

Santiago del Palacio

Academic Formation

2014–2018 **PhD in Astronomy**, *Faculty of Astronomical and Geophysical Sciences, La Plata National University*, La Plata, *Thesis defense mark: 10/10.*

Completion date: Nov. 20, 2018

2008–2014 **Ms. S. in Astronomy**, *Faculty of Astronomical and Geophysical Sciences, La Plata National University*, La Plata, *GPA: 9.56/10.*

PhD Courses

- 1. Massive Stars in the Modern Astronomical Era**
Professor: Dr. Michäel De Becker
Faculty of Astronomical and Geophysical Sciences, La Plata National University
Year: 2017 Mark: 10/10
- 2. Seminar of Radioastronomy**
Professors: Dr. Paula Benaglia & Dr. Manuel Fernández López
Faculty of Astronomical and Geophysical Sciences, La Plata National University
Year: 2015 Mark: 10/10
- 3. Introduction to black hole astrophysics.**
Professor: Dr. Gustavo Romero.
Year: 2015 Attended
- 4. Introduction to Magnetohydrodynamics.**
Professor: Dr. Ana María Platzeck.
Year: 2014 Mark: 10/10
- 5. Seminar: Applications of GRTensor in Astrophysics and Cosmology.**
Professor: Dr. Santiago Pérez-Bergliaffa.
Year: 2014 Mark: 10/10
- 6. Introduction to X-Ray Astronomy.**
Professor: Dr. Jorge Combi.
Year: 2014 Mark: 10/10
- 7. Seminar: High-Energy Processes in Sources with Relativistic Outflows.**
Professor: Dr. Valentí Bosch-Ramon.
Year: 2013 Mark: 8/10

Research visits

- Sep–Nov 2019 **University of Southampton**, *Host: Dr. Diego Altamirano.*
- Jun–Jul 2018 **University of Barcelona**, *Host: Dr. Valentí Bosch-Ramon.*
- Jun–Jul 2016 **University of Barcelona**, *Host: Dr. Valentí Bosch-Ramon.*

Fellowships

- 2019–Present **Postdoctoral CONICET Research Fellow (National Research Council)**, *Topic: Conditions for the generation of γ -ray emission in massive binaries*, Supervisor: Dr. Romero, Gustavo E.
- 2014–2019 **PhD CONICET Research Fellow (National Research Council)**, *Topic: Investigation of non-thermal processes in the vicinities of massive stars*, Advisor: Dr. Bosch-Ramon, Valentí, Co-advisor: Dr. Romero, Gustavo E.
- 2013–2014 **CIC training fellowship for university students**, Supervisor: Dr. Combi, Jorge.
- 2012–2013 **CIN fellowship for stimulating scientific vocation**, Advisor: Dr. Bosch-Ramon, Valentí, Co-advisor: Dr. Romero, Gustavo E.

Awards

- 2020 *Carlos M. Varsavsky* award to the best PhD thesis in astronomy in the period 2018–2019 (Argentina).
- 2019 Fellowship from the COSPAR Capacity Building Fellowship Programme (ESA). Topic: research visit to the University of Southampton, UK. Amount: €570.
- 2015 Distinction to the best poster contribution in the I Annual Meeting of PhD Students of the Faculty of Astronomical and Geophysical Sciences (UNLP).
- 2014 Joaquín V. González Prize, Distinction awarded to students of the University of La Plata with the highest marks. La Plata City Council, Buenos Aires, Argentina.

Teaching Experience

Graduate Experience

- 2020–Present **Head of Practical Assignments of Introduction to Relativistic Astrophysics and Introduction to Black Holes Astrophysics**, *Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata.*
- 2016–2020 **Graduate Teaching Assistant of Introduction to Relativistic Astrophysics and Introduction to Black Holes Astrophysics**, *Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata.*
- 2014–2020 **Graduate Teaching Assistant of Calculus**, *Faculty of Engineering, UNLP, La Plata.*
- 2015,2016 **Graduate Teaching Assistant of the Summer Entrance Course**, *Faculty of Exact Sciences, UNLP, La Plata.*

Undergraduate Experience

- 2011–2014 **Teaching Assistant of the Summer Entrance Course**, *Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata.*
- 2012–2014 **Teaching Assistant of Algebra**, *Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata.*
- 2011–2012 **Teaching Assistant of Calculus**, *Faculty of Engineering, UNLP, La Plata.*
- 2011 **Teaching Assistant of Calculus**, *Faculty of Exact Sciences, UNLP, La Plata.*

Teaching Formation

- 2017 **Seminar on Teaching Formation**, *Faculty of Exact Sciences, UNLP, La Plata*, duration: 12 h. Approved.
- 2015 **Graduate course: Geogebra didactic aspects for teaching basic science and engineering**, *Faculty of Engineering, UNLP, La Plata*, duration: 40 h. Mark: 10/10.
- 2014 **Workshop: Teaching and evaluation in university classrooms**, *Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata*, duration: 12 h. Approved.

Observing Experience

Approved Proposals

- 2020 **Co-I of ESA DS3 (Malargüe) + CLTC-CONAE (Neuquén) Proposal**, *Search for Periodic Radio Signals from the Gamma-ray Source Fermi J1913+0515 Associated to SS433*, Estimated time: 48 h.
- 2020 **Co-I of GMRT Proposal**, *Investigating particle acceleration associated with putative single Wolf-Rayet stars*, Awarded time: 18 h.
- 2019 **PI of XMM-Newton Proposal**, *Relativistic particle acceleration in the Wolf-Rayet bubble G2.4+1.4*, Awarded time: 58 ks.
- 2018 **Co-I of GMRT Proposal**, *Investigating the low-frequency radio emission in Wolf-Rayet Bubbles*, Awarded time: 16 h.
- 2017 **Co-I of JVLA Proposal**, *Mapping magnetic fields in the stellar bow shock EB27*, Awarded Time: 3 h.
- 2017 **PI of Joint Chandra-NuSTAR Proposal**, *A unique opportunity to observe the extreme massive binary HD 93129A near periastron passage*, Awarded Time: 50 ks with both instruments.
- 2017 **Co-I of VLBA Proposal**, *Is the emission from the wind-collision region of WR 146 polarized?*, Awarded Time: 12 h.
- 2016 **Co-I of XMM-Newton Proposal**, *The massive binary HD 93129A: an extreme wind-wind collision during AO16*, Awarded Time: 60 ks.
- 2016 **PI of JVLA Proposal**, *Search of synchrotron radiation in two interacting stellar bubbles (2nd part)*, Awarded Time: 1.33 h.
- 2016 **PI of JVLA Proposal**, *Search of synchrotron radiation in two interacting stellar bubbles*, Awarded Time: 3.23 h.
- 2016 **Co-I of GMRT Proposal**, *Testing the non-thermal radio emission from the putative gamma-ray source WR 11*, Awarded Time: 24 h.
- 2016 **Co-I of GMRT Proposal**, *Spatial Distribution and Variability of the Non-Thermal Emission Associated with Proplyd-like Objects Near the Cygnus OB2 Region*, Awarded Time: 14 h.
- 2015 **PI of JVLA Proposal**, *Is the radiation from the brightest colliding-wind binaries polarized?*, Awarded Time: 7.9 h.
- 2015 **PI of JVLA DDT Proposal**, *Is the Emission from the Wind-Collision Region of WR146 Polarized?*, Awarded Time: 1.0 h.

Telegramms

- 2019 **Co-author of ATel #12482**, *Radio observations following the recent glitch of Vela Pulsar (PSR B0833-45)*, PuMA Collaboration.
- 2018 **Corresponding author of ATel #12323**, *Follow up of the radio flare from the magnetar XTE J1810-197 at 1.4 GHz*, On behalf of the PuMA Collaboration.

Participation in Scientific Meetings

Talks

- 2020 **Varsavsky prize talk 2020: Non-thermal radiation associated to massive stars**, 62nd *Annual Meeting of the Argentinian Astronomical Association*.
- 2019 **X-ray view of the extreme colliding-wind binary HD 93129A during periastron**, *New Results in X-ray Astronomy 2019 (MSSL, UK)*.
- 2018 **Pulsar monitoring from the IAR observatory**, *Mini-course on gravitational waves (FCAGLP)*.
- 2018 **Non-thermal emission from stellar bow shocks**, *Massive stars and Supernovae (Nidia Fest)*.
- 2017 **Multi-frequency study of the massive binary HD 93129A**, *III Annual Meeting of PhD Students of the Faculty of Astronomical and Geophysical Sciences (UNLP)*.
- 2017 **High-Energy Astrophysics**, 5th *National Meeting of Astronomy Students*.
- 2017 **γ -ray emission in blazars produced by interactions between BLR clouds and jet**, 60th *Annual Meeting of the Argentinian Astronomical Association*.
- 2015 **A model for the non-thermal emission of the very massive colliding-wind binary HD93129A**, 58th *Annual Meeting of the Argentinian Astronomical Association*.
- 2014 **Interactions of relativistic particles in stellar winds**, *II Argentinian-Brazilian Meeting on Gravitation, Astrophysics, and Cosmology*.
- 2013 **Equivocando las preguntas: Métodos actuales de evaluación**, 1st *National Meeting of Astronomy Students*.

Posters

- 2021 **The high-energy emission from the massive colliding-wind binary HD 93129A near periastron**, *237th meeting of the American Astronomical Society*.
- 2016 **Non-thermal Processes in systems with relativistic jets**, *II Annual Meeting of PhD Students of the Faculty of Astronomical and Geophysical Sciences of the UNLP*.
- 2016 **Gamma-ray predictions for the very massive colliding-wind binary HD 93129A**, *6th International Symposium on High-Energy Gamma-Ray Astronomy (Gamma2016)*.
- 2015 **Relativistic particle content in the most massive colliding-wind binary in the Galaxy**, *High-Energy Phenomena in Relativistic Outflows V*.
- 2015 **Investigación de procesos no-térmicos en las cercanías de estrellas de gran masa**, *I Annual Meeting of PhD Students of the Faculty of Astronomical and Geophysical Sciences of the UNLP*, awarded a distinction as the best poster contribution of the meeting.

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🌐 <http://garra.iar.unlp.edu.ar/people/santiago.html>

- 2013 **Estudio de procesos radiativos de alta energía en sistemas binarios con estrellas de gran masa**, 56th *Annual Meeting of the Argentinian Astronomical Association*.
[Organization](#)
- 2014 **2nd National Meeting of Astronomy Students**, La Plata.

Other Courses Attended

- 2017 **Workshop ‘Latin American X-ray School for Different Astrophysical Scenarios: Data Analysis of the XMM-Newton, Chandra and NuSTAR missions’**, COSPAR, Viedma.
- 2012 **LaTeX Introduction to Academic Publications**, *Faculty of Astronomical and Geophysical Sciences, UNLP*, La Plata.
- 2010 **GNU/Linux Course for Students**, *Faculty of Astronomical and Geophysical Sciences, UNLP*, La Plata.

Formation of human resources

- 2021 **Advisor of the M. Sc. Thesis in Physics of Javier Martínez (Co-advisor: Gustavo Romero)**, *Topic: Investigation of bow shocks from hyper velocity stars*, FCAGLP, UNLP, La Plata. Grade: 10/10.
- 2021 **Advisor of the M. Sc. Thesis in Astronomy of Agustina Blanco (Co-advisor: Paula Benaglia)**, *Topic: Radiointerferometric study of the colliding-wind binary WR 147*, Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata. Grade: 10/10.
- 2020 **Advisor of the M. Sc. Thesis in Astronomy of Sofía Valentina Sosa Fiscella (Co-advisor: Luciano Combi)**, *Topic: High-precision timing study of the radio pulsar J0437-4715 using IAR antennas*, Faculty of Astronomical and Geophysical Sciences, UNLP, La Plata. Grade: 10/10.

Outreach activities

- 2020 Interview for the VocAr program to promote scientific careers in Argentina, available in <https://www.conicet.gov.ar/programas/vocar/recursos-publicaciones-vocar/>, *Miradas de Ciencia - Astrónom@s*.
- 2020 Short communications with local media (radio and television) to talk about the Varsavsky Prize awarded for my research.
- 2019 Divulcation talk in a guided visit for students to the IAR observatory. Talk title: ‘El rompecabezas astronómico’.
- 2018 Divulcation talk in a guided visit for students to the IAR observatory. Talk title: ‘La astronomía más allá de las estrellas’.
- 2018 Participation as speaker in the Series of Talks ‘Viernes en el Observatorio’, FCAGLP. Talk title: ‘La astronomía más allá de las estrellas’.
- 2016 Interview for the program ‘Dos entre comillas’, FM Meliquina 99.9
- 2015 Interview for the program ‘Radiofotos’, FM Universidad 107.5

2015 Text for astronomy outreach: 'Regiones de colisión de vientos estelares', published in Bol. 50 of the Argentinian Institute of Radioastronomy.

Languages

Spanish **Mothertongue**

English **Intermediate-High**

Publications

Refereed papers in international journals

1. **High-sensitivity polarimetric study of the stellar bow shock EB27**
Benaglia, P., del Palacio, S., Hales, C., & Colazo, M. E.
Monthly Notices of the Royal Astronomical Society, submitted, 2021.
2. **PSR J0437–4715: The Argentine Institute of Radioastronomy 2019–2020 Observational Campaign**
Sosa Fiscella, V., del Palacio, S., Combi, L.; Lousto, C. O., et al.
The Astrophysical Journal, in press, 2021.
3. **Bow-shocks, nova shells, disc winds and tilted discs: The Nova-Like V341 Ara has it all**
Castro Segura, N., Knigge, C., Acosta-Pulido, J. A.; Altamirano, D., del Palacio, S., et al.
Monthly Notices of the Royal Astronomical Society, 501, 1951, 2021.
4. **New insights in the HII region G18.88–0.49: hub-filament system and accreting filaments**
Dewangan, L. K., Ojha, D. K., Sharma, Saurabh, del Palacio, S., Bhadari, N. K., & Das, A.
The Astrophysical Journal, 903, 13, 2020.
5. **The gamma-ray/infrared luminosity correlation of star-forming galaxies**
Kornecki, P., Pellizza, L. J., del Palacio, S., Müller, A. L., et al.,
Astronomy & Astrophysics, 641, 147, 2020.
6. **Probing the physical conditions and star formation processes in the Galactic HII region S305**
Dewangan, L. K., Sharma, S., Pandey, R., del Palacio, S., Ojha, D. K., Benaglia, P., et al.
The Astrophysical Journal, 898, 172, 2020.
7. **The high-energy emission from HD 93129A near periastron**
del Palacio, S., García, F., Altamirano, D., Barbá, R. H., Bosch-Ramon, V., Corcoran, M., et al.
Monthly Notices of the Royal Astronomical Society, 494, 6043, 2020.
8. **Upgraded antennas for pulsar observations in the Argentine Institute of Radio astronomy**
Gancio, G., Lousto, C. O., Combi, L., del Palacio, S., Lopez Armengol, F. G., et al.
Astronomy & Astrophysics, 633, 84, 2019.
9. **Investigating Particle Acceleration in the Wolf-Rayet Bubble G2.4+1.4**
Prajapati, P., Tej, A., del Palacio, S., Benaglia, P., et al.
The Astrophysical Journal Letters, 884, 49, 2019.
10. **A model for high-mass microquasar jets under the influence of a strong stellar wind**
Molina, E., del Palacio, S., & Bosch-Ramon, V.
Astronomy & Astrophysics, 629, 129, 2019.
11. **Radio observations of evaporating objects in the Cygnus OB2 region**
Isequilla, N. L., Fernández-López, M., Benaglia, P., Ishwara-Chandra, C. H., & del Palacio, S.
Astronomy & Astrophysics, 627, 58, 2019.

12. **Investigation of the WR 11 field at decimeter wavelengths**
Benaglia, P., del Palacio, S., Ishwara-Chandra, C. H., De Becker, M., et al.
Astronomy & Astrophysics, 625, 99, 2019.
13. **Gamma rays from jets interacting with BLR clouds in blazars**
del Palacio, S., Bosch-Ramon, & Romero, G. E.
Astronomy & Astrophysics, 623, 101, 2019.
14. **Multi-zone non-thermal radiative model for stellar bowshocks**
del Palacio, S., Bosch-Ramon, V., Müller, A. L., & Romero, G. E.
Astronomy & Astrophysics, 617, 13, 2018.
15. **Gamma rays from clumpy wind-jet interactions in high-mass microquasars**
de la Cita, V. M., del Palacio, S., Bosch-Ramon, V., Paredes-Fortuny, X., et al.
Astronomy & Astrophysics, 604, 39, 2017.
16. **Synchrotron radiation and absence of linear polarization in the colliding wind binary WR 146**
Hales, C. A., Benaglia, P., del Palacio, S., Romero, G. E., & Koribalski, B. S.
Astronomy & Astrophysics, 598, 42, 2017.
17. **A model for the non-thermal emission of the very massive colliding-wind binary HD 93129A**
del Palacio, S., Bosch-Ramon, V., Romero, G. E., & Benaglia, P.
Astronomy & Astrophysics, 591,139, 2016.
18. **Gamma-ray binaries beyond one-zone models: an application to LS 5039**
del Palacio, S., Bosch-Ramon, V., & Romero, G. E.
Astronomy & Astrophysics, 575,112, 2015.

Refereed papers in international journals (non-astronomical)

1. **Comparative Study of 10 X-STR Markers in Populations of Northeast Argentina**
Di Santo Meztler, G. P., Glesmann, L. A., Esteban, M. E., del Palacio, S., et al.
Human Biology, 91:1-12, 2019.
2. **Genetic differentiation of North-east Argentina populations based on 30 binary X-chromosome markers**
Di Santo Meztler, G. P., del Palacio, S., Esteban, M. E., Armoa, I., et al.
Frontiers in Genetics, 9, 208, 2018.

Complete papers in international proceedings

1. **Contribution due to inhomogeneous winds to the gamma-ray emission in microquasar jets**
de la Cita, V. M., del Palacio, S., Bosch-Ramon, V., Paredes-Fortuny, X., Romero, G. E., & Khangulyan, D.
Proceedings of Gamma2016, 2017.
2. **Gamma-ray predictions for the very massive colliding-wind binary HD 93129A**
del Palacio, S., Bosch-Ramon, V., Romero, G. E., & Benaglia, P.
Proceedings of Gamma2016, 2017.
3. **Relativistic particle content in the most massive colliding-wind binary in the Galaxy**
del Palacio, S., Bosch-Ramon, V., Romero, G. E., & Benaglia, P.
Proceedings of HEPRO V, 2015.
4. **Interactions of relativistic particles in stellar winds**
del Palacio, S., Bosch-Ramon, V., & Romero, G. E.
Proceedings of Second Argentinian-Brazilian Meeting on Gravitation, Astrophysics, and Cosmology, 2014.

Complete papers in national proceedings

1. **Non-thermal processes in the bow shocks of hyper-velocity stars**
Sosa Fiscella, V., del Palacio, S., Combi, L., Lousto, C. O., et al.
Bol. Asoc. Arg. Astron., submitted, 2020.
2. **Estudio de alta precisión del púlsar J0437–4715 desde el Instituto Argentino de Radioastronomía**
Martínez, J. R., del Palacio, S., & Romero, G. E.
Bol. Asoc. Arg. Astron., submitted, 2020.
3. **Non-thermal radiation associated with massive stars**
del Palacio, S., Bosch-Ramon, V., & Romero, G. E.
Bol. Asoc. Arg. Astron., in press, 2020.
4. **Towards a radio-polarimetric study of the bright colliding-wind binary WR 147**
Blanco, A., Benaglia, P., del Palacio, S., & Hales, C. A.
Bol. Asoc. Arg. Astron., 61, 66, 2020.
5. **Gamma-ray emission from interactions between jets and BLR clouds**
del Palacio, S., Bosch-Ramon, V., & Romero, G. E.
Bol. Asoc. Arg. Astron., 60, 92, 2018.
6. **A model for the non-thermal emission of the very massive colliding-wind binary HD93129A**
del Palacio, S., Bosch-Ramon, V., Romero, G. E., & Benaglia, P.
Bol. Asoc. Arg. Astron., 58, 225, 2016.
7. **High-Energy Radiative Processes in High-Mass Binary Systems**
del Palacio, S., Bosch-Ramon, V., & Romero, G. E.
Bol. Asoc. Arg. Astron. 56, 355, 2013.

Institutional Participation

- 2015–2018 Graduate member of the Astronomy Curriculum Reform Comission of the Faculty of Astronomical and Geophysical Sciences of La Plata.
- 2017 Graduate member of the Advisory Committee for selecting a graduate teaching assistant for Calculus, Faculty of Engineering of La Plata. File 300-9203/16.
- 2011 Student member of the Advisory Committee for selecting the student teaching assistant for General Astronomy, Faculty of Astronomical and Geophysical Sciences of La Plata. File 1100-1387.

Participation in Research Groups and Scientific Asociations

- 2017–Present Member of the group *Pulsar Monitoring in Argentina (PuMA)*.
- 2015–Present Professional partner of the *Asociación Argentina de Astronomía (AAA)*.
- 2015–Present Member of the group *Grupo de Astrofísica Relativista y Radioastronomía (GARRA)*.

Contact references

- (Former PhD advisor) **Dr. Valentí Bosch-Ramon** vbosch@fqa.ub.edu
- (Former PhD co-advisor) **Dr. Gustavo E. Romero** romero@iar.unlp.edu.ar

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