

Maria Teresa Valdivia-Mena

Giessenbachstrasse 1, 85748 Garching, Germany

☎ +49 (0)89 30000-3546 | ✉ mvaldivi@mpe.mpg.de | 🏠 tere-valdivia.github.io | 📷 tere-valdivia

Education

PhD (Dr. rer. nat) in Astrophysics

MAX PLANCK INSTITUTE FOR EXTRATERRESTRIAL PHYSICS

- Expected thesis defense date: August 2023.
- Enrolled through the International Max Planck Research School

Sep. 2020 - Present

Garching, Germany

M.Sc. in Astronomy

UNIVERSIDAD DE CHILE

Thesis: Molecular Clouds in Extreme Environments of the Low-Metallicity Magellanic System

Mar. 2018 - Aug. 2020

Santiago, Chile

B.Sc. in Astronomy

UNIVERSIDAD DE CHILE

- Obtained a Minor in Scientific Computing together with the B.Sc.
- Graduated with highest distinction.

Mar. 2014 - Dec. 2017

Santiago, Chile

Research interests

- Kinematic properties of gas around embedded protostars
- Asymmetric infall mechanisms from the natal core and beyond towards protostellar disks
- Molecular emission properties of the Interstellar Medium
- Early stages of low-mass star formation

Publications

- **Valdivia-Mena, M. T., Pineda, J. E., Segura-Cox, D. M., et al.,** *PRODIGE - Envelope to disk with NOEMA I. A 3000 au streamer feeding a Class I protostar*, 2022, *Astronomy & Astrophysics*, 667, A12
- **Valdivia-Mena, M. T., Rubio, M., Bolatto, A. D., et al.,** *ALMA resolves molecular clouds in metal-poor Magellanic Bridge A*, 2021, *Astronomy & Astrophysics*, 641, A97

Talks

SEMINARS

- Dec. 12th **Tuesday Uva / NRAO Astronomy (TUNA) Lunch Talk**, Title: *Rivers in the sky: streamers discovered towards two young embedded sources in Perseus*, NRAO and Virtual, Charlottesville, USA
- Dec. 12th **IRAM-Wisc-CAS Seminar**, Title: *Rivers in the sky: streamers discovered towards two young embedded sources in Perseus*, Virtual
- Nov. 8th **Star and Planet Formation Seminar**, Title: *Rivers in the sky: streamers discovered towards two Class I sources in Perseus*, ESO and Virtual, Garching, Germany

CONFERENCES

- Aug. 4th **From Clouds to Planets II: The Astrochemical Link**, Title: *Rivers in the sky: streamers discovered towards two Class I sources in Perseus*, Berlin, Germany
- Jun. 30th **European Astronomical Society Annual Meeting 2022**, Title: *Rivers in the sky: Streamers discovered towards two embedded protostars in Perseus*, Valencia, Spain
- Mar. 4th **Meeting of ALMA Young Astronomers**, Title: *Rivers in the sky: streamers discovered towards two Class I sources in Perseus*, Virtual
- Nov. 5th **12th IMPRS Students Symposium**, Title: *River in the sky: A streamer feeding a Class I protostar*, Garching, Germany
- Oct. 29th **Gaps, Rings, Spirals, and Vortices: Structure Formation in Planet-Forming Disks**, Title: *A Class I protostar with a high streamer mass infall rate*, Munich Institute for Astro- and Particle Physics, Garching, Germany
- Jun. 30th **European Astronomical Society Annual Meeting 2021**, Title: *River in the sky: A streamer feeding a Class I protostar*, Virtual
- Nov. 8th **Latin American Regional IAU Meeting 2019**, Title: *ALMA observations of molecular tracers in R136 in 30Dor: How does cold gas survive?*, Hotel Antofagasta, Antofagasta, Chile

Observing experience

- **Atacama Large Millimeter/Submillimeter Array (ALMA)**: PI of accepted project 2022.1.00898.S (grade C) “Quest for the source: connecting a filament to infalling gas towards a protostar in Barnard 5” plus experience with calibration and imaging.
- **Northern Extended Millimetre Array (NOEMA)**: PI of accepted project W22AH (grade A) “The connection between streamer and protostellar disk in Per-emb-50” plus experience with calibration and imaging.
- **Green Bank Telescope (GBT)**: PI and on-site observer of accepted project GBT22B-163 “Mind the gap: connecting the scales between filaments and protostars” (2022B). Also obtained qualification as remote observer.
- **IRAM 30m**: PI of accepted project 124-21 “Go with the flow? Streamer vs. envelope mass infall towards a Class I protostar” (2022A) and remote observing experience for this project. On-site and remote observing experience for project 090-21 (PI: J. Pineda), where I participate as Co-I. Additionally, experience with reduction using CLASS.
- **Atacama Pathfinder Explorer (APEX)**: PI of accepted project C104-9709 (2019B). On-site observer for Chilean time in three occasions: June 2017 (2017A), April 2018 (2018A) and May 2019 (2019A). Additionally, experience with reduction using CLASS.

Workshops

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| Aug. 22th - 26th, 2022 | 17th IMPRS Heidelberg Astronomy Summer School: Astronomy, astrochemistry & the origin of life , International Max Planck Research School for Astronomy and Cosmic Physics, University of Heidelberg | Heidelberg, Germany |
| Aug. 3rd - 5th 2022 | Green Bank Telescope (GBT) Remote Observer Training Workshop , NRAO | Virtual |
| Nov. 15th - 23rd 2021 | 10th IRAM 30-meter School on Millimeter Astronomy , Institut de Radioastronomie Millimétrique | Virtual |
| Mar. 14th - 19th 2021 | 2021 Submillimeter Array Interferometry School , Harvard & Smithsonian Center for Astrophysics, in conjunction with the ASIAA and the University of Hawaii | Virtual |
| Oct. 7th - 11th, 2019 | European Radio Interferometry School 2019 , Onsala Space Observatory and Chalmers University of Technology | Gothenburg, Sweden |
| Oct. 1st - 5th 2018 | II International Astrochemistry School , Universidad Autónoma de Chile | Santiago, Chile |
| Aug. 20th - 29th 2018 | La Serena School for Data Science: Applied Tools for Data Driven Sciences , Association of Universities for Research in Astronomy, National Science Foundation (USA) and Agencia Nacional de Investigación y Desarrollo (Chile) | La Serena, Chile |

Outreach

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| Aug. 30th 2022 | Public Talk “Discos protoplanetarios, el origen de los mundos” , Programa Ciencia Abierta, Par Explora RM Norte. Liceo Bicentenario Provincial Santa Teresa de los Andes | Colina, Chile |
| Jul. 23rd 2022 | Public Talk “How to feed baby stars” , Soapbox Science Munich | Munich, Germany |
| Jul. 2018 - Present | Member of “Cazadoras de Estrellas” Project , DIRVEX, Universidad de Chile. This outreach project is lead by a group of female graduate students and alumni from the Astronomy Department in Universidad de Chile. The goal is to give high school girls a hands-on experience with astronomical data and meet female astronomers so that they can solve any vocational doubts about this career | Munich, Germany |
| Jun. 27th, 2019 | Public Talk “Eclipses: Luces y Sombras en el Universo” , Municipalidad de El Bosque. | Santiago, Chile |
| Mar. 21st 2019 - Apr. 9th 2019 | Public Talk “Astroinformática para principiantes” , Done at DUOC UC Puente Alto and at Centro de Extensión de la Universidad de Talca. | Santiago, Chile |
| Jun. 2018 - Nov. 2018 | Scientific Counselor for “Festival de Teatro y Ciencias” (FETYC) , Par Explora Sur Oriente, CONICYT. The FETYC is a theatre competition organized by the National Commission of Scientific and Technologic Investigation (CONICYT) where several schools prepare a play around a scientific inquiry. The Scientific Counselor guides the scientific content of the plays. | Santiago, Chile |
| Mar. 2018 - Aug. 2018 | Tourist Guide at National Astronomical Observatory , Departamento de Astronomía, Universidad de Chile. | Santiago, Chile |

Teaching

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| Sep. 2018 - | Teaching Assistant for the course “Experimental Astronomy” , <i>Undergraduate course</i> , Includes giving | <i>Universidad de</i> |
| Jul. 2019 | classes, marking and supervising activities | <i>Chile</i> |
| Mar. 2019 - | Teaching Assistant for the course “Introduction to Cosmology” , <i>Undergraduate course</i> , Includes giving | <i>Universidad de</i> |
| Jul. 2019 | classes, marking and supervising activities | <i>Chile</i> |
| Jan. 2019 | Teaching Assistant for “Planetary Sciences” , <i>High School</i> , Escuela de Verano | <i>Universidad de</i> |
| | | <i>Chile</i> |
| Sep. 2017 - | Teaching Assistant for the Data Visualization Diploma , <i>Undergraduate diploma</i> | <i>Pontificia</i> |
| Oct. 2017 | | <i>Universidad</i> |
| | | <i>Católica de Chile</i> |
| Mar. 2017 - | Teaching Assistance for the course “Mechanics” , <i>Undergraduate course</i> , Includes giving classes, marking | <i>Universidad de</i> |
| Jul. 2017 | and supervising activities | <i>Chile</i> |

Skills

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| Languages | Spanish (native) English (C1), German (A2) |
| Programming languages | Python, C, Java, R |
| CASA | Imaging of interferometric data and use of the ALMA pipeline |
| GILDAS | Use of CLASS for imaging of single-dish data and MAPPING for imaging of interferometric data |
| Version controlling tools | Git |

Scholarships and Awards

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| Jul.2018 | Adelina Gutierrez Grant , <i>Sociedad Chilena de Astronomía</i> . The grant funded the assistance to the Second Binational AAA-SOCHIAS Meeting |
| Mar. 2018 - | Scholarship for National Master Studies , <i>Comisión Nacional de Investigación en Ciencia y Tecnología</i> |
| Dec. 2019 | (CONICYT). The scholarship funds master studies done in chilean universities |

Service and Leadership

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| Apr. 2019 - | Graduate Student Representative , Departamento de Astronomía, Universidad de Chile |
| Apr. 2020 | |

References

Prof. Dr. Paola Caselli, Director, Max Planck Institute for Extraterrestrial Physics, caselli@mpe.mpg.de
Prof. Mónica Rubio, Full Professor, Departamento de Astronomía, Universidad de Chile,
mrubio@das.uchile.cl