Curriculum Vitae

Jorge García Rojas

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Summary

The main aim of my research is to improve our knowledge of the physical structure of ionized nebulae and refine the methods for determining their chemical composition, which are essential for our understanding of the chemical content and evolution of the Universe. To this end, I have focused my efforts on the study of the abundance discrepancy (AD) problem in H II regions and planetary nebulae (PNe). My results on this field have intensified the debate, especially on the physical origin of the AD. As the existence of the AD questions our current knowledge about the physics of the ionized gas and, in particular, the excitation mechanisms that produce emission lines, my work is essential to properly understand interstellar medium chemistry.

To date, I have 72 refereed papers in high-impact astronomy journals, 1 refereed book chapter and 2 refereed proceedings. 26 of my refereed publications are as first (14) or second (12) author. In 47 (~63%) of my publications I am between the first 3 authors. My publications have a record of 2648 citations and 567 normalized citations, and a Hirsch (h)-index of 29. The total number of entries I have in the ADS is 152.

Since I got my Ph.D. degree in 2006, I have been a postdoc at the IA-UNAM, Mexico (two years) and at the IAC, Spain (more than six years). I am right now an Advanced Severo Ochoa postdoc at the IAC in the area of Stellar and Interstellar Physics.

I attended 25 international conferences and workshops, and gave oral presentations in 17 of them, including 5 invited talks. I participated in more than 40 conference papers. I have been the LOC's chair of two international conferences/workshops. I have been the SOC co-chair in one EWASS 2015 Special Session and in an international conference.

I am an expert observational astronomer with huge expertise in the acquisition and analysis of spectrophotometric data in most of the largest telescopes in the world, such as Keck II, Subaru, Magellan, VLT, and GTC. Additionally, I have more than 4 years of expertise as support astronomer of the IAC observatories.

I am PI of a project funded with 145200 € from the Spanish ministry of Economy, Industry and Competitiveness in the 2017 call of projects (AYA2017-83383-P). I am also PI of one IAC internal research project (P/308614; *Chemical composition of ionized nebulae*). I participated in 14 different international research projects funded in competitive calls by public institutions in Spain and Mexico. I also participated in one ERASMUS+ project. I have active collaborations with different groups and individual researchers around the world.

I supervised/co-supervised three Ph.D. students, and I am now co-supervising another one at the INAOE (Mexico) on different topics about photoionized nebulae. I co-supervised 7 MSc thesis in the IAC, Spain, INAOE, Mexico and the University of Surrey, UK.

I usually referee scientific papers for high impact journals such as AJ, ApJ, MNRAS, A&A and Frontiers of Astronomy. Between semester 2019B to 2021A I was member of the Spanish CAT and have been a former GTC Users Committee member. I have been external referee for OPTICON and GTC Mexican TAC proposals. I am also referee of research projects requesting public funding for Chile, Mexico and Spain.

Finally, I am aware of the importance of the diffusion of my research, formation of new physicists and of astronomy public outreach. Therefore, I have been involved in regular teaching at the University of La Laguna and I regularly give conferences at other research institutions and in public events.

Personal Status

Marital Status: Married with a 9 years old daughter
Nationality: Spanish
Date of birth: October 8TH, 1972
Place of birth: La Laguna, S/C de Tenerife (SPAIN)
Present-day Address: Bencomo, 3. 38201. La Laguna. Tenerife. Spain
Telephone: +34 922 253080
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Driving License: Yes

Education

- December 18th 2006 – Ph.D. in astrophysics: *Chemical abundances in Galactic H II regions and temperature fluctuations.* La Laguna University, Tenerife, Spain.
  Maximum qualification: *Apto Cum Laude.*
- July 1998 – Master's Degree: *Chemical abundances on the Galactic H II region M8.* La Laguna University, Tenerife, Spain.
- December 1996 – Post Graduate Certificate in Education. Faculty of Education, University of Salamanca, Spain.
- March 1996 – BSc on Physics/Astrophysics. La Laguna University, Tenerife, Spain.

Prizes

- University prize for best thesis in Experimental Sciences (3 prizes per year). La Laguna University, Tenerife, Spain. 2007

Working Experience

- November 2016 – October 2021: Advanced Postdoctoral Severo Ochoa position at the IAC, Spain
- February 2014 – December 2015: Postdoctoral Severo Ochoa position at the IAC, Spain.
- June 2009 – February 2014: Support Astronomer of the IAC observatories. Spain.
- October 2007 – May 2009: Postdoctoral fellowship in the Instituto de Astronomía. Universidad Nacional Autónoma de Mexico. Mexico City. Mexico.
- June 2007 – July 2007: Visiting fellowship in the Instituto de Astronomía, Óptica y Electrónica (INAOE) Tonanzintla, Puebla. Mexico.
- May 2007 – June 2007: Visiting fellowship in the Instituto de Astronomía. Universidad Nacional Autónoma de Mexico. Mexico City. Mexico.
- February 2007 – April 2007: Visiting fellowship in the Instituto de Astrofísica de Canarias, Spain.
- October 2002 – September 2006: FPI fellowship of the Ministerio de Ciencia y Tecnología at the Instituto de Astrofísica de Canarias, Spain. PhD in Astrophysics, under the supervision of Dr. César Esteban López with the Thesis entitled: "Chemical abundances in H II regions and temperature fluctuations."
- November 2001 – March 2002: Monitor in Astronomical Events at the *Sciences and Cosmos Museum of Tenerife.*
- October 1999 – August 2001: Sciences teacher at the *Tinajo Secondary School* in Tinajo (Lanzarote, Spain)
- October 1998 – August 1999: Sciences teacher at the *Mayex school* in La Laguna (Tenerife, Spain)

- June–July 1998 and March-September 2002: Fellowship in the "Arturo Duperier Observatory" at Arrecife (Lanzarote, Spain). Teaching astronomy to kids and tourists.
- May and September 1998: Scholarship at the Computer Room at the Faculty of Physics of the La Laguna University. Computing support to students.

Observing experience

I have a huge observing experience using mid-high resolution spectroscopic facilities. I have granted observing time as P.I. or co-I in several of the largest optical telescopes:

- ALFOSC (spectroscopy and image modes) and FIES spectrograph at the 2.5m NOT, Roque de los Muchachos Observatory, La Palma, Spain.
- PMAS IFU spectrograph at the 3.6m at Calar Alto Observatory, Almeria, Spain
- SARG echelle spectrograph at the 3.6 Galileo telescope, Roque de los Muchachos Observatory, La Palma, Spain.
- ISIS spectrograph and OASIS+NAOMI integral field spectrograph with adaptive optics (AO) at the 4.2m WHT, Roque de los Muchachos Observatory, La Palma, Spain.
- MIKE spectrograph at the 6.5m Magellan telescope. Las Campanas Observatory, Chile.
- HDS spectrograph at the 8m Subaru telescope, Mauna Kea Observatory, Hawaii, USA.
- UVES, FORS2, FLAMES and MUSE spectrographs at the 8m VLT. Cerro Paranal Observatory, Chile.
- HIRES spectrograph at the 10m Keck II, Mauna Kea Observatory, Hawaii, USA.
- OSIRIS, EMIR and MEGARA at the 10.4m GTC, Roque de los Muchachos Observatory, La Palma, Spain.

  Additionally, I have huge experience with several facilities in the Teide and Roque de los Muchachos observatories. I have more than 200 nights experience using these instruments:

- CAMELOT at 0.82m at IAC80 telescope at the Teide Observatory, Tenerife, Spain.
- CAIN-II and FastCam at 1.5m TCS telescope at the Teide Observatory, Tenerife, Spain.
- Installation and support of the INTEGRAL IFU unit on the 4.2m WHT at the Observatorio del Roque de los Muchachos, La Palma, Spain.
- Installation and support of the Fabry-Perot system GHaFAS on the 4.2m WHT at the Observatorio del Roque de los Muchachos, La Palma, Spain.
- Service observations with FIES, ALFOSC and NOTCAM at 2.56m NOT and with the WFC camera and IDS spectrograph at 2.5m INT at the Observatorio del Roque de Los Muchachos, La Palma, Spain.

Visiting researcher

- 31 Oct 2019 – 8 Nov 2019 – Instituto de Astronomía-UNAM (Ensenada, Baja Caifornia, Mexico) working with Dr. Christophe Morisset.
- 20 Oct 2019 – 30 Oct 2019 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Dr. Gloria Delgado-Inglada and Dr. Grazyna Stasinska.
- 16 Apr 2018 – 20 Apr 2018 – Observatory of Paris-Meudon (Paris, France) working with Dr. Grazyna Stasinska and Dr. Gloria Delgado-Inglada.
- 12 Jan 2018 – 19 Jan 2018 – Observatory of Paris-Meudon (Paris, France) working with Dr. Grazyna Stasinska and Dr. Gloria Delgado-Inglada.
- 15 Oct 2017 – 20 Oct 2017 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Dr. Christophe Morisset and Dr. Gloria Delgado-Inglada.

- 18 May 2015 – 22 May 2015 – Instituto de Astronomía, Pontificia Universidad Católico (Santiago de Chile, Chile) working with Dr. Adal Mesa-Delgado.
- 9 Mar 2015 – 28 Mar 2015 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Dr. Miriam Peña, Dr. Christophe Morisset and Dr. Gloria Delgado-Inglada.
- 6 May 2013 – 24 May 2013 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Dr. Miriam Peña, Dr. Christophe Morisset and Dr. Gloria Delgado-Inglada.
- 16 May 2011 – 27 May 2011 – Instituto Nacional de Astrofísica, Óptica y Electrónica (Tonanzintla, Puebla. Mexico) working with Dr. Mónica Rodríguez.
- 18 Apr 2011 – 15 May 2011 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Dr. Miriam Peña and Prof. Manuel Peimbert.
- 1 Nov 2010 – 30 Nov 2010– Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Dr. Miriam Peña and Dr. Christophe Morisset.
- Dec 2008 – Jan 2009 – Instituto de Astrofísica de Canarias, working with Dr. Sergio Simón-Díaz.
- Dec 2007 – Jan 2008 – Instituto de Astrofísica de Canarias, working with Dr. César Esteban.
- 20 Jun 2007 – 20 Jul 2007 – Instituto Nacional de Astrofísica, Óptica y Electrónica (Tonanzintla, Puebla. Mexico) working with Dr. Mónica Rodríguez.
- 20 May 2007 – 20 Jun 2007 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Prof. Manuel Peimbert, Dr. Miriam Peña and Dr. Leticia Carigi.
- 22 Oct 2005 – 6 Nov 2005 – Instituto Nacional de Astrofísica, Óptica y Electrónica (Tonanzintla, Puebla. Mexico) working with Dr. Mónica Rodríguez.
- 14 Oct 2005 – 21 Oct 2005 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Prof. Manuel Peimbert, Dr. Antonio Peimbert and Dr. Leticia Carigi.
- 28 Feb 2004 – 5 Mar 2004 – Instituto Nacional de Astrofísica, Óptica y Electrónica (Tonanzintla, Puebla. Mexico) working with Dr. Mónica Rodríguez.
- 20 Feb 2004 – 27 Feb 2004 – Instituto de Astronomía-UNAM (Mexico D.F., Mexico) working with Prof. Manuel Peimbert, Dr. Antonio Peimbert and Dr. Leticia Carigi.

Language Skills

- Spanish (Mother tongue)
- Spoken and written English. Advanced degree of the Spanish Official Languages School.

Research interests

- Chemical abundances in ionized nebulae / Abundance discrepancies in ionized nebulae.
- *s*-processes in Asymptotic Giant Branch Stars (AGBs)
- Ionization structure of H II regions.
- Galactic chemical evolution
- High-resolution spectroscopy.
- Photoionization modelling.

Invited colloquia and seminars

- 27 Jun 2019 – *"The abundance discrepancy phenomenon in planetary nebulae: recent results"*, "Thirty minute talk" at ESO Headquarters in Santiago de Chile, Chile
- 24 May 2017 – *"The large abundance discrepancy phenomenon in planetary nebulae"*, seminar at the Department for Theoretical Physics at the Universidad Autónoma de Madrid, Spain

- 27 April 2017 – *"The high abundance discrepancy phenomenon in planetary nebulae"*, seminar at Instituto de Astrofísica de Andalucía, Granada, Spain
- 28 April 2017 – *"Abundancias de elementos químicos en nebulosas fotoionizadas"*, talk at Master FISYMAT of the University of Granada, Spain
- 1 Jul 2016 – *"Exploring the link between high ADF planetary nebulae and close binary stars"*, "Thirty minute talk" at ESO Headquarters in Santiago de Chile, Chile
- 12 Nov 2015 – *"Clues on the origin of the abundance discrepancy factor in planetary nebulae"*, general talk at Osservatorio Astrofisico di Arcetri, Firenze, Italy
- 22 May 2015 – *"Faint emission lines in very deep UVES spectra of photoionized nebulae"*, "Thirty minute talk" at ESO Headquarters in Santiago de Chile, Chile
- 20 May 2015 – *"Binarity and the abundance discrepancy in planetary nebulae"*, general colloquium at IA-PUC, Santiago de Chile, Chile
- 25 Mar 2015 – *"Binarity and the abundance discrepancy in planetary nebulae"*, *IA-UNAM colloquium* at IA-UNAM, Mexico D.F., Mexico.
- 18 Mar 2015 – *"Binarity and the abundance discrepancy in planetary nebulae"*, institutional seminar at INAOE, Puebla, Mexico.
- 20 Sep 2013 – *"Estado de la instrumentación de los telescopios del ORM/OT para los próximos semestres",* seminar given by the IAC Support Astronomers Group, and GTC support astronomers at IAC, Tenerife, Spain.
- 16 Mar 2012 – *"Status update and instrumentation prospects for GTC and other ORM/OT telescopes for the coming semesters",* seminar given by the IAC Support Astronomers Group and GTC operations manager at IAC, Tenerife, Spain.
- 19 Jul 2011 – *"M43, the little sister of the Orion nebula",* "Breaking News" seminar at IAC, Tenerife, Spain. Given in collaboration with Sergio Simón-Díaz.
- 18 May 2011 – *"M43, the little sister of the Orion nebula", IA-UNAM colloquium* at IA-UNAM, Mexico D.F., Mexico.
- 9 May 2011 – *"M43, the little sister of the Orion nebula",* institutional seminar at INAOE, Puebla, Mexico.
- 3 October 2008 – *"Unveiling the physical and chemical properties of the object HH202 in the Orion nebula through 2D and echelle spectrophotometry"*, institutional seminar at INAOE, Puebla, Mexico
- 22 Sep 2008 – *"2D and echelle spectroscopy of the objet HH202 in the Orion nebula"*, DEMI colloquia at IA-UNAM, Mexico D. F., Mexico.
- 13 Jul 2007 – *"Chemical abundances in HII regions and temperature fluctuations"*, institutional seminar at INAOE, Puebla, Mexico.
- 11 Jul 2007 – *"Determination of chemical abundances in HII"*, informal seminar at "Coffe and astronomy" students meeting at INAOE, Puebla, Mexico.
- 15 Jun 2007 – *"Chemical abundances in HII regions and temperature fluctuations"*, at CRyA, Morelia, Mexico.
- 13 Jun 2007 – *"Chemical abundances in HII regions and temperature fluctuations"*, at IA-UNAM, Mexico D.F., Mexico.
- 9 Feb 2006 – *"Chemical abundances in Galactic HII regions"*, general seminar at IAC, Tenerife, Spain.
- 21 Oct 2005 – "*Physical and Chemical properties of the Orion Nebula. A correlation with some morphological structures", IA-UNAM colloquium* at IA-UNAM, Mexico D.F., Mexico.

Teaching

- 2014/2015, 2015/2016, 2017/2018 and 2018/2019 – Assistant teacher of the subject "Scientific Computation" 1st course of the Physics Grade at the Universidad de La Laguna.

- "Chemical abundances determinations in photoionized regions" Two lectures (three hours) of a master level course at the Instituto de Astronomía-UNAM, Mexico. November 2008.
- "Chemical abundances determinations in photoionized nebulae". Talk for the master level course "Complementary research activities" at the La Laguna University. Each school year since 2012-13.
- Three years of experience in secondary schools as a full-time sciences (mathematics, physics, chemistry and technology) teacher.

Students and postdocs supervision

Postdocs

- David Jones
  Instituto de Astrofísica de Canarias / Centro de Astrofísica de La Palma
  December 2018 – December 2020

PhD students

- Jose Eduardo Méndez Delgado
  Co-supervised with Dr. César Esteban (IAC, Spain)
  Ionised gas flows in the Orion Nebula: properties and environmental dependences
  University of La Laguna.
  Starting date: 01/10/2018

- Gisela Domínguez Guzmán
  Co-supervised with Dr. Mónica Rodríguez (INAOE, Mexico) and Dr. César Esteban (IAC, Spain)
  Iron depletion onto dust in low metallicity photoionized regions
  Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Puebla, México.
  Starting date: 01/09/2015. Defense delayed owing to student is in maternity leave

- Simone Madonna
  Supervisor with Dr. Nicholas C. Sterling (co-supervisor, U. West Georgia, USA)
  Study of the chemical abundances of s-elements in planetary nebulae.
  University of La Laguna.
  Date of defense: 31 January 2019.
  Maximum qualification (Sobresaliente) with honours (Cum Laude)

- Laura Toribio San Cipriano
  Co-supervised with Dr. César Esteban (IAC, Spain)
  Physical conditions and chemical abundances in photoionized nebulae.
  University of La Laguna.
  Date of defense: 21 July 2017.
  Maximum qualification (Sobresaliente) with honours (Cum Laude)

Master students

- Joanna Sakowska
  Supervisor with Dr. D. Aníbal García-Hernández (co-supervisor)
  Constraining the Stellar Progenitors of Double-Dust Chemistry Planetary Nebulae
  University of Surrey, UK
  March 2019 – February 2020

- Juan Bautista Climent Oliver
  Supervisor with Dr. C. Esteban (co-supervisor)
  University of La Laguna
  Spatial variations of the abundance discrepancy in the planetary nebula M 1-42
  January – June 2016

- David Tejera Flores
  Co-supervisor with Dr. C. Esteban
  Chemical abundances in H II regions of the Magellanic Clouds
  University of La Laguna.
  January 2015 – July 2016

- Gisela Domínguez Guzmán
  Co-supervisor with Dr. Mónica Rodríguez (INAOE, Mex) and Dr. César Esteban (IAC)
  Iron depletion onto dust in HII regions and planetary nebulae of the Magellanic Clouds
  Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Puebla, México
  August 2013 – August 2015

- Víctor Pérez-Mesa
  Co-supervisor with Dr. César Esteban (IAC, Spain)
  The Chlorine Abundance gradient in the Milky Way
  University of La Laguna
  September 2014 – March 2015

- Simone Madonna
  Co-supervisor with Dr. Valentina Luridiana
  Study of the chemical abundances of s-elements in planetary nebulae
  University of La Laguna
  January – June 2014.

IAC Summer students

- Carlos José Díaz
  Co-supervisor with Dr. Cristina Zurita (IAC, Spain)
  Development and automation of the data analysis for a Exposure Time Calculator in CAMELOT and CAIN
  July-September 2013

- Adal Mesa-Delgado
  Co-supervisor with Dr. César Esteban (IAC, Spain)
  Physical and chemical properties of the ionized gas in the Orion nebula and their correlation with different morphological structures
  July-September 2005.

Workshops, conferences and meetings attended

- March 2019 – *II Workshop on "Chemical abundances in gaseous nebulae"* Sao Jose dos Campos, Sao Paulo, Brazil.
  Invited talk: *"Latest advances in the abundance discrepancy problem in photoionized nebulae"*
- August 2018 – *"Radial metallicity gradients in star forming galaxies. Focus meeting 7 at*

the IAU General Assembly" Viena, Austria.
Invited talk: *"Radial metallicity gradients from Galactic nebular probes"*

- October 2017 – *"The Cosmic Feast of the Elements. A conference to celebrate the work of Grazyna Stasinska"* Puebla, Mexico.
  Contributed talk: *"How binarity affect the abundance discrepancy in planetary nebulae"*
- September 2017 – *Workshop* "Proposing and processing MEGARA observations with GTC", Madrid, Spain.
  Talk: *"MEGARA: a workhorse instrument for the physics of planetary nebulae"*
- November 2016 – *Workshop "Chemical abundances in gaseous nebulae"* Campos do Jordão, Sao Paulo, Brazil.
  Invited talk: *"Chemical abundances in planetary nebulae from faint emission lines"*
- October 2016 – *"IAU Symposium 323. Planetary nebulae: Multi-wavelength probes of stellar and Galactic evolution"* to be held in Beijing, China.
  Contributed talk: *"Imaging the elusive H-poor gas in high ADF planetary nebulae"*
- August 2016 – *"Cloudy: Emission lines in astrophysics, from gaseous nebulae to quasars. A symposium to honor Gary Ferland"* Mexico D. F., Mexico.
  Contributed talk: *"Exploring the link between high ADF planetary nebulae and close binary central stars"*
- February 2016 – *Workshop "1st RIA-MEGARA Open day"*, Madrid, Spain.
- December 2015 – *"Vth Science with GTC"*. Puebla, Mexico.
  Contributed talk: *"Imaging the elusive H-poor gas in high ADF planetary nebulae with GTC"*
- September 2014 – *"XI Scientific meeting of the Spanish Astronomical Society"*, Teruel, Spain.
  Contributed talk: *"Ultra-deep high-resolution spectra of planetary nebulae: s-process enrichment in NGC 3918"*
  Poster: *"Do stellar and nebular abundances in the Cocoon nebula agree?"*
- November 2013 – *"Asymmetrical Planetary Nebulae VI",* Playa del Carmen, Mexico.
  Poster: "Deep high-resolution spectroscopy of a sample of planetary nebulae ionized by [WC] central stars"
- July 2012 – *"2nd NCAC Symposium: The Orion Nebula: A Laboratory for the Study of Star Formation and Gaseous Nebulae"*, Warsaw, Poland.
  Contributed talk: *"M43, the little sister of the Orion nebula"*
- May 2012 – *"Mapping the Oxygen in the Universe"*, Puerto de la Cruz, Tenerife, Spain.
  Contributed talk: *"Oxygen abundances from optical O I and O II recombination lines in planetary nebulae with [WC] central stars"*
- July 2011 – *"IAU Symposium 283. Planetary Nebulae: An Eye to the Future", Puerto de la Cruz*, Tenerife, Spain.
  Poster: *"Abundances and ADFs in PNe with [WC] central stars"*
- November 2010 – *"XIII Latin-American Regional IAU Meeting",* Morelia, Mexico.
  Contributed talk: *"Faint emission lines in PNe with [WC] nucleus"*
- October 2010 – *"Uncertainties in atomic data and how they propagate in chemical abundances",* La Laguna, Tenerife, Spain.
- June 2008 – *"The Cosmic Odyssey of the elements",* Aegina, Greece.
  Invited talk: *"Observational results on the abundance discrepancy problem in HII regions"*
- April 2008 – *"XXII Congreso Nacional de Astronomía"*, Universidad Iberoamericana, Mexico D.F. Mexico.
  Contributed talk: *"Small scale variations of the physical conditions and the abundance discrepancy in the Orion nebula"*
- April 2007 – *Workshop "Deep Spectroscopy and Modelling of Gaseous Nebulae",* Xiang Shan, Beijing, China.

Contributed talk: *"H II region abundances from recombination lines. The abundance discrepancy problem"*

- January 2007 **–** *Workshop "Metallicity calibrations for gaseous nebulae"*, Institute for Astronomy at Manoa, Honolulu, Hawaii, USA.
  Invited talk: *"H II region metallicities from recombination lines"*
- September 2006 – "*VII SEA Scientific Meeting*", Barcelona, Spain.
  Contributed talk: *"Abundancias Químicas en regiones H II galácticas"*
- June 2006 – "*The Metal Rich Universe*", La Palma, Spain.
- September 2004 – "*The many scales in the Universe. Joint European and National Astronomy Meeting*", Granada, Spain.
  Poster: *"Tailored models of the H II region S 311"*
- February 2004 – "*II International GTC Workshop: Science with GTC 1st-light Instruments and the LMT*", Mexico DF, Mexico.
  Poster: *"Faint C and O recombination lines in H II regions and large telescopes: The case of S311"*

Organization of international conferences

- 23 – 27 October 2017 – Co-chair of the Scientific Organizing Committee of the international conference *"The cosmic feast of the elements: a conference to honor Grazyna Stasinska",* Puebla, Mexico.
- 22 –26 June 2015 – *"European Week of Astronomy and Space Sciences (EWASS) 2015"* Co-chair of the Scientific Organizing Committee in the special session 18 *"Chemical abundances and gradients in spatially resolved late-type galaxies in the local Universe"* La Laguna, Tenerife, Spain.
- 14 – 18 May 2012– Chair of the Local Organizing Committee of the international conference *"Mapping the Oxygen in the Universe"* Puerto de la Cruz, Tenerife, Spain
- 25 – 27 October 2010 – *"Uncertainties in atomic data and how they propagate in chemical abundances",* Tenerife, Spain. Local Organizing Committee member (LOC)

Participation on research and technical projects

Astronomy and Astrophysics Spanish Government National Plan

Project. *"Dissecting the binary cores of planetary nebulae: a novel view of chemical abundances and gas kinematics"*. (AYA2017-83383-P)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/01//2018- 31/12/2020
Project Manager. Dr. **Jorge García Rojas** (PI) and Dr. Pablo Rodríguez Gil (co-PI)
Total Funds: 145200 €

Project. *"Faint emission lines and chemical composition of ionized nebulae"*. (AYA2015-65205-P)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/01//2016- 31/12/2018
Project Manager. Dr. César Esteban López
Total Funds: 39200 €

Project. *"Physical conditions and chemical composition of ionized nebulae"*. (AYA2011-22614)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/01//2012- 31/12/2015

Project Manager. Dr. César Esteban López
Total Funds: 89540 €

Project. *"Structure, chemical composition and early stage evolution of HII regions"*. (AYA2007-63030)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/10/2007- 31/09/2011
Project Manager. Dr. César Esteban López
Total Funds: 60746 €

Project. *"H II regions: tracers of the chemical composition and stellar formation in the Universe"*. (AYA2004-07466)
Research Center. Instituto de Astrofísica de Canarias
Duration. 13/12/2004- 12/12/2007
Project Manager. Dr. César Esteban López
Total Funds: 48300 €

Project. *"Chemical evolution in the Local Group"* (AYA2001-0436)
Research Center. Instituto de Astrofísica de Canarias
Duration. 28/12/2001- 27/12/2004
Project Manager. Prof. Artemio Herrero Davó
Total Funds: 72121.45 €

IAC Internal research projects

Project. *"Chemical composition of ionized nebulae"*. (IAC internal project P/308614)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/01/2017- Now
Project Manager. Dr. Jorge García Rojas
Total Funds: Between 5000-10000 €/year

Project. *"Extragalactic H II regions"*. (IAC internal project 311486)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/10/2002- 31/12/2015
Project Manager. Dr. César Esteban López
Total Funds: ~5000 €/year

Project. *"IAC telescope operations"*. (IAC Internal project 3I1101)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/06/2009- 18/02/2014
Project Manager. Dr. Alex Oscoz Abad

Project. *"Support Astronomers expenses"*. (IAC Internal project 309507)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/06/2009- 18/02/2014
Project Manager. Dr. Alex Oscoz Abad

External Research projects

Project. *"Studies of the interstellar medium with deep learning techniques"*. (UNAM-DGAPA-PAPIIT- IN101220)
Resarch Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 01/01/2019- 31/12/2021

Project Manager. Dr. Christophe Morisset
Total Funds: MXN$ 212,000 for 1st year (~8700 €)

Project. *"Global study of planetary nebulae"*. (UNAM-DGAPA-PAPIIT- IN103117)
Resarch Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 01/01/2017- 31/12/2019
Project Manager. Dr. Miriam Peña Cárdenas
Total Funds: MXN$ 534,512

Project. *"Ionization correction factors for ionized nebulae"*. (UNAM-DGAPA-PAPIIT-IA101517)
Resarch Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 01/10/2016- 31/12/2018
Project Manager. Dr. Gloria Delgado Inglada
Total Funds: MXN$ 278,082

Project. *"Theoretical models of photoionized nebulae, databases, 3D models and virtual observatory"*. CB-2015-254132)
Resarch Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 01/10/2016- 30/09/2019
Project Manager. Dr. Christophe Morisset
Total Funds: MXN$1,283,500

Project. *"Galactic and extragalactic planetary nebulae. Radial and expansión velocities of objects of NGC 6822, NGC 3109 and the Milky Way"*. (UNAM-DGAPA-PAPIIT- IN109614)
Resarch Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 01/01/2014- 31/12/2016
Project Manager. Dr. Miriam Peña Cárdenas
Total Funds: MXN$ 584,145

Project. *"1D and 3D models of photoionized nebulae"*. (CB-2010-1-153985)
Research Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 01/01/2012- 31/12/2014
Project Manager. Dr. Christophe Morisset
Total Funds: MXN$ 586000 (~32500 €)

Project. *"Comparative analysis of planetary nebulae with and without [WC] central star. Galactic kinematics and chemical abundances"*. (UNAM-DGAPA-PAPIIT- IN105511)
Resarch Center. Instituto de Astronomía. Universidad Nacional Autónoma de México
Duration. 04/04/2011- 04/04/2014
Project Manager. Dr. Miriam Peña Cárdenas
Total Funds: MXN$ 567,566

Project. *"Chemical abundances and depletions in planetary nebulae"*. (CB-2009-131610-F)
Research Center. Instituto Nacional de Astronomía, Óptica y Electrónica, Tonantzintla, Puebla, México
Duration. 02/06/2011- 02/06/2014
Project Manager. Dr. Mónica Rodríguez Guillén
Total Funds: MXN$ 315000 (~20000 €)

Project. *"Characteristics of the photoionized regions in NGC300 and the Milky Way"*. **(**UNAM-DGAPA-PAPIIT- IN112708**)**

Research Center. Instituto de Astronomía. Universidad Nacional Autónoma de Mexico
Duration. 01/01/2008- 31/12/2012
Project Manager. Dr. Miriam Peña Cárdenas
Total Funds: MXN$ 573538 (~30000 €)

Project. *"Chemical composition and dust in ionized gas"*. (2005-24420-50339-F)
Research Center. Instituto Nacional de Astronomía, Óptica y Electrónica, Tonantzintla, Puebla, México
Duration. 15/05/2006- 15/05/2010
Project Manager. Dr. Mónica Rodríguez Guillén
Total Funds: MXN$ 296000 (~20500 €)

ERASMUS+ Projects

Project. *"European Collaborating Astronomer ProjectS: Espana-Czechia-Slovakia"*. (2020-1-CZ01-KA203-078200)
Research Center. Institute of Astronomy. Czech Academy of Sciences, Ondrejov, Pregue, Czech Republic
Duration. 01/09/2020- 31/08/2023
Project Manager. Dr. Petr Kabath
Role on Project: Co-coordinator at the IAC
Total Funds: 318085 €

Project. *"Per aspera ad astra simul (Through difficulties to the stars together)"*. (2017-1-CZ01-KA203-035562)
Research Center. Institute of Astronomy. Czech Academy of Sciences, Ondrejov, Pregue, Czech Republic
Duration. 01/10/2017- 30/11/2020
Project Manager. Dr. Petr Kabath
Role on Project: Co-coordinator at the IAC
Total Funds: 288164 €

Complementary actions of the Spanish government

Project. *"Uncertainties in atomic data and how they propagate in chemical abundances"*. (AYA2010-11205-E)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/07/2010- 30/06/2011
Project Manager. Dr. Valentina Luridiana
Total Funds: 3000 €

Project. *"Mapping Oxygen in the Universe"*. (AYA2011-15904-E)
Research Center. Instituto de Astrofísica de Canarias
Duration. 01/01/2012- 31/12/2012
Project Manager. Dr. Sergio Simón-Díaz
Total Funds: 5400 €

Outreach talks and activities.

- May 2017 – *"A tutorial to produce kryptonite to kill superman".* Talk in the Pint of Science festival 2017.

- October 2016 – *"The cosmic recycling in the space"*. Activity with 5-years old kids in a public school.
- April 2013 – *Astrophysics*: *the path of light*. Talk and workshop in the Science week of the I.E.S. "Arrecife", Lanzarote.
- November 2009 – Assistant in the astronomical activities of the *"Noche de las estrellas"* event in Monte Albán, Oaxaca, México, giving talks about *"The life of the stars"*
- February 2008 – Assistant in the astronomical activities of the *"Eclipse en el Zócalo"* event in México D.F., giving talks to small groups about constellations and planets.
- April 2003 – "*A walk through ancient skies"*. II local meeting of the Society of Latin and Greek teachers "Insulae".
- April 2003 – *Course of Introduction to Astronomy.* Museo de la Ciencia y el Cosmos. Tenerife, giving the topics *"Nebulae"* and *"Galaxies".*
- November 2000 – *II Course of Introduction to Astronomy*. Organized by Centro Científico-Cultural Blas Cabrera of Arrecife (Lanzarote), giving the topics *"Nebulae"* and *"Galaxies"*.

Membership of professional societies

- Senior member of the Spanish Astronomical Society
- Senior member of the European Astronomical Society. ID #2745
- Member of the International Astronomical Union. Member ion divisions C (Education, Outreach and Heritage), G (Stars and Stellar Physics), and H (Interstellar Matter and Local Universe) and commission H3 (planetary nebulae).

Other merits

- I regularly referee papers for *The Astrophysical Journal, The Astronomical Journal, Astronomy & Astrophysics* and *Monthly Notices of the Royal Astronomical Society.*
- I have refereed research proposals for the Scientific and Technological Research Council of Chile (CONICYT)
- I have refereed research proposals for the "Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica" (PAPIIT) of the Universidad Nacional Autónoma de México. (UNAM)
- I have been external referee for several proposals for the OPTical Infrared Co-Ordination Network (OPTICON)
- I have been member of the Time Allocation Committee (TAC) of Canary Island observatories during 4 semesters 2019B, 2020A, 2020B and 2021A.
- I was member of the GTC Users Committee (GUC) between July 2018 and February 2020.
- I have experience with non-professional telescopes and astronomy outreach.
- I regularly write outreach articles for the *"Gaveta de Astrofísica"* section of the local newspaper *"El Día"* (see outreach publication list)

List of Publications

Papers in refereed journals

1. Méndez-Delgado, J. E.; Henney, W.; Esteban, C.; **García-Rojas, J.**; Mesa-Delgado, A.; Arellano-Córdova, K.
Photoionized Herbig-Haro objects in the Orion Nebula through deep high spectral resolution spectroscopy II: HH 204
2021, ApJ, **918**, *27*

2. Méndez-Delgado, J. E.; Esteban, C.; **García-Rojas, J.**; Henney, W.; Mesa-Delgado, A.; Arellano-Córdova, K.
Photoionized Herbig-Haro objects in the Orion Nebula through deep high spectral resolution spectroscopy I: HH 529 II and III
2021, MNRAS, ***502***, *1703*

3. Arellano-Córdova, K. Z.; Esteban, C.; **García-Rojas, J.**; Méndez-Delgado, J. E.
On the radial abundance gradients of nitrogen and oxygen in the inner Galactic disc
2021, MNRAS, ***502***, *225*

4. Armas-Padilla, M.; Muñoz-Darias, T.; Jiménez-Ibarra, F.; Fernández-Ontiveros, J. A.; Casares, J.; Torres, M. A. P.; **García-Rojas, J.**; Cúneo, V.; Degenaar, N.
Optical spectroscopy of 4U 1812-12: an ultra-compact X-ray binary seen through an HII region
2020, A&A, 644, A63

5. Jones, D.; Boffin, H. M. J.; Hibbert, J.; Steinmetz, T.; Wesson, R.; Hillwig, T. C.; Sowicka, P.; Corradi, R. L. M.; **García-Rojas, J.**; Rodrígues-Gil, P.; Munday, J.
The post-common-envelope binary central star of the planetary nebula PN G283.7-05.1: A possible post-red-giant-branch planetary nebula central star
2020, A&A, 642, A108

6. Morisset, C.; Luridiana, V.; **García-Rojas, J.**; Gómez-Llanos, V.; Bautista, M. A.; Mendoza, C.
Atomic Data Assessment with PyNeb
2020, Atoms, 8, 66

7. Munday, J.; Jones, D.; **García-Rojas, J.**; Boffin, H. M. J.; Miszalski, B.; Corradi, R. L. M.; Rodríguez-Gil, P.; Rubio-Díez, M. M.; Santander-García, M.; Sowicka, P.
The post-common-envelope binary central star of the planetary nebula ETHOS 1
2020, MNRAS, 498, 6005

8. Delgado-Inglada, G.; **García-Rojas, J.**; Stasinska, G.; Rechy-García, J. S.
A panoramic view of the extragalactic planetary nebulae populations. I. Data compilation and first findings
2020, MNRAS, 498, 5367

9. Gómez, Llanos, V; Morisset, C.; **García-Rojas, J.**; Jones, D.; Wesson, R.; Corradi, R. L. M.; Boffin, H. M. J.
The impact of strong recombination on temperature determination in planetary nebulae
2020, MNRAS Letters, 498, L82

10. **García-Rojas, J.**
Physical conditions and chemical abundances in photoionized nebulae from optical spectra
2020, Reviews in Frontiers of Modern Astrophysics: From Space Debris to Cosmology". Eds Kabath, Jones and Skarka; ISBN: 978-3-030-38509-5. Cham: Springer International Publishing, pp. 89-121
Book Chapter

11. Méndez-Delgado, J. E.; Esteban, C.; **García-Rojas, J.**; Arellano-Córdova, K. Z.; Valerdi, M.
Helium abundances and its radial gradient from the spectra of H II regions and ring nebulae of the Milky Way
2020, MNRAS, **496**, 2726

12. Arellano-Córdova, K. Z.; Esteban, C.; **García-Rojas, J.**; Méndez-Delgado, J. E.
The Galactic radial abundance gradients of C, N, O, Ne, S, Cl, and Ar from deep spectra of H II regions

2020, MNRAS, **496**, 1051

13. Amayo, A.; Delgado-Inglada, G.; **García-Rojas, J.**
Ionization correction factors for sodium, potassium, and calcium in planetary nebulae
2020, MNRAS, **492**, 950

14. Esteban, C.; Bresolin, F.; **García-Rojas, J.**; Toribio San Cipriano, L.
Carbon, nitrogen, and oxygen abundance gradients in M101 and M31
2020, MNRAS, **491**, 2137

15. Nemer, A.; Sterling, N. C.; Raymond, J.; Dupree, A. K.; **García-Rojas, J**.; Wang, Qianxia; Pindzola, M. S.; Ballance, C. P.; Loch, S. D.
First Evidence of Enhanced Recombination in Astrophysical Environments and the Implications for Plasma Diagnostics
2019, ApJL, **887**, L9

16. Casares, J.; Muñoz-Darias, T.; Mata-Sánchez, D.; Charles, P.; Torres, M.; Armas-Padilla, M.; Fender, R.; **García-Rojas, J.**
Accretion and outflow in V404 Cyg
2019, MNRAS, **488**, 1356

17. Wesson, R.; Jones, D.; **García-Rojas, J**.; Boffin, H. M. J.; Corradi, R. L. M.
Close binaries and the abundance discrepancy problem in planetary nebulae
2018, Galaxies, **6**, 110
Refereed proceeding

18. Ruiz-Escobedo, F.; Peña, M.; Hernández-Martínez, L.; **García-Rojas, J.**
Chemistry in the DIrr galaxy Leo A
2018, MNRAS, **481**, 396

19. Wesson, R.; Jones, D.; **García-Rojas, J.**; Boffin, H. M. J.; Corradi, R. L. M.
Confirmation of the link between central star binarity and extreme abundance discrepancy factor in planetary nebulae
2018, MNRAS, **480**, 4589

20. Esteban, C.; **García-Rojas, J.**
Revisiting the radial abundance gradients of nitrogen and oxygen in the Milky Way
2018, MNRAS, **478**, 2315

21. Madonna, S.; Bautista, M.; Dinerstein, H.; Sterling, N. C.; **García-Rojas, J.**; Kaplan, K. F..; Rubio-Díez, M. M.; Castro-Rodríguez, N.; Garzón, F.
Neutron-Capture elements in planetary nebulae: first detections of near-Infrared [Te III] and [Br V] emission lines
2018, ApJ, **861**, L8

22. **García-Rojas, J.**; Delgado-Inglada, G.; García-Hernández, D. A.; Dell'Agli, F.; Lugaro, M.; Karakas, A. I.; Rodríguez, M.
C/O ratios in planetary nebulae with dual-dust chemistry from faint optical recombination lines
2018, MNRAS, **473**, 4476

23. Peña, M.; Ruiz-Escobedo, F.; Rechy-García, J. S.; **García-Rojas, J.**
The kinematic behaviour of optical recombination lines and collisionally excited lines in Galactic planetary nebulae
2017, MNRAS, **472**, 1182

24. Sowicka, P.; Jones, D.; Corradi, R. L. M.; Wesson, R.; **García-Rojas, J.**; Santander-García, M.; Boffin, H. M. J.; Rodríguez-Gil, P.
The planetary nebula IC 4776 and its post-common-envelope binary central star
2017, MNRAS, **471**, 3529

25. Madonna, S.; **García-Rojas, J.**; Sterling, N. C.; Delgado-Inglada, G.; Mesa-Delgado, A.; Luridiana, V.; Roederer, I. U.; Mashburn, A. L.

Neutron-capture element abundances in the planetary nebula NGC 5315 from deep optical and near-infrared spectrophotometry
2017, MNRAS, **471**, 1341

26. Esteban, C.; Fang, X.; **García-Rojas, J.**; Toribio San Cipriano, L.
The radial abundance gradient of oxygen towards the Galactic anti-centre
2017, MNRAS, **471**, 987

27. Toribio San Cipriano, L.; Domínguez-Guzmán, G.; Esteban, C.; **García-Rojas, J.**; Mesa-Delgado, A.; Bresolin, F.; Rodríguez, M.; Simón-Díaz, S.
Carbon and oxygen in H II regions of the Magellanic Clouds: abundance discrepancy and chemical evolution
2017, MNRAS, **467**, 3759

28. Sterling, N. C.; Madonna, S.; Butler, K.; **García-Rojas, J.**; Mashburn, A. L.; Morisset, C.; Luridiana, V.; Roederer, I. U.
Identification of Near-infrared [Se III] and [Kr VI] Emission Lines in Planetary Nebulae
2017, ApJ, **840**, 80

29. **García-Rojas, J.**; Corradi, R. L. M.; Monteiro, H.; Jones, D.; Rodríguez-Gil, P.; Cabrera-Lavers, A.
Imaging the elusive H-poor gas in the high ADF planetary nebulae NGC 6778
2016, ApJL, **824**, L27

30. Esteban, C.; Mesa-Delgado, A.; Morisset, C.; **García-Rojas, J.**
The chemical composition of Galactic ring nebulae around evolved massive stars
2016, MNRAS, **460**, 4038

31. Toribio San Cipriano, L.; **García-Rojas, J.**; Esteban, C.; Bresolin, F.; Peimbert, M.
Carbon and oxygen abundance gradients in NGC 300 and M 33 from optical recombination lines
2016, MNRAS, **458,** 1866

32. Delgado-Inglada, G.; Mesa-Delgado, A.; **García-Rojas, J.**; Rodríguez, M.; Esteban, C.
The Fe/Ni ratio in ionized nebulae: clues on dust depletion patterns
2016, MNRAS, **456**, 3855

33. Jones, D.; Wesson, R.; **García-Rojas, J.**; Corradi, R. L. M.; Boffin, H. M. J..
NGC 6778: strengthening the link between extreme abundance discrepancy factors and central star binarity in planetary nebulae
2016, MNRAS, **455**, 3263

34. **García-Rojas, J.**; Peña, M.; Flores-Durán, S.; Hernández-Martínez, L.
The PNe and H II regions in NGC 6822 revisited. Hints on AGB nucleosynthesis
2016, A&A, **586**, A59

35. Esteban, C.; **García-Rojas, J.**; Pérez-Mesa, V.
The radial abundance gradient of chlorine in the Miky Way
2015, MNRAS, **452**, 1553

36. **García-Rojas, J.**; Madonna, S.; Luridiana, V.; Sterling, N. C.; Morisset, C.; Delgado-Inglada, G.; Toribio San Cipriano, L.
s-process enrichment in the planetary nebula NGC 3918. Results from deep echelle spectrophotometry
2015, MNRAS, **452**, 2606

37. Ozbey Arabaci, M.; Camero-Arranz, A.; Gutierrez-Soto, J.; Zurita, C.; Nespoli, E.; Suso, J.; Kiaeerad, F.; **Garcia-Rojas, J.**; Kiziloglu, U.
Detection of a large Be circumstellar disk during X-ray quiescence of XTE J1946+274
2015, A&A, **582**, A53

38. Corradi, R. L. M.; **García-Rojas, J.**; Jones, D.; Rodríguez-Gil, P.
Binarity and the abundance discrepancy problema in planetary nebulae
2015, ApJ, **803**, 99

39. **García-Rojas, J.**; Simón-Díaz, S.; Esteban, C.
The Cocoon nebula and its ionizing star. Do stellar and nebular abundances agree?
2014, A&A, **571,** A93

40. Peimbert, A.; Peimbert, M.; Delgado-Inglada, G.; **García-Rojas, J.**; Peña, M.
Physical conditions derived from OII recombination lines in planetary nebulae and their implications
2014, Rev. Mex. Astron. & Astrofis., **50,** 329

41. Esteban, C.; **García-Rojas, J.**; Carigi, L.; Peimbert, M.; Bresolin, F.; López-Sánchez, A. R.; Mesa-Delgado, A.
Carbon and oxygen abundances from recombination lines in low-metallicity star-forming galaxies. Implications for chemical evolution
2014, MNRAS, **443**, 624

42. Corradi, R. L. M.; Rodríguez-Gil, P.; Jones, D.; **García-Rojas, J.**; Mampaso, A.; García-Alvarez, D.; Pursimo, T.; Eenmäe, T.; Liimets, T.; Miszalski, B.
The planetary nebula IPHASXJ211420.0+434136 (Ou5): insights into common-envelope dynamical and chemical evolution
2014, MNRAS, **441**, 2799

43. Camero, A.; Zurita, C.; Gutierrez Soto, J.; Ozbey Arabaci, M.; Nespoli, E.; Kiaeerad, F.; Beklen, E.; **Garcia-Rojas, J.**; Caballero-Garcia, M.
Recent activity of the Be/X-ray binary system SAX J2103.5+4545
2014, A&A, **568**, A115

44. Flores-Durán, S.; Peña, M.; Hernández-Martínez, L.; **García-Rojas, J.**; Ruiz, M. T.
A kinematic study of planetary nebulae in NGC6822
2014, A&A, **568**, A82

45. Mesa-Delgado, A.; Esteban, C.; **García-Rojas, J.**; Reyes-Pérez, J.; Morisset, C.; Bresolin, F.
The Trace of the CNO Cycle in the Ring Nebula NGC 6888
2014, ApJ, **785**, 100

46. Esteban, C.; **García-Rojas, J.**; Mesa-Delgado, A.; Toribio San Cipriano, L.
Deep high spectral resolution spectroscopy and chemical composition of ionized nebulae
2014, AN, **335**, 73
Refereed proceeding

47. **García-Rojas, J.**; Peña, M.; Morisset, C.; Delgado-Inglada, G.; Mesa-Delgado, A.; Ruiz, M.T.
Analysis of chemical abundances in planetary nebulae with [WC] central stars. II. Line intensities and physical conditions
2013, A&A, **558**, A122

48. Carigi, L.; **García-Rojas, J.**; Meneses-Goitya, S.
Chemical evolution and the galactic habitable zone in M31 (the Andromeda Galaxy)
2013, Rev. Mex. Astron. & Astrofis., **49**, 253

49. Esteban, C.; Carigi, L.; Copetti, M. V. F.; **García-Rojas, J.**; Mesa-Delgado, A.; Castañeda, H. O.; Pequignot, D.
NGC2579 and the carbon and oxygen gradients beyond the solar circle
2013, MNRAS, **433**, 382

50. Peña, M.; Rechy-García, J. S.; **García-Rojas, J.**
Galactic kinematics of Planetary Nebulae with [WC] central star
2013, Rev. Mex. Astron. & Astrofis., **49**, 87

51. Mesa-Delgado, A.; Núñez-Díaz, M.; Esteban, C.; **García-Rojas, J.**; Flores-Fajardo, N.; López-Martín, L.; Tsamis, Y. G.; Henney, W. J.
Ionized gas diagnostics from protoplanetary discs in the Orion nebula and the abundance discrepancy problem
2012, MNRAS, **426**, 614

52. Núñez-Díaz, M.; Mesa-Delgado, A.; Esteban, C.; López-Martín, L.; **García-Rojas, J.**; V. Luridiana
Exploring the effects of high velocity-flows in abundance determinations in H II regions. Bidimensional spectroscopy of HH204 in the Orion nebula
2012, MNRAS, **421,** 3339

53. **García-Rojas, J.**; Peña, M.; Morisset, C.; Mesa-Delgado, A.; Ruiz, M.T.
Analysis of chemical abundances in planetary nebulae with [WC] central stars. I. Line intensities and physical conditions
2012, A&A, **538**, A54

54. Mesa-Delgado, A.; Núñez-Díaz, M.; Esteban, C.; López-Martín, L.; **García-Rojas, J.**
Integral field spectroscopy of selected areas of the Bright bar and Orion-S cloud in the Orion nebula
2011, MNRAS, **417**, 420

55. The International Outer PLANET Watch Team (Iopw-Pvol) Sánchez-Lavega, A.; Orton, G. S.; Hueso, R.; Pérez-Hoyos, S.; Fletcher, L. N.; García-Melendo, E.; Gomez-Forrellad, J. M.; de Pater, I.; Wong, M.; Hammel, H. B.; and 35 coauthors (including **García-Rojas, J.)**
Long-term evolution of the aerosol debris cloud produced by the 2009 impact on Jupiter
2011, Icarus, **241**, 462

56. Simón-Díaz, S.; **García-Rojas, J.**; Esteban, C.; Stasińska, G.; López-Sánchez, A; Morisset, C.
A detailed study of the H II region M 43 and its ionizing star
2011, A&A, **530**, 57

57. Rodríguez, M.; **García-Rojas, J.**
Temperature Structure and Metallicity in HII regions
2010, ApJ, **708**, 1551

58. Hernández-Martínez, L.; Peña, M.; Carigi, L.; **García-Rojas, J.**
Chemical behavior of NGC 6822. Its PN and HII region abundances
2009, A&A, **505**, 1027

59. Esteban, C.; Bresolin, F.; Peimbert, M.; **García-Rojas, J.**; Peimbert, A.; Mesa-Delgado, A.
Keck HIRES Spectroscopy of Extragalactic HII Regions: C and O abundances from recombination lines
2009, ApJ, **700**, 654

60. Mesa-Delgado, A.; Esteban, C.; **García-Rojas, J.**; Luridiana, V.; Bautista, M.; Rodríguez, M.; López-Martín, L., Peimbert, M.
Properties of the ionized gas in HH 202. II: Results from echelle spectrophotometry with UVES
2009, MNRAS, **395**, 895

61. Mesa-Delgado, A.; López-Martín, L.; Esteban, C.; **García-Rojas, J.**; Luridiana, V.
Properties of the ionized gas in HH 202. I: Results from integral field spectroscopy with PMAS
2009, MNRAS, **394**, 693

62. **García-Rojas, J.**; Peña, M.; Peimbert, A.
Faint recombination lines in Galactic PNe with [WC] nuclei
2009, A&A, **496**, 139

63. Mesa-Delgado, A.; Esteban, C.; **García-Rojas, J.**
Small scale behavior of the physical conditions and the abundance discrepancy in the Orion nebula
2008, ApJ, **675**, 389

64. **García-Rojas, J.**; Esteban, C.
On the abundance discrepancy problem in H II regions
2007, ApJ, **670**, 457

65. **García-Rojas, J.**; Esteban, C.; Peimbert, A.; Rodríguez, M.; Peimbert, M.; Ruiz, M.T.
The chemical composition of M8 and M17 revisited: an analysis from deep echelle spectrophotometric data
2007, Rev. Mex. Astron. & Astrofis., **43,** 3

66. López-Sánchez, A.R.; Esteban, C.; **García-Rojas, J.**; Peimbert, M.; Rodríguez, M.
The localized chemical pollution in NGC 5253 revisited: Results from deep echelle spectrophotometry
2006, ApJ, **656**, 168

67. **García-Rojas, J.**; Esteban, C.; Peimbert, M.; Costado, M.T., Rodríguez, M.; Peimbert, A.; Ruiz, M.T.
Faint emission lines in the Galactic HII regions M16, M20 and NGC 3603
2006, MNRAS, **368**, 253

68. López-Sánchez, A.R.; Esteban, C.; **García-Rojas, J.**
Star formation and stellar populations in the Wolf-Rayet(?) luminous compact blue galaxy IRAS 08339+6517
2006, A&A, **449**, 997

69. **García-Rojas, J.**; Esteban, C.; Peimbert, A.; Peimbert, M.; Rodríguez, M.; Ruiz, M.T.
Deep echelle spectrophotometry of S 311, a Galactic HII region located outside the solar circle
2005, MNRAS, **362**, 301

70. Carigi, L.; Peimbert, M.; Esteban, C.; **García-Rojas, J.**
Carbon, Nitrogen, and Oxygen Galactic gradients: a solution to the Carbon enrichment problem
2005, ApJ, **623**, 213

71. Esteban, C.; **García-Rojas, J.**; Peimbert, M.; Peimbert, A; Ruiz, M.T.; Rodríguez, M.; Carigi, L.
Carbon and Oxygen Galactic gradients: observational values from H II region recombination lines
2005, ApJ, **618**, L95

72. Esteban, C.; Peimbert, M.; **García-Rojas, J.**; Ruiz, M.T.; Peimbert, A; Rodríguez, M.
A reappraisal of the chemical composition of the Orion nebula based on Very Large Telescope echelle spectrophotometry
2004, MNRAS, **355**, 229

73. Esteban, C.; López-Martín, L; López-Sánchez, A.R.; Cedrés, B.; **García-Rojas, J.**
IRAS 04000+5052: a not so compact, not so metal-poor H II region
2004, PASP, **116**, 723

74. **García-Rojas, J.**; Esteban, C.; Peimbert, M.; Rodríguez, M.; Ruiz, M.T.; Peimbert, A.
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2004, ApJS, **153**, 501

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Chemical composition and temperature fluctuations in M17
1999**,** Rev. Mex. Astron. & Astrofis., **35**, 65

76. Esteban, C.; Peimbert, M.; Torres–Peimbert, S.; **García–Rojas, J.**; Rodríguez, M.
Faint emission lines and temperature fluctuations in M8
1999**,** ApJ, **120**, 113

Non-refereed papers (conference contributions, technical documents, etc.)

1. Munday, J.; Jones, D.; **García-Rojas, J.**; Boffin, H. M. J.; Corradi, R. L. M.; Rodríguez-Gil, P.; Rubio-Díez, M. M.; Santander-García, M.; Sowicka, P.
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