **S. Casanova**, E. de Cea, E. de Ona Wilhelmi, S. Gabici, Y. Gallant, D. Hadasch, A. Marcowith, G. Pedaletti, O. Reimer, M. Renaud, D. F. Torres, F. Volpe
2012 *Astroparticle Physics (ASTROPARTPHYS D 12 00042R1)*
- 2) *Cosmic-ray-induced ionization in molecular clouds adjacent to supernova remnants. Tracing the hadronic origin of GeV gamma radiation*
Schuppan, F., Becker, J. K., Black, J. H. and **Casanova, S.**
2012 *Astronomy and Astrophysics* **541** A126
- 3) *Cosmic ray transport theory in partially turbulent space plasmas with compressible magnetic turbulence*
S. Casanova and R. Schlickeiser
2012 *ApJ* **745** 153
- 4) *Gamma ray emission from molecular clouds: a probe of cosmic ray origin and propagation*
S. Casanova
2011 *Progress in Particle and Nuclear Physics* **66** 3
- 5) *Modeling the gamma-ray emission produced by runaway cosmic rays in the environment of RX J1713.7-3946*
S. Casanova, D. I. Jones, F. A. Aharonian, Y. Fukui, S. Gabici, A. Kawamura, T. Onishi, G. Rowell, K. Torii, H. Yamamoto
2010 *Publications of the Astronomical Society of Japan* **62** 1127
- 6) *Molecular clouds as cosmic ray barometers*
S. Casanova, F. A. Aharonian, Y. Fukui, S. Gabici, D. I. Jones, A. Kawamura, T. Onishi, G. Rowell, K. Torii, H. Yamamoto
2010 *Publications of the Astronomical Society of Japan* **62** 769

- 7) *Broad-band nonthermal emission from molecular clouds illuminated by cosmic rays from nearby supernova remnants*
 S. Gabici, F. A. Aharonian and **S. Casanova**
 2009 *MNRAS* **396** 1629G
- 8) *The Large Scale Cosmic-Ray Anisotropy as Observed with Milagro*
 Abdo, A. A. et al (including **S. Casanova**) [Milagro Collaboration]
 2009 *ApJ* **698** 2121-2130
- 9) *Revisiting the diffuse neutrino flux from the inner Galaxy using new constraints from very high energy gamma-ray observations*
 Taylor, Andrew, Gabici, Stefano, White, Richard, **Casanova, Sabrina**, Aharonian, Felix
 2009 *Nuclear Instruments and Methods in Physics Research Section A* **602** 113
- 10) *The diffuse neutrino flux from the inner Galaxy: constraints from very high energy gamma-ray observations*
 S. Gabici, A. M. Taylor, R. J. White, **S. Casanova** and F. A. Aharonian
 2008 *Astroparticle Physics* **30** 167
- 11) *A Measurement of the Spatial Distribution of Diffuse TeV Gamma Ray Emission from the Galactic Plane with Milagro*
 A. A. Abdo et al (including **S. Casanova, interpretation of the data**) [Milagro Collaboration]
 2008 *ApJ* **688** 1078A
- 12) *Discovery of Localized Regions of Excess 10-TeV Cosmic Rays*
 A. A. Abdo et al (including **S. Casanova**) [Milagro Collaboration]
 2008 *Phys. Rev. Lett.* **101** 221101
- 13) *A generalization of Schouten's classification for non-Riemannian geometries with asymmetric metric*
Sabrina Casanova, Orchidea Maria Lecian, Giovanni Montani, Remo Ruffini and Roustam Zalaletdinov
 2008 *Modern Physics Letters A* **23** 17

- 14) *Constraints on the TeV source population and its contribution to the galactic diffuse TeV emission*
S. Casanova and B. L. Dingus
 2008 *Astroparticle Physics* **29** 63
- 15) *Milagro constraints on very high energy emission from short duration gamma ray bursts*
 A. A. Abdo et al (including **S. Casanova**) [Milagro Collaboration]
 2007 *ApJ* **666** 361-367
- 16) *TeV Gamma-ray Sources from a survey of the Galactic Plane with Milagro*
 A. A. Abdo et al (including **S. Casanova**) [Milagro Collaboration]
 2007 *ApJ* **664L** 91-94
- 17) *Discovery of TeV Gamma-Ray Emission from the Cygnus Region of the Galaxy*
 A. A. Abdo et al (including **S. Casanova, interpretation of the data**) [Milagro Collaboration]
 2007 *ApJ* **658L** 33-36
- 18) *Contribution of GRB Emission to the GeV Extragalactic Diffuse Gamma-Ray Flux*
S. Casanova, B. L. Dingus and B. Zhang
 2007 *ApJ* **656** 306-312
- 19) *Off-forward quark-quark correlation function*
S. Casanova
 2006 *Physical Review D* **74** 5
- 20) *Sources of cosmic rays and galactic diffuse gamma radiation*
S. Casanova, P. L. Biermann, R. Engel, A. Meli and R. Ulrich
 2004 *Refereed ESA-publication (SP-series)* **ESA SP-555** 521-524
- 21) *Properties and performance of the prototype instrument for the Pierre Auger Observatory*
 J. Abraham et al (including **S. Casanova**) [Auger Collaboration]
 2004 *Nuclear Instruments and Methods in Physics Research Section A* **523** 50-95

HESS Publications

- 1) *Search for Very-high-energy gamma-ray emission from Galactic globular clusters with H.E.S.S*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2013 *accepted for publication in Astronomy and Astrophysics*
- 2) *Search for photon line-like signatures from Dark Matter annihilations with H.E.S.S*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2013 *accepted for publication in Phys ReV Lett*
- 3) *HESS observations of the Carina nebula and its enigmatic colliding wind binary Eta Carinae*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2012 *MNRAS* **424** 1
- 4) *Measurement of the extragalactic background light imprint on the spectra of the brightest blazars observed with H.E.S.S*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2012 *accepted for publication in Astronomy and Astrophysics*
- 5) *Identification of HESS J1303-631 as a pulsar wind nebula through -ray, X-ray, and radio observations*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2012 *Astronomy and Astrophysics* **548** A46
- 6) *Spectral Analysis and Interpretation of the -Ray Emission from the Starburst Galaxy NGC 253*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2012 *ApJ* **757** 158A

- 7) *Discovery of VHE gamma-ray emission and multi-wavelength observations of the BL Lacertae object 1RXS J101015.9-311909*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **542** 94H
- 8) *Probing the extent of the non-thermal emission from the Vela X region at TeV energies with H.E.S.S.*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **548** A38
- 9) *Discovery of gamma-ray emission from the extragalactic pulsar wind nebula N 157B with H.E.S.S.*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **545** 2H
- 10) *Constraints on the gamma-ray emission from the cluster-scale AGN outburst in the Hydra A galaxy cluster*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **545** 103H
- 11) *Search for Dark Matter Annihilation Signals from the Fornax Galaxy Cluster with H.E.S.S.*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **545** 103
- 12) *Discovery of VHE emission towards the Carina arm region with the H.E.S.S. telescope array: HESS J1018-589*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **541** A5

- 13) *Discovery of VHE gamma-ray emission and multi-wavelength observations of the BL Lac object 1RXS J101015.9-311909*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *accepted for publication in Astronomy and Astrophysics* eprint arXiv:1204.1964
- 14) *A multiwavelength view of the flaring state of PKS 2155-304 in 2006*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astron and Astroph* **539** A149
- 15) *The 2010 Very High Energy gamma-Ray Flare and 10 Years of Multi-wavelength Observations of M 87*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *ApJ* **746** 151A
- 16) *Discovery of hard-spectrum gamma-ray emission from the BL Lacertae object 1ES 0414+009*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *ApJ* **538A** 103H
- 17) *Discovery of extended VHE gamma-ray emission from the vicinity of the young massive stellar cluster Westerlund 1*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *ApJ* **537A** 114A
- 18) *Simultaneous multi-wavelength campaign on PKS 2005-489 in a high state*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **533A** 110H

- 19) *Discovery of the source HESS J1356-645 associated with the young and energetic PSR J1357-6429*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2012 *Astronomy and Astrophysics* **533A** 103H
- 20) *H.E.S.S. Observations of the Globular Clusters NGC 6388 and M15 and Search for a Dark Matter Signal*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2011 *ApJ* **735** 12A
- 21) *Very-high-energy gamma-ray emission from the direction of the Galactic globular cluster Terzan 5*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2011 *Astronomy and Astrophysics* **531L** 18H
- 22) *A new SNR with TeV shell-type morphology: HESS J1731-347*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2011 *Astronomy and Astrophysics* **531H** 81H
- 23) *HESS J1943+213: a candidate extreme BL Lacertae object*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2011 *Astronomy and Astrophysics* **529A** 49H
- 24) *Search for a Dark Matter annihilation signal from the Galactic Center halo with H.E.S.S.*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2011 *PhRvL* **106** id. 161301
- 25) *Detection of very-high-energy gamma-ray emission from the vicinity of PSR B1706-44 and G343.1-2.3 with H.E.S.S.*
 Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
 2011 *Astron and Astrophys* **528A** 143A

- 26) *Search for Lorentz Invariance breaking with a likelihood fit of the PKS 2155-304 Flare Data Taken on MJD 53944*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2011 *APh* **34** 738H

- 27) *H.E.S.S. observations of the globular clusters NGC 6388 and M 15 and search for a Dark Matter signal*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2011 *ApJ* **735** 12A

- 28) *H.E.S.S. constraints on Dark Matter annihilations towards the Sculptor and Carina Dwarf Galaxies*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2011 *Astroparticle Physics* **34** 608-616

- 29) *Revisiting the Westerlund 2 Field with the H.E.S.S. Telescope Array*
Abramowski, A. et al (including **Casanova, S.**) [HESS Collaboration]
2011 *Astronomy and Astrophysics* **525** A46

Invited Talks at International Conferences

- 1) *Gamma Ray Emission from Molecular Clouds*
at “32nd Erice School on Nuclear and Subnuclear Physics”
Erice, 16-24 September 2010

- 2) *The diffuse emission at TeV energies*
at “TeVPa2010”
Paris, 19-23 July 2010

- 3) *Particle escape from supernova remnants*
at “Exploring Supernova Remnants and Pulsar Wind Nebulae in X-rays: before
and after ASTRO-H”
Tokyo, Japan 18-19 Feb 2010

- 4) *The origin of cosmic rays and the Galactic gamma-ray emission*
at “Astronomical Convention Heidelberg”
Heidelberg, Germany 2 October 2009

- 5) *The origin of cosmic rays and the Galactic gamma-ray emission*
at “AGILE Workshop”,
Milano, Italy 22-23 April 2009

- 6) *Diffuse gamma ray emission*
at “XXth RENCONTRES DE BLOIS”,
Chateau de Blois, France 18-23 May 2008

- 7) *The diffuse emission from the Galaxy at GeV and TeV energies*
at “Non-Thermal Hadronic Processes in Galactic Sources”,
Heidelberg, Germany 14-16 Jan 2008

- 8) *Surveying the TeV sky with Milagro*
at “Vulcano Workshop 2006”,
Vulcano, Italy 22-27 May 2006

Selected Colloquia at Institutes

- 1) *Cosmic ray propagation and interaction in the Galaxy*
at Observatory of Cracow, Poland, May 2012
- 2) *Gamma ray emission from molecular clouds*
at North West University, Potchefstroom, South Africa, Jul 2011
- 3) *Gamma ray emission from molecular clouds*
at University of Toulouse, France, April 2011
- 4) *Molecular clouds as cosmic ray barometers*
at CNRS APC, Paris, France, April 2011
- 5) *Gamma ray emission from molecular clouds*
at University of Nijmegen, The Netherlands, March 2011
- 6) *Molecular clouds as cosmic ray barometers*
at University of Bochum, Germany, December 2010
- 7) *Molecular clouds as cosmic ray barometers*
at Institut für Theoretische Astrophysik, Heidelberg, Germany, April 2010
- 8) *TeV gamma ray astronomy with Cherenkov telescopes*
at University of Nagoya, Nagoya, Japan, April 2008
- 9) *TeV gamma ray astronomy with Milagro*
at IAAT, Eberhard Karls Universität, Tübingen, Germany, January 2008
- 10) *The Galactic Plane Survey Performed by the Milagro Detector*
at Max Planck Institut fuer Kernphysik, Heidelberg, Germany, Gentner Colloquium, December 2007

- 11) *Searching for very high energy Gamma-Ray Burst with Milagro*
at Universita La Sapienza di Roma, Rome, Italy, October 2007

- 12) *Surveying the multi-TeV Gamma-Ray Sky. New Results from Milagro*
at Istituto di Astrofisica Spaziale e Fisica Cosmica, Milano, Italy, June 2007

- 13) *The TeV sky seen by Milagro*
at Penn State University, USA, October 2006

- 14) *Surveying the TeV sky with Milagro*
at Kavli Institute, Stanford University, USA, July 2006

Participation in international collaborations

2005–2008	Member of the Milagro Collaboration
since 2008	Liason between HEA Group led by Prof Aharonian at MPIK and the NANTEN Collaboration led by Prof Fukui at Nagoya University, Japan
since 2008	Member of the Cherenkov Telescope Array Collaboration Task leader for WP-Physics Group on Diffuse/Extended Sources
since 2009	Member of the HESS Collaboration
since 2012	Associate Member of the HAWC Collaboration

Teaching experience

Sep 1998 – Sep 1999	Teaching assistant in electromagnetism courses at the University of Pavia, Italien
Oct 2003 – Oct 2004	Physics teaching position at Istituto Superiore Sant’Elia, Cantu’, Italy
Apr 2007 – Dez 2007	Co-supervision of graduate student L. J. Rangel Lemos at the University La Sapienza of Rome, Italy
Jul 2009 – Jul 2010	Supervision of master student Andreas Hillert at the Max Planck fuer Kernphysik, Heidelberg , Germany
Oct 2010 – Nov 2010	Teaching part of the course <i>Einführung in die Astroteilchenphysik</i> (in German) at the Ruhr Universität, Bochum , Germany

Languages

Italian	Italian native speaker
English	fluent in spoken and written English, (Certificate IELTS)
German	fluent in spoken and written German Certificate <i>Deutsche Sprachprüfung für den Hochschulzugang (DSH)</i> at the University of Bonn, 14 April 2003
French	fluent in spoken and written French Certificate <i>Niveau C1 du cadre europeen</i>

Technical skills

- software: fortran77, C++, Mathematica, Maple, Latex, ROOT, astroROOT, IDL, Mathematica
- operating systems: Windows, Unix, Linux, VMs, MAC

Experience as Referee and Editor for Scientific Journals

- Referee
 - Astronomy and Astrophysics
 - Astrophysical Journal
 - Astrophysical Journal Letter
- Editor for High Energy Physics
 - The Scientific World Journal

Organization of Conferences

- Local organizing committee of 25th Texas Symposium on Relativistic Astrophysics, Heidelberg, Germany (2010)
- Local organizing committee of The chaotic Universe, Pescara, Italy (1999)
- Local organizing committee of Third William Fairbank Meeting, Pescara, Italy (1998)

Awards

- Senior Fellow of the Ville de Paris, 2011
- Marie Curie Intra-European Fellowships for Career Development (IEF), 2007
- NATO-Advance Study Institute Fellowship, 2002