

Maria Teresa Valdivia-Mena

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Education

PhD (Dr. rer. nat) in Astrophysics

Sep. 2020 - Present

MAX PLANCK INSTITUTE FOR EXTRATERRESTRIAL PHYSICS

Garching, Germany

- Expected thesis defense date: January 2024.
- Enrolled through the International Max Planck Research School

M.Sc. in Astronomy

Mar. 2018 - Aug. 2020

UNIVERSIDAD DE CHILE

Santiago, Chile

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

B.Sc. in Astronomy

Mar. 2014 - Dec. 2017

UNIVERSIDAD DE CHILE

Santiago, Chile

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

Research interests

- Early stages of low-mass star formation,
- Kinematic properties of gas around embedded protostars (e.g. streamers and outflows),
- Structure and dynamics of filaments and fibers in molecular clouds,
- Asymmetric mass infall mechanisms from the natal core and beyond towards protostellar disks,
- Molecular emission properties of the Interstellar Medium

Publications

As first author:

- **Valdivia-Mena, M. T., Pineda, J. E., Segura-Cox, D. M., et al.**, *Flow of gas detected from beyond the filaments to protostellar scales in Barnard 5*, 2023, accepted for publication in *Astronomy & Astrophysics*, on July, 2023
- **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

As co-author:

- **Hsieh, T. H. et al (incl. Valdivia-Mena, M. T.)**, 2023, *Astronomy & Astrophysics*, 669, A137

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), plus experience with calibration and imaging.
- **Northern Extended Millimetre Array (NOEMA)**: PI of accepted project W22AH (grade A), plus experience with calibration and imaging.
- **Green Bank Telescope (GBT)**: PI and on-site observer of accepted project GBT22B-163 (2022B). Also obtained qualification as remote observer.
- **IRAM 30m**: PI of accepted project 124-21 (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

Aug. 22th - **17th IMPRS Heidelberg Astronomy Summer School: Astronomy, astrochemistry & the origin of life**, Heidelberg, Germany

26th, 2022 International Max Planck Research School for Astronomy and Cosmic Physics, University of Heidelberg

Aug. 3rd - **Green Bank Telescope (GBT) Remote Observer Training Workshop**, NRAO, Virtual

5th 2022

Nov. 15th - **10th IRAM 30-meter School on Millimeter Astronomy**, Institut de Radioastronomie Millimétrique, Virtual

23rd 2021

Mar. 14th - **2021 Submillimeter Array Interferometry School**, Harvard & Smithsonian Center for Astrophysics, in conjunction with the ASIAA and the University of Hawaii, Virtual

19th 2021

Oct. 7th - **European Radio Interferometry School 2019**, Onsala Space Observatory and Chalmers University of Technology, Gothenburg, Sweden

11th, 2019

Oct. 1st - **II International Astrochemistry School**, Universidad Autónoma de Chile, Santiago, Chile

5th 2018

Aug. 20th - **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

29th 2018

Outreach

	Member of “Cazadoras de Estrellas” Project , DIRVEX, Universidad de Chile. This outreach project is lead by	
Jul. 2018 -	a group of female graduate students and alumni from the Astronomy Department in Universidad de Chile.	Chile
Present	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	
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
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
	Scientific Counselor for “Festival de Teatro y Ciencias” (FETYC) , Par Explora Sur Oriente, CONICYT. The	
Jun. 2018 -	FETYC is a theatre competition organized by the National Commission of Scientific and Technologic	Santiago, Chile
Nov. 2018	Investigation (CONICYT) where several schools prepare a play around a scientific inquiry. The Scientific Counselor guides the scientific content of the plays.	
Mar. 2018 -	Tourist Guide at National Astronomical Observatory , Departamento de Astronomía, Universidad de Chile.	Santiago, Chile
Aug. 2018		

Teaching

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

Skills

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

Scholarships and Awards

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

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