

# Maria Teresa Valdivia-Mena

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## 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*, *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

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- **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	<b>17th IMPRS Heidelberg Astronomy Summer School: Astronomy, astrochemistry &amp; the origin of life</b> , International Max Planck Research School for Astronomy and Cosmic Physics, University of Heidelberg	Heidelberg, Germany
Aug. 3rd - 5th 2022	<b>Green Bank Telescope (GBT) Remote Observer Training Workshop</b> , NRAO	Virtual
Nov. 15th - 23rd 2021	<b>10th IRAM 30-meter School on Millimeter Astronomy</b> , Institut de Radioastronomie Millimétrique	Virtual
Mar. 14th - 19th 2021	<b>2021 Submillimeter Array Interferometry School</b> , Harvard & Smithsonian Center for Astrophysics, in conjunction with the ASIAA and the University of Hawaii	Virtual
Oct. 7th - 11th, 2019	<b>European Radio Interferometry School 2019</b> , Onsala Space Observatory and Chalmers University of Technology	Gothenburg, Sweden
Oct. 1st - 5th 2018	<b>II International Astrochemistry School</b> , Universidad Autónoma de Chile	Santiago, Chile
Aug. 20th - 29th 2018	<b>La Serena School for Data Science: Applied Tools for Data Driven Sciences</b> , 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	<b>Public Talk “Discos protoplanetarios, el origen de los mundos”</b> , Programa Ciencia Abierta, Par Explora RM Norte. Liceo Bicentenario Provincial Santa Teresa de los Andes	Colina, Chile
Jul. 23rd 2022	<b>Public Talk “How to feed baby stars”</b> , Soapbox Science Munich	Munich, Germany
Jul. 2018 - Present	<b>Member of “Cazadoras de Estrellas” Project</b> , 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	<b>Public Talk “Eclipses: Luces y Sombras en el Universo”</b> , Municipalidad de El Bosque.	Santiago, Chile
Mar. 21st 2019 - Apr. 9th 2019	<b>Public Talk “Astroinformática para principiantes”</b> , Done at DUOC UC Puente Alto and at Centro de Extensión de la Universidad de Talca.	Santiago, Chile
Jun. 2018 - Nov. 2018	<b>Scientific Counselor for “Festival de Teatro y Ciencias” (FETYC)</b> , 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	<b>Tourist Guide at National Astronomical Observatory</b> , Departamento de Astronomía, Universidad de Chile.	Santiago, Chile

## Teaching

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

## Skills

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

## Scholarships and Awards

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Jul.2018	<b>Adelina Gutierrez Grant</b> , <i>Sociedad Chilena de Astronomía</i> . The grant funded the assistance to the Second Binational AAA-SOCHIAS Meeting
Mar. 2018 -	<b>Scholarship for National Master Studies</b> , <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 -	<b>Graduate Student Representative</b> , Departamento de Astronomía, Universidad de Chile
Apr. 2020	

## References

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