

Curriculum Vitae

Sara Rebecca Gozzini

Education

Ph.D. in Physics 2005–2008

Johannes Gutenberg-Universität Mainz Mainz, Germany 'Search for Prompt Neutrinos with AMANDA-II'

Master in Physics 2002–2004

Università degli Studi di Torino Torino, Italy 'Construction of the Standard Model at Two Loops'

Bachelor in Physics 1999–2002

Università degli Studi di Torino Torino, Italy 'The Reduced Three-Body Problem'

Work Experience

Postdoctoral Researcher 2019 – currently

ECAP -Erlangen center for Astroparticle Physics Erlangen, Germany

- Machine Learning techniques applied to KM3NeT neutrino telescopes
- Open data management and access in within H2020 Infradev Project

Postdoctoral Researcher 2017 – 2019

IFIC, Instituto de Física Corpuscular Valencia, Spain

- Analysis of data taken with the ANTARES and KM3NeT neutrino telescopes
- Implementation and coordination of dark-matter searches

IT Consultant 2016 -2017

Virtimo AG Berlin, Germany

- Design and development of electronic communication systems
- Management of full-life cycle of business IT projects

Lecturer 2016 -2017

Berlin International College Berlin, Germany

- Electrical engineering as preparatory classes for university access
- Preparation of exam tests and student assessment

Personal Assistant 2015–2016

Earthly Supply Company Antibes, France

- Planning of marketing strategies for ecologically sustainable products
- Management of database system, email servers and security protocols

Postdoctoral Research Fellow 2010–2014

Deutsches Elektronen-Synchrotron DESY Zeuthen, Germany

- Coordination of proposals for astrophysical observations
- Analysis and interpretation of data from gamma-ray telescopes
- Numerical implementation of source emission models
- Supervision of research projects

Research Assistant 2008–2010

University of Leeds, School of Physics & Astronomy Leeds, UK

- Cosmic-ray physics with the Pierre Auger Observatory
- Analysis of anisotropy and correlation between cosmic-ray arrival directions and candidate sources
- Simulations for cosmic-ray composition
- Teaching Assistant

Teaching Track

- Tutorial classes for master courses at the University of Mainz (total 112 hours)

Quantum Field Theory Apr. 2007 -Jul. 2007 28 hours

Theoretische Physik VI -Quantenfeldtheorie

Quantum Mechanics and Atomic Physics Oct. 2006 -Feb. 2007 28 hours

Physik III

Particle and Nuclear Physics Apr. 2006 -Jul. 2006 28 hours

Theoretische Physik IV

Particle Physics Oct. 2005 -Feb. 2006 28 hours

Teilchenphysik

- o Lecturer in electrical engineering at Berlin International College, Berlin (120 lecturing hours)

Electrical engineering Summer semester 2016 60 hours

Elektrotechnik

Electrical engineering Summer semester 2017 60 hours

Elektrotechnik

- o Supervision of 2 undergraduate theses at Univ. Valencia
- o Supervision of 2 *Summer Student* projects at IFIC / Univ. Valencia
- o Supervision of 3 *Summer Student* projects at DESY Zeuthen
- o Co-supervision of master and PhD theses Humboldt U. zu Berlin
- o Co-supervision of 2 final-year projects at U. of Leeds

Publication Identifier

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Selected Publication Record

- o Combined search for neutrinos from dark matter self-annihilation in the Galactic Centre with ANTARES and IceCube, submitted to Phys. Rev. D [arXiv:2003.06614]
- o Search for dark matter towards the Galactic Centre with 11 years of ANTARES data, S.R.Gozzini for the ANTARES Collaboration, Phys. Lett. B 805, 2020
- o Search for dark matter with the ANTARES and KM3NeT neutrino telescopes, S.R. Gozzini and J. Zornoza, PoS-ICRC2019-552
- o Sensitivity of the ANTARES neutrino telescope for secluded dark matter searches, S.R. Gozzini, C. Lagunas, F. Sala and J. Zornoza, PoS-ICRC2019-519
- o Combined Search for Neutrinos from Dark Matter Annihilation in the Galactic Centre using ANTARES and IceCube, S.R. Gozzini, N. Iovine, J.A. Aguilar Sánchez, S. Baur and J. D. Zornoza Gómez, PoS-ICRC2019-522
- o Erratum to “Results from the search for dark matter in the Milky Way with 9 years of data of the ANTARES neutrino telescope” [Phys. Lett. B 769 (2017) 249-254]
- o Combined search for dark matter from the Galactic Centre with the ANTARES and IceCube neutrino telescopes, S.R. Gozzini, N. Iovine, J.A. Aguilar Sánchez, S. Baur and J. D. Zornoza Gómez. EPJ Web of Conferences 207 (2019)
- o Observation of the Black Widow B1957+20 millisecond pulsar binary system with the MAGIC telescopes MAGIC Collaboration (M.L. Ahnen et al.). Monthly Notices of the Royal Astronomical Society, Volume 470, Issue 4, 1 October 2017
- o Cosmic Ray Diffusion in the W44 Region with the MAGIC Telescopes, Sara Rebecca Gozzini et al.. 2016. Published in PoS ICRC2015 (2016) 870
- o Some contributions of MAGIC to the physics of cosmic rays, EPJ Web Conf. 52 (2013)
- o Morphological and spectral properties of the W51 region measured with the MAGIC telescopes MAGIC Collaboration (J. Aleksic et al.). Jan 2012. 11 pp. Astronomy & Astrophysics 541 (2012) A13

Membership in International Collaborations

2017-currently: ANTARES and KM3NeT Collaborations **2010-2014:** MAGIC Collaboration **2008-2010:** Pierre Auger Collaboration **2005-2008:** IceCube Collaboration

Conference Contributions

- o Search for heavy secluded dark matter with ANTARES, Neutrino 2020 (Chicago, USA), June 2020
- o Indirect search for dark matter in the Galactic Centre combining ANTARES and IceCube, Neutrino 2020 (Chicago, USA), June 2020
- o ANTARES and KM3NeT Overview, NDM-2020 Neutrinos and Dark Matter, Hurghada (Egypt), January 2020
- o Search for dark matter with the ANTARES and KM3NeT neutrino telescopes, 16th Multidark Consolider Workshop, Huelva (Spain), September 2019
- o Search for dark matter with the ANTARES and KM3NeT neutrino telescopes, 36th ICRC, Madison WI (USA), July 2019
- o Sensitivity of the ANTARES neutrino telescope for secluded dark matter searches, 36th ICRC, Madison WI (USA), July 2019
- o Cosmic Neutrinos, invited talk for XLVII International Meeting on Fundamental Physics, Aranjuez (Spain), June 2019
- o Combined WIMP search from the Galactic Centre with ANTARES and IceCube, Multidark Consolider Workshop, Zaragoza (Spain), April 2019
- o Dark Matter sensitivity with ANTARES and KM3NeT, invited talk at MAGIC Dark Matter workshop, Barcelona (Spain), January 2019,
- o Searches for Dark Matter with the ANTARES and KM3Net neutrino telescopes, Dark Ghosts 2018, Bruxelles (Belgium), November 2018 ,
- o Searches for Dark Matter with the ANTARES/KM3Net neutrino telescopes, X CPAN Days, Salamanca (Spain), October 2018,
- o Combined search for dark matter from the Galactic Centre with the ANTARES and IceCube neutrino telescopes, VLVnT, Dubna (Russia), October 2018,
- o ANTARES dark matter searches and perspectives for KM3NeT, GEMMA, Lecce (Italy), June 2018

- o Cosmic Ray Diffusion in the W44 Region with the MAGIC Telescopes, The 34th International Cosmic Ray Conference, August 2015, The Hague (The Netherlands)
- o Cosmic Ray Studies with MAGIC, invited talk for the MAGIC Collaboration, TeV Particle Astrophysics, Irvine, CA (USA), August 2013
- o The W51 Complex, invited talk for the MAGIC Collaboration, 25th Rencontres de Blois, Blois (France), May 2013
- o Special photography of the universe: γ ray astrophysics and the MAGIC telescopes, invited seminar talk at Centre de Physique des Particules, Marseille (France), January 2013
- o Cosmic Ray Acceleration in W51C Observed with the MAGIC Telescopes Ignasi Reichardt, Emiliano Carmona, Julian Krause, Rebecca Gozzini, Fabian Jankowski. 2013. *Astrophys.Space Sci.Proc.* 34 (2013)
- o Some contributions of MAGIC to the physics of cosmic ray, MAGIC overview talk, International Symposium on Cosmic Ray Interactions, Berlin (Germany), August 2012
- o The supernova remnant W51C: a plausible source of galactic cosmic rays?, European Cosmic Ray Symposium, Moscow (Russia), July 2012
- o The question of anisotropy in high-energy cosmic rays, Institute of Physics, London (UK), March 2010,
- o Anisotropy studies with the 'right ascension resonance' method, Institute of Physics, Edinburgh (UK), June 2009
- o The Atmospheric Neutrino Energy Spectrum, German Physical Society (DPG), Freiburg (Germany), March 2008,

Technical Operations at Telescopes / Detector Sites

- 2019** Responsible for operations of the ANTARES Telescope
- 2018** Operator for the ANTARES Telescope, La Seyne-sur-Mer, France
- 2013** Leader of astrophysical observations at the MAGIC Telescopes, La Palma, Spain
- 2012** Hardware and mirror maintenance training at the MAGIC Telescopes, La Palma, Spain
- 2011** Operator at the MAGIC Telescopes, La Palma, Spain
- 2010** Operator at the Pierre Auger Observatory, Malargüe, Argentina
- 2006** Installation of the *Supernova Data Acquisition System* at the AMANDA-II Detector, Amundsen-Scott South Pole Station, Antarctica

Scientific Outreach

- o *Más allá de la luz (Beyond light)*, talk for high-school students, Silla, Spain (2019)
- o *Astroparticle experiments in unusual sites*, IES El Grau, Valencia, Spain (2018)
- o Open-door day *Zukunftstag Brandenburg*, DESY Zeuthen, Germany (2014)
- o *Blast-off Rocket Science!* Univ. of Leeds, UK (2010)
- o *Astrophysics in Antarctica*, talk for high school, Istituto Sociale di Torino, Italy (2007)

Organization of Events

2019 ISAPP School 2020 at IFIC Valencia, Spain 2018 H2020 Oscillation physics workshop at IFIC Valencia, Spain 2018 Dark Ghosts at ULB Bruxelles, Belgium 2017 First KM3NeT bootcamp, IFIC Valencia 2011 MAGIC software school, DESY Zeuthen

Commissions of trust

- o Leader of data taking operation for the ANTARES Telescope (2019)
- o Project leader for Virtimo / WINGAS Germany (2016)
- o PI and coordinator of proposal for future astronomical Observations (2014)
- o Leader of astronomical observations for the MAGIC Telescopes (2013)
- o Reviewer for scientific journals

IT

- o Analysis environments: python, git, ROOT, C++, mathematica
- o Scripting and MC simulations: FORTRAN, Shell, PERL
- o Maintenance of data acquisition systems for scientific instrumentation
- o Database management: Oracle, MySQL, MSSQL
- o Encryption and security protocols for electronic communication systems (AS2, AS4)
- o Handling of XML-based workflows (XSLT on *Inubit IS*) for automated IT infrastructures

Languages

- o 'Advanced Inubit Workflow Design' course at Bosch Software Innovations, Berlin (2016)
- o Red Cross first-aid training, Berlin (2011)