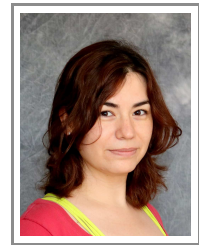


Sandra Treviño-Morales

Curriculum Vitae

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Personal Data

Name Sandra Patricia Treviño Morales
Citizenship Mexican
Gender Female
Office Chalmers university of technology
Chalmersplatsen 4, 412 96, Gothenborg, Sweden
ORCID <https://orcid.org/0000-0002-4033-2881>
Website <https://sites.google.com/view/strevinoweb>

Work Experience

2017–to date **Postdoctoral fellow in Astrophysics**
Chalmers University of Technology (Gothenborg, Sweden)
Postdoctoral position in the ERC-funded research group *PROMISE* led by Dr. Jouni Kainulainen

2016–2017 **Postdoctoral fellow in Astrophysics**
Instituto de Ciencias de los Materiales de Madrid (Madrid, Spain)
Postdoctoral position in the *Molecular Astrophysics* group working with Dr. Javier Goicoechea (ICMM, Spain) and Dr. Asunción Fuente (OAN, Spain)

2011–2015 **Astronomer on Duty**
Astronomer of Duty (AoD) at the *IRAM 30m Telescope*, (Granada, Spain)

2006–2009 **Math teacher**
Private tutoring. Elementary and High school level (Monterrey, Mexico)

Academic Education

2013–2016 **PhD in Astrophysics**
Institut de Radioastronomie Millimétrique (Granada, Spain)
Advisors: Dr. Carsten Kramer (IRAM, Spain) and Dr. Asunción Fuente (OAN, Spain)
Thesis title: Chemical and dynamical study towards the UC HII region in Monoceros R2
Defense date: January 2016
Grade: *Excellent cum laude*

- 2011–2013 **Master of Science in Astrophysics**
Universidad de Granada (Granada, Spain)
 Advisors: Dr. Carsten Kramer (IRAM, Spain) and Dr. Asunción Fuente (OAN, Spain)
 Thesis title: Study of deuterated molecules in the PDR around the UC HII region Mon R2
 Defense date: July, 2013
- 2009–2011 **Master of Science in Astrophysics**
Centro de Radioastronomía y Astrofísica CRyA-UNAM (Morelia, Mexico)
 Advisor: Dr. Yolanda Gómez Castellanos (CRyA-UNAM, Mexico)
 Thesis title: Study of radio recombination lines towards HII G213.8–11.8
 Defense date: October, 2012
- 2007–2009 **Bachelor thesis**
Universidad Autónoma de Nuevo León (Monterrey, Mexico)
 Advisor: Dr. Ricardo Obregón Guerra (UANL, Mexico)
 Thesis title: Disproportion of toluene using zeolites as catalyst
 Defense date: March, 2009
- 2002–2006 **Bachelor degree in Physics**
Universidad Autónoma de Nuevo León (Monterrey, Mexico)

Main Collaborators

• J. Kainulainen, J. Orkisz, D. Tafoya, D. Dall’Olio, F. Stanley (U. Chalmers, Sweden) • S. Suri, M. Zhang, S. Geen (MPIA, Germany) • J. R. Goicoechea, J. Cernicharo (CSIC, Spain) • A. Fuente, S. García-Burillo, D. Ginard, T. Alonso-Albi (OAN, Spain) • J. Ballesteros-Paredes, J. Toalá, L. F. Rodríguez (IRyA, Mexico) • Á. Sánchez-Monge, V. Ossenkopf-Okada, N. Schneider, S. Clarke (U. Cologne, Germany) • O. Berné, P. Didelon, F. Motte, P. Tremblin, P. Hennebelle (CNRN-CEA, France) • E. Roueff, M. Gerin (LERMA, France) • J. R. Rizzo (Centro de Astrobiología, Spain) • M. González-García (IAA, Spain) • J. Pety, C. Kramer (IRAM, France) • S. Viti (UCL, United Kingdom) • R. Cesaroni, M. T. Beltrán (Arcetri, Italy)

List of Publications

H Index: 7

First author papers: 4

Total number of papers: 17

Total citations: 117

Refereed Publications

- 1 **Treviño-Morales, S. P.**, Fuente, A., Sánchez-Monge Á, Kainulainen, J., Didelon, P., Suri, S., Schneider, N., Ballesteros-Paredes, J., Lee, Y. -N., Hennebelle, P., Pilleri, P., González-García, M., Kramer, C., Garcia-Burillo, S., Luna, A., Goicoechea, J. R., Tremblin, P., Geen, S., *Dynamics of cluster-forming hub-filament systems: The case of the high-mass star-forming complex Monoceros R2*, 2019, *Astronomy & Astrophysics*, 629, A81.
<https://www.aanda.org/articles/aa/pdf/2019/09/aa35260-19.pdf>

- 2 **Treviño-Morales, S. P.**, Fuente A., Sánchez-Monge Á., Pilleri P., Goicoechea J. R., Ossenkopf-Okada V., Roueff E., Rizzo J. R., Gerin M., Berné O., Cernicharo J., González-García M., Kramer C., García-Burillo S., Pety J., *The first CO⁺ image: Probing the H₁/H₂ layer around the ultracompact HII region Mon R2*, 2016 *Astronomy & Astrophysics Letters*, 593, L12.
<http://www.aanda.org/articles/aa/pdf/2016/09/aa28899-16.pdf>
- 3 **Treviño-Morales, S. P.**, Pilleri, P., Fuente, A., Kramer, C., Roueff E., González-García M., Cernicharo, J., Gerin, M., Goicoechea, J. R., Pety, J., Berne, O., Ossenkopf, V., Ginard, D., García-Burillo, S., Rizzo, J. R. and Viti, S., *Deuteration in the PDR around the ultracompact HII region Mon R2*, 2014, *Astronomy & Astrophysics*, 569, A19.
<http://www.aanda.org/articles/aa/pdf/2014/09/aa23407-14.pdf>
- 4 **Treviño-Morales, S. P.**, Gómez, Y., Rodríguez-Rico, C. A., Garay, G., Rodríguez, L. F., Sánchez-Monge, Á., *H110 α and C110 α Emission toward the Photodissociated Region in the GGD 14 Complex*, 2011, *Revista Mexicana de Astronomía y Astrofísica Conference Series*, 40, 297.
http://www.astroscu.unam.mx/rmaa/RMxAC..40/PDF/RMxAC..40_strevino.pdf

Collaborations in Refereed Publications

- 6 Villicaña-Pedraza, I., Sáenz, J., Saucedo, J., Olguín, L., Vázquez, R., Guzman-Ramirez, L., Carreto-Parra, F., Valdés, P., Zapata, L. A., Lonnie-Pacheco, P., Sandez, E., Noriega-Mendoza, H., López, O., **Treviño-Morales, S. P.**, González-Bolívar, M., Delgado, B., Castrejón-Parga K., Vázquez, L., *100 hours of astronomy at the Mexican northern border* 2019, *Nature Astronomy*, ProofNo: 875, p.1.
<https://www.nature.com/articles/s41550-019-0875-z>
- 7 Rivière-Marichalar, P., Fuente, A., Baruteau, C., Neri, R., **Treviño-Morales, S. P.**, Carmona, A., Agúndez, M., Bachiller, R., *Gas Accretion within the Dust Cavity in AB Aur*, 2019, *The Astrophysical Journal*, 879, L14.
<https://www.aanda.org/articles/aa/pdf/2019/04/aa34654-18.pdf>
- 8 Fuente, A.; Navarro, D.; Caselli, P.; Gerin, M.; Krammer, C.; Roueff, E.; Wakelam, V.; Alonso-Albi, T.; Bachiller, R.; Cazaux, S.; Commerçon, B.; Friesen, R.; García-Burillo, S.; Giuliano, B. M.; Goicoechea, J. R.; Gratier, P.; Hacar, A.; Jiménez-Serra, I.; Kirk, J.; Lattanzi, V.; Loison, J. C.; Malinen, P. J.; Marcelino, N.; Martín-Doménech, R.; Muñoz-Caro, G.; Pineda, J.; Tafalla, M.; Tercero, B.; Ward-Thompson, D.; **Treviño-Morales, S. P.**; Rivière-Marichalar, P.; Roncero, O.; Vidal, T., *Gas phase Elemental abundances in Molecular cloudS (GEMS) I. The prototypical dark cloud TMC 1*, 2018, ARXIV.
<https://arxiv.org/pdf/1809.04978.pdf>
- 9 Alonso-Albi, T.; Riviere-Marichalar, P.; Fuente, A.; Pacheco-Vázquez, S.; Montesinos, B.; Bachiller, R.; **Treviño-Morales, S. P.**, *Revisiting the case of R Monocerotis: Is CO removed at R < 20 au*, 2017, *Astronomy & Astrophysics*, 617A, 31A.
<https://www.aanda.org/articles/aa/pdf/2018/09/aa31658-17.pdf>

- 10 Rayner, T. S. M.; Griffin, M. J.; Schneider, N.; Motte, F.; Konyves, V.; André, P.; Di Francesco, J.; Didelon, P.; Pattle, K.; Ward-Thompson, D.; Anderson, L. D.; Benedettini, M.; Bernard, J.-P.; Bontemps, S.; Elia, D.; Fuente, A.; Hennemann, M.; Hill, T.; Kirk, J.; Marsh, K.; Men'shchikov, A.; Nguyen Luong, Q.; Peretto, N.; Pezzuto, S.; Rivera-Ingraham, A.; Roy, A.; Rygl, K.; Sánchez-Monge, Á.; Spinoglio, L.; Tigé, J.; **Treviño-Morales, S. P.**; White, G. J., *Far-infrared observations of a massive cluster forming in the Monoceros R2 filament hub*, 2017, *Astronomy & Astrophysics*, 607, A22.
<https://www.aanda.org/articles/aa/pdf/2017/11/aa30039-16.pdf>
- 11 Tafuya D. Toalá J. A., Vlemmings W. H. T., Guerrero, M. A., De Beck, E. González M., Kimeswenger, S. Zijlstra A. A., Sánchez-Monge Á., **Treviño-Morales S. P.**, *(sub)Millimeter Emission Lines of Molecules in Born-again Stars*, 2017, *Astronomy & Astrophysics*, 600, A23.
<https://arxiv.org/pdf/1612.07037.pdf>
- 12 Cesaroni R., Sánchez-Monge Á., Beltrán M.T., Molinari S., Olmi L., and **Treviño-Morales S. P.**, *Origin of the Lyman excess in early-type stars*, 2016 *Astronomy & Astrophysics Letters*, 588, L5.
<http://www.aanda.org/articles/aa/pdf/2016/04/aa27841-15.pdf>
- 13 Ginard, D., Fuente, A., García-Burillo, S., Alonso-Albi, T., Krips, M., Gerin, M., Neri, R., Pilleri, P., Usero, A., **Treviño-Morales, S. P.**, *The chemical footprint of the star formation feedback in M 82 on scales of 100 pc*, 2015, *Astronomy & Astrophysics Letters*, 578, A49.
<http://www.aanda.org/articles/aa/pdf/2015/06/aa25653-15.pdf>
- 14 Cernicharo, J., Bailleux, S., Alekseev, E., Fuente, A., Roueff, E., Gerin, M., Tercero, B., **Treviño-Morales, S. P.**, Marcelino, N., Bachiller, R., Lefloch, B., *Tentative Detection of the Nitrosylium Ion in Space*, 2014, *The Astrophysical Journal*, 795, 40.
<http://iopscience.iop.org/article/10.1088/0004-637X/795/1/40/pdf>
- 15 Pilleri, P., Fuente, A., Gerin, M., Cernicharo, J., Goicoechea, J. R., Ossenkopf, V., Joblin, C., González-García, M., **Treviño-Morales, S. P.**, Sánchez-Monge, Á., Pety, J.; Berné, O.; Kramer, C., *Kinematics of the ionized-to-neutral interfaces in Monoceros R2*, 2014, *Astronomy & Astrophysics*, 561, A69s.
<http://www.aanda.org/articles/aa/pdf/2014/01/aa22638-13.pdf>
- 16 Spezzano, S., Brunken, S., Schilke, P., Caselli, P., Menten, K. M., McCarthy, M. C., Bizzocchi, L., **Treviño-Morales, S. P.**, Aikawa, Y., Schlemmer, S., *Interstellar Detection of $c\text{-C}_3\text{D}_2$* , 2013, *The Astrophysical Journal*, 769, L19.
<http://iopscience.iop.org/article/10.1088/2041-8205/769/2/L19/pdf>
- 17 Pilleri, P., **Treviño-Morales, S. P.**, Fuente, A., Joblin, C., Cernicharo, J., Gerin, M., Viti, S., Berné, O., Goicoechea, J. R., Pety, J., Gonzalez-García, M., Montillaud, J., Ossenkopf, V., Kramer, C., García-Burillo, S., Le Petit, F., Le Bourlot, J., *Spatial distribution of small hydrocarbons in the neighborhood of the ultra compact HII region Monoceros R2*, 2013, *Astronomy & Astrophysics*, 554, A87.
<http://www.aanda.org/articles/aa/pdf/2013/06/aa20795-12.pdf>

Proceedings

- 18 Navarro, D. G., Fuente, A., Caselli, P., Gerin, M., Krammer, C., Roueff, E., Wakelam, V., Alonso-Albi, T., Bachiller, R., Cazaux, S., Commerçon, B., Friesen R., García-Burillo, S., Giuliano, B. M., Goicoechea, J. R., Gratier, P., Hacar, Á., Jiménez-Serra, I., Kirk, J., Lattanzi, V., Loison, J. C., Malinen, P. J., Marcelino, N., Martín-Doméch, R., Muñoz-Caro, G., Pineda, J., Tafalla, M., Tercero, B., Ward-Thompson, D., **Treviño-Morales, S. P.**, Rivière-Marichalar, P., Roncero, O., Vidal, T., *H₂S Formation in Dark Clouds*, 2019, Highlights on Spanish Astrophysics X, 366.
- 19 Bailleux, S., Alekseev, E. A., Cernicharo, J., Tercero B., Fuente, A.; Bachiller, R., Roueff, E., Gerin, M., **Treviño-Morales, S. P.**, Marcelino, N., Lefloch, B., *Laboratory Characterization and astronomical detection of nitrosylium NO⁺*, 2014, 69th International Symposium on Molecular Spectroscopy, WF06.

Submitted Publications

- 20 Pilleri P., Joblin C., Fuente A., Bron E., Gerin M., Cernicharo J., Pety J., Goicoechea J.R., Le Petit F., **Treviño-Morales S. P.**, González-García M., Cuadrado S., Valdivia V., *Evaporation of very small grains and gas-phase hydrocarbon production in the NGC 7023 NW photon-dominated region*, Submitted.

In Preparation Publications

- 21 **Treviño-Morales, S. P.**, Kainulainen, J., et. al., *Evolutionary sequence for the fragmentation of high line-mass filaments*, 2019, in prep.
- 22 **Treviño-Morales, S. P.**, Sánchez-Monge Á, Kainulainen, J., Fuente, A., et. al., *Dynamical signs of a rotating and accreting spiral structure*, in prep.
- 23 Navarro, D. G., Legal, R., Fuente, A, et. al., *Gas phase Elemental abundances in Molecular cloudS (GEMS) II. On the quest of the sulphur reservoir in molecular clouds: the H₂S case*, in prep.
- 24 González-García, M., **Treviño-Morales, S. P.**, Pilleri, P., Fuente, A., Le Bourlot, J., Cernicharo, J., Goicoechea, J., Roueff, E., and Le Petit, F., *Spatial distribution of HCl in the ultracompact HII region Monoceros R2*, in prep.

Grants and Scholarships

- 2017–to date **Post-doctoral fellowship**
Funding agency: ERC-funded research group *PROMISE*
Duration: from July 2017 to July 2020
Post-doctoral fellowship at the Onsala Space Observatory (OSO, Sweden)
- 2016–2017 **Post-doctoral fellowship**
Funding agency: Consejo Superior de Investigaciones Científicas (CSIC, Spain)
Duration: from February 2016 to March 2017
Post-doctoral fellowship at the Instituto de Ciencias de los Materiales (ICMM, Spain)
- 2011–2015 **PhD fellowship**
Funding agency: Institut de Radioastronomie Millimétrique
Duration: from July 2011 to December 2015
PhD fellowship at the Institut de Radioastronomie Millimétrique (IRAM, Spain)

2009–2011 **MSc fellowship**

Funding agency: Consejo Nacional de Ciencia y Tecnología (CONACyT, Mexico)

Duration: from August 2009 to July 2011

MSc fellowship at the Centro de Radioastronomía y Astrofísica (CRyA, Mexico)

Conferences and Workshops

Conferences

2019 **Astronomdagarna 2019.**

Stockholm (Sweden), October, 24 – 26, 2019. Poster contribution.

— **ALMA2019: science results and cross-facility synergies.**

Cagliari (Italy), October, 14 – 18, 2019. Poster contribution.

— **Crete III: Through dark lanes to new stars Celebrating the career of Prof. Charles Lada.**

Crete (Greece), September, 23 – 27, 2019. Poster contribution and poster prize talk.

— **Astrochemistry: From nanometers to megaparsecs - A symposium in honour of John H. Black.**

Gothenburg (Sweden), June, 24 – 28, 2019. LOC member. Contributed talk.

— **From Stars to Planets II - Connecting our understanding of star and planet formation.**

Gothenburg (Sweden), June, 17 – 20, 2019. Contributed talk.

— **Zoom In and Out: From the Interstellar Medium to the Large Scale Structure of the Universe.**

Stockholm (Sweden), June, 3 – 7, 2019. Contributed talk.

2018 **Physics of star formation: Gas flows from milky way cloud scales to proto-stellar disks.**

Heidelberg (Germany), December, 4 – 7, 2018. Contributed talk.

— **Interstellar filament paradigm: On their formation, evolution, and role in star formation.**

Nagoya University (Japan), November 5 – 9, 2018. Contributed talk.

— **Tracing the Flow: Galactic Environments and the Formation of Massive Stars.**

Lake Windermere (United Kingdom), July 2 – 6, 2018. Contributed talk.

— **The Olympian symposium 2018.**

Paralia, Katerini (Greece), 28 May-1 June 2018. Poster contribution.

— **Intertellar: The matter.**

Cozumel (Mexico). May 14 – 18, 2018. Contributed talk.

2017 **Galactic Star Formation with Surveys.**

Heidelberg (Germany), July, 3 – 7, 2017. Contributed talk.

— **Multi-scale star formation.**

Morelia (Mexico), April, 3 – 7 2017. Contributed talk.

— **The physics of the ISM, 6 years of ISM-SPP 1573: What have we learned?.**

Cologne (Germany), February 13 – 17, 2017. Poster contribution.

2016 **Fractionation of isotopes in space.**

Florence (Italy), October 10 – 13, 2016. Contributed talk.

- **Star formation in different environments.**
Quy Nhon (Vietnam), July 25 – 29, 2016. Poster contribution.
- 2013 **Protostars & Planets VI.**
Heidelberg (Germany), July 15 – 20, 2013. Poster contribution.
- 2012 **2nd National Conference on Laboratory and Molecular Astrophysics.**
Universidad Pablo de Olavide, Sevilla (Spain), November 14 – 16, 2012.
- 2010 **XIII Latin American Regional IAU Meeting.**
Morelia (Mexico), November 8 – 12, 2010. Poster contribution. LOC member.
 - **LIII Congreso Nacional de Física.**
Boca del Río (Mexico), October 25 – 29, 2010. Contributed talk.
 - **Computational Star Formation. IAUS 270.**
Barcelona (Spain), May 31 – June 4, 2010.
- 2009 **XIII Reunión Regional de Occidente de Astronomía.**
Guanajuato (Mexico), November 12 – 13, 2009.
- 2008 **LI Congreso Nacional de Física.**
Zacatecas (Mexico), October 20 – 24, 2008. Contributed talk.
- 2006 **Congreso Nacional de Física.**
San Luis Potosí (Mexico), October 16 – 20, 2006.

Workshops and Schools

- 2018 **European Southern Observatory: Single dish 2018.**
Garching (Germany) March 15 -16, 2018.
- 2015 **8th IRAM 30m Summer School.**
Pradollano, Granada (Spain) September 11 – 18, 2015. SOC/LOC member.
 - **Writing a research paper in English: strategies and techniques.**
Granada (Spain), April 20–24, 2015.
 - **ALMA *community days*.**
Bonn (Germany), March 25 – 27, 2015.
- 2014 **Astrochemistry’s cool.**
Cuenca (Spain), September 14 – 20, 2014.
 - **The interaction of stars with the interstellar medium of galaxies.**
Les Houches (France), April 20 – 25, 2014.
 - **SOFIA Winter School.**
Cologne (Germany), February 10 – 14, 2014.
- 2013 **7th IRAM 30m Summer School.**
Pradollano, Granada (Spain) September 13 – 20, 2013. SOC/LOC member.
- 2012 **8th IRAM Millimeter Interferometry School.**
Grenoble (France), October 15 – 19, 2012. Poster contribution.
- 2011 **6th IRAM 30m Summer School.**
Pradollano, Granada (Spain), September 23 – 30, 2011. LOC member.
 - **Workshop ALMA: “Extending the Limits of Astrophysical Spectroscopy”.**
Victoria, British Columbia (Canada), January 15 – 17, 2011. Poster contribution.
- 2010 **Workshop: “Astronomía de Rayos X”.**
Guanajuato (Mexico), May 4 – 8, 2010.

2005 **Verano de Astronomía.**
Ensenada Baja California (Mexico), summer, 2005.

Participation in Scientific Conferences and Seminars

Talks and Oral Contributions

- 2019 *Dynamical signs of a rotating accreting spiral structure.* Crete III: Through dark lanes to new stars - Celebrating the career of Prof. Charles Lada. Crete (Greece), September 23 – 27, 2019.
- *Dynamics and fragmentation in Galactic filamentary structures.* Laboratoire AIM, Paris-Saclay (France). Invited Seminar. September, 2019.
 - *Probing the HI/H2 layer around the ultracompact HII region MonR2.* Astrochemistry: From nanometers to megaparsecs - A symposium in honour of John H. Black, Gothenburg (Sweden), June 24 – 28, 2019.
 - *Dynamical signs of a hub-filament system.* From Stars to Planets II - Connecting our understanding of star and planet formation, Gothenburg (Sweden), June 17 – 20, 2019.
 - *Dynamics and fragmentation in Galactic filamentary structures.* Zoom In and Out: From the Interstellar Medium to the Large Scale Structure of the Universe, Stockholm (Sweden), June 3 – 7, 2019.
- 2018 *Are spiral filamentary structures ubiquitous in massive star-formation regions?* Physics of star formation: Gas flows from milky way cloud scales to protostellar disks, Heidelberg (Germany). December 4 – 7, 2018.
- *Evolutionary sequence for the fragmentation of high line-mass filaments.* Interstellar filament paradigm: On their formation, evolution, and role in star formation, Nagoya University (Japan). November 5 – 9, 2018.
 - *Are spiral filamentary structures ubiquitous in massive star-formation regions?* Tracing the Flow: Galactic Environments and the Formation of Massive Stars, Lake Windermere (UK). July 2 – 6, 2018.
 - *Kinematics and fragmentation in Galactic filaments: An ALMA view.* Intertellar:The matter, Cozumel (Mexico). May 14 – 18, 2018.
- 2017 *Chemical and dynamical study towards the UC HII region Monoceros R2.* Onsala Space Observatory. Onsala (Sweden). November, 2017.
- *Chemical and dynamical study towards the UC HII region Monoceros R2.* Max Planck Institute for Astrophysics. Garching (Germany). Invited Seminar. October, 2017.
 - *An accreting and converging filamentary hub in Mon R2.* Galactic Star Formation with Surveys, Heidelberg (Germany). July, 2017.
 - *Chemical and dynamical study towards the UC HII region Monoceros R2.* Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE). Cholula, Puebla (Mexico). Invited Seminar. May, 2017.
 - *An accreting and converging filamentary hub in Mon R2.* Multi-scale star formation, Morelia (Mexico). April, 2017.
- 2016 *Deuteration around the ultracompact HII region Mon R2.* Fractionation of isotopes in space, Florence (Italy). October, 2016.

- *Chemical and dynamical study towards the UC HII region in Monoceros R2*. PhD thesis defense, Granada (Spain). January, 2016.
- 2014 *Spectral survey in the PDR around the UC HII region Mon R2*. Madrid (Spain). December, 2014.
- *Chemical and dynamical study of the gas around the UC HII region in Monoceros R2*. Universidad de Granada (Spain). June, 2014.
- 2013 *Study of deuterated molecules in the PDR around the UC HII region Mon R2*. Master thesis defense, Universidad de Granada (Spain). July, 2013.
- *Study of deuterated molecules in the PDR around the UC HII region Mon R2*. Local IRAM Seminar, Granada (Spain). April, 2013.
- *Estudio en radio de líneas de recombinación hacia la región HII G213.8-11.8*. Master thesis defense, video-conference from Granada (Spain). September, 2013.
- 2010 *Observaciones de líneas de recombinación a través de la región GGD 14 usando el VLA*. LIII Congreso Nacional de Física. Boca del Río Veracruz (Mexico). October, 2010.
- 2009 *Desproporción del Telueno usando Zeolitas como catalizador*. Thesis defense, Universidad Autónoma de Nuevo León, Monterrey, (Mexico). March, 2009.
- 2009 *Desproporción del Telueno usando Zeolitas como catalizador*. LI Congreso Nacional de Física. Zacatecas, (Mexico). October, 2008.

Poster Contributions

- 2019 *Evolutionary sequence for the fragmentation of high line-mass filaments*. Stockholm (Sweden). October 24 – 26, 2019.
- *Dynamical signs of a spiral-like structure*. ALMA2019: science results and cross-facility synergies, Cagliari (Italy). October 14 – 18, 2019.
- *Dynamical signs of a spiral-like structure*. Crete III: Through dark lanes to new stars Celebrating the career of Prof. Charles Lada, Crete (Greece). September 23 – 27, 2019.
- 2018 *Are spiral filamentary structures ubiquitous in massive star-formation regions?* The Olympian symposium 2018, Paralia, Katerini (Greece). 28 May – 1 June 2018
- 2017 *An accreting and converging filamentary hub in Mon R2*. The physics of the ISM, 6 years of ISM-SPP 1573: What have we learned?, Cologne (Germany). February, 2017.
- *Deuteration around the ultracompact HII region Mon R2*. Multi-scale star formation, Morelia (Mexico). April 3 – 7, 2017.
- 2016 *Infall and outflow: A filamentary hub in Mon R2*. Star formation in different environments, Quy Nhon (Vietnam). July, 2016.
- 2013 *Study of deuterated molecules in the PDR around the UC HII region Mon R2*. Protostars & Planets VI, Heidelberg (Germany). July, 2013.
- 2012 *Molecular study of the PDR around the UC HII region Mon R2*. 8th IRAM Millimeter Interferometry School, Grenoble (France). October, 2012.
- 2011 *A study at millimeter wavelengths of the PDR associated with the GGD 14 region*. Workshop ALMA: Extending the Limits of Astrophysical Spectroscopy, Victoria, British Columbia (Canada). January, 2011.

- 2010 *Hydrogen and carbon radio recombination lines ($H110\alpha$ & $C110\alpha$) toward GGD 14 using VLA*. XIII Latin American Regional IAU Meeting, Morelia (Mexico). November, 2010.

Astronomical Facilities

As part of my PhD duties I have been Astronomer on Duty (AoD). This consists in spending (on average) one week per month at the *IRAM 30m Telescope*, (*Granada, Spain*) operated by the *Institut de Radioastronomie Millimétrique (IRAM)*. I have experience in the proposal preparation, preparation of observing files, observation procedures, service observations and the analysis of spectral line data of this telescope. Since I started my postdoc I have been performing data reduction and analysis of large sets from the Atacama Large Millimeter/submillimeter Array (ALMA). I also have experience in the preparation of proposals and observing files, for both continuum and spectral line data, in the following astronomical facilities:

- *ALMA, Atacama Large Millimeter/submillimeter Array*. Llano de Chajnantor (Chile), operated by the European Southern Observatory (ESO), the National RadioAstronomy Observatory (NRAO) and the National Astronomical Observatory of Japan (NAOJ).
- *APEX, Atacama Pathfinder Experiment*. Llano de Chajnantor (Chile), operated by the Max-Planck-Institut für Radioastronomie (MPIfR), the European Southern Observatory (ESO), and the Onsala Observatory.
- *IRAM-30m Telescope*. Granada (Spain), operated by the Institut de Radioastronomie Millimétrique (IRAM).
- *JVLA, Karl G. Jansky Very Large Array*. New Mexico (USA), operated by the National RadioAstronomy Observatory (NRAO).
- *NOEMA, NOrthern Extended Millimeter Array*. Grenoble (France), operated by the Institut de Radioastronomie Millimétrique (IRAM).
- *VLA, Very Large Array*. New Mexico (USA), operated by the National RadioAstronomy Observatory (NRAO).

Outreach Activities

- 2019 *Astronomy on tap*. Gothenburg (Sweden) from June 2019.
- *100 hours of Astronomy in the border*. Juarez, Mexico 10 – 13 January 2019.
- 2017 *Plan de vida y carrera*. Organized by Preparatoria # 17, Universidad Autónoma de Nuevo León (UANL), Cienega de Flores (Mexico), May 19, 2017.
- 2014 *I Trobada d'Agrupacions Astronòmiques de Catalunya*. Organized by AstroAnoia, Igualada (Barcelona, Spain), June 17, 2014.
- *Visits to the Sierra Nevada observatories*. Organized by Institut de Radioastronomie Millimétrique (IRAM) and the Instituto de Astrofísica de Andalucía (IAA), Granada (Spain), summer, 2014.
- 2013 *Visits to the Sierra Nevada observatories*. Organized by Institut de Radioastronomie Millimétrique (IRAM) and the Instituto de Astrofísica de Andalucía (IAA), Granada (Spain), summer, 2013.
- 2012 *Visits to the Sierra Nevada observatories*. Organized by Institut de Radioastronomie Millimétrique (IRAM) and the Instituto de Astrofísica de Andalucía (IAA), Granada (Spain), summer, 2012.

- 2010 *4to Taller de Ciencias para Jóvenes ¿Cómo vemos lo que no vemos?* in the Centro de Radioastronomía y Astrofísica, CRyA-UNAM, Morelia (Mexico), August 2–6, 2010.
- Collaboration in 18 outreach events. Astronomical observations for the general public. *Los Viernes de Astronomía* in the Centro de Radioastronomía y Astrofísica, CRyA-UNAM, Morelia (Mexico), 2009–2010.
- 2009 *Clausura del Año Internacional de la Astronomía* - Ending of the International Year of the Astronomy. Organized by Centro de Radioastronomía y Astrofísica, CRyA-UNAM, Morelia (Mexico), December 5, 2009.
- *Feria de la Astronomía*. Organized by Centro de Radioastronomía y Astrofísica, CRyA-UNAM, Morelia (Mexico), November 20–29, 2009.
 - *Reto Mexico 2009*. Organized by Centro de Radioastronomía y Astrofísica, CRyA-UNAM, Morelia (Mexico), October 24, 2009.
 - *Viaje al espacio: Orgullo para Michoacán*. Organized by Centro de Radioastronomía y Astrofísica, CRyA-UNAM, Morelia (Mexico), September 5, 2009.
- 2007 Collaboration in several outreach events. *Rally of physics* in the Facultad de Ciencias Físico-Matemáticas of the Universidad Autónoma de Nuevo León, Monterrey (Mexico), 2003–2007.

Software Experience

Astronomical *GILDAS* software package <https://www.iram.fr/IRAMFR/GILDAS/>
AIPS, Astronomical Image Processing System <http://www.aips.nrao.edu/>
MADEX, private LVG code
CASA, Common Astronomy Software Applications <http://casa.nrao.edu/>
RADEX, <http://home.strw.leidenuniv.nl/~moldata/radex.html>
CLOUDY, <http://www.nublado.org/>
SAOImage DS9, <http://ds9.si.edu/site/Home.html>
IRAF, Image Reduction and Analysis Facility <http://iraf.noao.edu/>

Platforms Linux, MacOS, Windows

Processors \LaTeX , Office-Word

Languages

		Comprehension		Speaking	Writing
		Listening	Reading		
Spanish	Mother Tongue	<i>very good</i>	<i>very good</i>	<i>very good</i>	<i>very good</i>
English	Fluent	<i>good</i>	<i>good</i>	<i>good</i>	<i>good</i>
Swedish	Basic	<i>low</i>	<i>good</i>	<i>low</i>	<i>low</i>