

Dr. María Claudia RAMÍREZ TANNUS

PERSONAL DATA

CURRENT LOCATION: Planet and Star Formation Department, MPIA
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PROFESSIONAL EXPERIENCE

04.2021 – **PI of XUE collaboration** Management of a collaboration of more than 30 astronomers around the world. *Achievements:* 30 h of JWST time, 1 ApJL, 1 master thesis, 1 summer project, 3 grants (> 400 K Euro).
09.2019 – **Independent Postdoctoral Researcher** PSF department MPIA Heidelberg, Germany
Research on massive young stellar objects, the origin of massive binaries and planet formation in extreme environments
10.2018 – 07.2019 **Postdoctoral Researcher** Anton Pannekoek Institute, Amsterdam, The Netherlands
Stellar populations in giant HII regions (*Host:* L. Kaper)

During my career I have had one significant break due to the birth of my daughter.

EDUCATION

09.2014 – 09.2018 **PhD in Astrophysics** Anton Pannekoek Institute, Amsterdam, The Netherlands
Thesis: The outcome of massive star formation
Supervisors: Prof. Dr. Lex Kaper, Prof. Dr. Alex de Koter
05.2012 – 07.2014 **Master of Science in Physics** Astronomische Rechen-Institut, Heidelberg, Germany
Thesis: Star Formation in the outer disk of the spiral galaxy NGC6946.
Supervisors: Prof. Dr. Eva Grebel, Dr. Anna Pasquali
10.2007 – 10.2011 **Bachelor of Science in Physics** Los Andes University, Bogotá, Colombia
Thesis: Distance to the spiral galaxy NGC7793
Supervisor: Prof. J.A. García-Varela

PUBLICATIONS

Number of refereed articles: 21. First author: 6. Second/third author: 5 (3 including student supervision). Total citations: 308. h-index: 9. See Publication List below.

GRANTS AND AWARDS

09.2023 – 03.2026 **German Aerospace Center (DLR) Grant;** PI (247 700 EUR)
To perform research using the James Webb Space Telescope
01.2024 – 01.2025 **STScI funding;** co-PI (156 000 EUR)
STScI funds research for General Observer (GO)
01.2023 – 12.2023 **Young Marsilius Fellowship** (5000 EUR)
for Interdisciplinarity and Science Communication

03.2022 – 02.2023	Christiane Nüsslein-Volhard Foundation fellowship (4800 EUR) to facilitate the progress of highly qualified women with children
11.2021	Ernst-Patzer Prize (2000 EUR) for the Promotion of Young Scientists at MPIA or University of Heidelberg that have authored excellent publications
11.2017	First prize in poster competition (60 EUR) IAUS 329: Massive stars, New Zealand
11.2017	IAU travel grant (400 EUR) IAUS 329: Massive stars, New Zealand
02.2016	Participation and full coverage of local expenses ESO/NEON Observing School
09.2014 – 09.2017	3 Leids Kerkhoven-Bosscha Fonds (LKBF) grants (1900 EUR)

STUDENT SUPERVISION

02.2024 – present	Supervision of master student: Alejandra Lemus.	UNal, Colombia
09.2019 – 06.2024	Co-supervision of PhD student: Annelotte Derkink.	API, The Netherlands
07.2023 – 09.2023	Supervision of summer intern: Alejandra Lemus.	MPIA, Heidelberg
09.2022 – 09.2023	Co-supervision of master student: Lars Cuijpers.	Radboud University
08.2017 – 04.2019	Co-supervision of master students: Martijn van Gelder, Stephan de Wit, Frank Backs, Annelotte Derkink.	API, The Netherlands

TEACHING EXPERIENCE

11.2021	Lecturer: ‘30Dor and other nearby starburst clusters’	Granada, Spain
11.23 (invit. declined)	Severo Ochoa Advanced school on star formation	
07.2019	Science Club on Stellar Spectroscopy	Bucaramanga, Colombia
	Designed and led a 6-day astronomy workshop on stellar spectroscopy for high-school students within the ‘Science Club’ international program.	
09.2014 – 11.2017	Teaching assistant ‘Observational astrophysics’	API, The Netherlands
08.2008 – 08.2011	Teaching assistant	Universidad de Los Andes, Colombia
	Physics 1, Physics 2, Thermodynamics, and Solid State Physics	

SERVICE TO THE COMMUNITY

11.2024	SOC Shaw-IAU Workshop on Astronomy for Education	online
from 06.2024	Postdoc representative in the Building committee	MPIA, Heidelberg
2024	Member of PSF Postdoc admission committee	MPIA, Heidelberg
from 06.2021 –	Referee for: ApJ and A&A	
from 09.2021 –	Organizer of the weekly PSF department meeting	MPIA, Heidelberg
01.2020 – 07.2022	Equal Opportunity Officer	MPIA, Heidelberg
2021, 2023	SOC of 3 conferences	S16 (EAS21); Massive binaries (Leuven); Two in a million (ESO)
09.2014 – 09.2017	Organizer of the biweekly massive stars meeting	API, The Netherlands
05.2016	Local organizing committee of NAC	Nunspeet, The Netherlands
11.2014 – 12.2015	PhD students representative	API, The Netherlands

SELECTED TALKS

10.2024	I Simposio Colombiano de Astroquímica (SICOAQ) (<i>invited</i>)	Bogotá, Colombia
10.2024	Astronomy department seminar (<i>invited</i>)	Stockholm, Sweden
07.2024	Externally irradiated disks at the Royal Society (<i>invited</i>)	London, UK
03.2024	Colloquium (<i>invited</i>)	Anton Pannekoek Institute, The Netherlands
03.2024	From Stars to Planets (<i>invited</i>)	Villa Vigoni, Menaggio, Italy
07.2023	EAS S7: 1 year of JWST: PDRs, protostars, disks, planets (<i>invited</i>)	Kraków, Poland
07.2023	EAS SS27: The Young Milky Way (<i>invited</i>)	Kraków, Poland
04.2023	Colloquium (<i>invited</i>)	Anton Pannekoek Institute, The Netherlands
12.2022	JWST First Results (<i>recorded talk</i>)	STScI, USA
06.2022	100 years of astronomy research at the API (<i>invited</i>)	Amsterdam
04.2022	Joint ESO/ALMA Colloquium (<i>invited, online</i>)	ESO, Chile
11.2021	Ernst-Patzner Prize colloquium (<i>invited</i>)	Max-Planck-Institute for Astronomy, Germany
02.2021	Panel discussion on massive binary stars (<i>invited, online</i>)	Flat Iron Institute, USA
10.2020	Lunch Talk (<i>invited, online</i>)	University of St. Andrews, Scotland
05.2020	Informal Discussion (<i>invited, online</i>)	ESO, Germany
01.2020	Königstuhl Colloquium	Max-Planck-Institute for Astronomy, Germany
11.2019	MULTIPLES group meeting	KU Leuven, Belgium
11.2019	Harvard-Heidelberg Star Formation (<i>recorded talk</i>)	Center for Astrophysics, USA
03.2018	Coffee talk (<i>invited</i>)	Royal Observatory Edinburgh (ROE), Scotland
07.2017	The impact of binaries on stellar evolution (<i>recorded talk, slides</i>)	ESO, Germany
05.2017	72nd Netherlands Astronomy, NAC	Nijmegen, The Netherlands
05.2017	VFTS Collaboration Meeting (<i>invited</i>)	Leuven, Belgium
08.2016	Astronomy and Astrophysics' Seminar (<i>invited</i>)	Los Andes University, Colombia
03.2015	VFTS Collaboration Meeting	Sheffield, UK

OBSERVATIONAL EXPERIENCE

- Principal investigator of accepted proposals with JWST/MIRI (27 h), VLT/X-shooter (48 h), WHT/ISIS (35 h), LBT/LUCI (5 h), La Silla 2.2m (240 h)
- Co-Investigator of accepted proposals for: JWST, ALMA, VLT/NACO, VLT/SPHERE, SALT

03.2020	Observer: GRAVITY/VLTI	ESO, Paranal Observatory
07.2017 & 07.2018	Observer and project PI: ISIS/WHT	ING, La Palma
02.2016	ESO/NEON Observing School	ESO, La Silla
	Two weeks of observing experience including lectures, proposal preparation, 3-night of observations in the ESO NTT, and Danish 1.54-m telescopes, and data reduction.	
01.2012	ESAOBELA Observing school	UNAM/INAOE, México
	Two weeks of observing experience including lectures observations with the UNAM/INAOE 1-m telescope and data reduction .	

OUTREACH & MEDIA

More than 20 appearances in news papers, TV, radio and podcasts. More than 10 public talks and participation in open days. See below for a selection, including links to articles and talks.

01.2024	Talk to school children about planet formation <i>Colegio Sumerhill, Sucre, Sincelejo</i> (see Event)
01.2024	Cover page of national newspaper <i>El Espectador</i> <i>Señales para otra Tierra</i> (see Article)
11.2023	Media appearances in German TV and Radio Rich molecular inventory in an irradiated PPD. (Video , Podcast)
11.2023	Interview for The New York Times A Beginner's Guide to Looking at the Universe (Article)
10.2023	Open Day Spectroscopy station at MPIA, Heidelberg
02.2023	Ciencia en Bicicleta, Planetario de Medellín Massive stars and their effect on planet formation (Watch talk)
04.2022	Orígenes online seminar The outcome of massive star formation (Watch talk)
03.2022	Contra TIC podcast Podcast interview about women in science and JWST (Podcast)
02.2022	Forbes science article about my career and research "How Do Planets Form? Ask This Colombian Astronomer!" (Article)
02.2022	Talk about my research and career for bachelor students Universidad Pedagógica Tecnológica de Colombia (Press)
12.2021	Radio interview with the occasion of JWST's launch All things considered, NPR (Listen to interview)
12.2021	Talks about studying the stellar life cycle with JWST watch talks: MPIA , ACDA , Planetarium Bogotá
10.2021	Talk for Colombian amateur astronomy society (ACDA) Young massive stars and their effect on planet formation (watch talk)
07.2021	Career talk for school children For online school uDiscover
03.2021	Women in Data Science Colombia Deriving stellar properties through spectroscopic data, in the framework of the Global WiDS Conference (watch talk)
02.2021	Media appearances JWST Cycle 1: El Tiempo , El Espectador , Semana , SPIEGEL
09.2020	Shots de ciencia Podcast interview about massive stars (listen to podcast)
07.2020	Fuerza Latina Television program of the Deutsche Welle Español (watch video)
06.2020	Hablemos del Universo Panel discussion for the Planetarium of Bogotá (watch video)
04.2017	Public Talk The search for massive young stars in the Omega Nebula
2014 – 2017	Open Day once a year at Science Park, University of Amsterdam

PEER-REVIEWED PUBLICATIONS

(*) STUDENT (CO-)SUPERVISION

21. Rinaldi, S. & **Ramírez-Tannus, M. C.**; *Non-parametric identification of single-lined binary candidates in young clusters using single-epoch spectroscopy*, 2024, *A&A*, *in press*
20. ***Ramírez-Tannus, M. C.**, Derkink, A. R.; Backs, F., et al., *The spectroscopic binary fraction of the young stellar cluster M17*, 2024, *A&A*, 690, 178
19. *Backs, F. ; Brands, S. A. ; **Ramírez-Tannus, M. C.** ; Derkink, A. R., et al., *Properties of intermediate- to high-mass stars in the young cluster M17: Characterizing the (pre-) zero-age main sequence*, 2024, *A&A*, 690, 113
18. *Derkink, A.; Ginski, C.; Pinilla, P., ... incl **Ramírez-Tannus, M.C.**; *Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYs): PDS 111, an old T Tauri star with a young-looking disk*, 2024, *A&A*, 688, 149
17. Sana, H., Tramper, F., Abdul-Masih, M., Blomme, R., ... incl **Ramírez-Tannus, M.C.**; *X-Shooting ULLYSES: Massive stars at low metallicity. II. DR1: Advanced optical data products for the Magellanic Clouds*, 2024, *A&A*, 688, 104
16. *Derkink, J., **Ramírez-Tannus, M. C.**, Kaper, L., de Koter, A., Backs, F., Poorta, J., van Gelder, M. L., *Spectroscopic variability of massive pre-main-sequence stars in M17*, 2024, *A&A*, 681, 112
15. Stoop, M., Derkink, A., Kaper, L., de Koter, A., Rogers, C., **Ramírez-Tannus, M.C.**; et al, *The early evolution of young massive clusters. II. The kinematic history of NGC 6618/M 17*, 2024, *A&A*, 681, 21
14. **Ramírez-Tannus, M. C.**, Bik, A., Cuijpers, L., Waters, R., et al., *XUE. Molecular inventory in the inner region of an extremely irradiated Protoplanetary Disk*, 2023, *ApJ Letters*, 958, 30
13. *Poorta, J., **Ramírez-Tannus, M. C.**, de Koter, A., Backs, F., et al., *Massive pre-main-sequence stars in M17: 1st and 2nd overtone CO bandhead emission and the thermal infrared*, 2023, *A&A*, 26, 676
12. Vink, J. S., Mehner, A., Crowther, P.A., ..., incl. **Ramirez-Tannus, M.C.** et al. *X-Shooting ULLYSES: Massive stars at low metallicity. I. Project description*, 2023, *A&A*, 675, 154
11. Backs, F., Poorta, J., Rab, Ch., Derkink, A. R., de Koter, A., Kaper, L., **Ramírez-Tannus, M. C.**, Kamp, I., *Massive pre-main-sequence stars in M17. Modelling hydrogen and dust in MYSO disks*, 2023, *A&A*, 671, 13
10. Bordier, E., Frost, A. J., Sana, H., Reggiani, M., Mérand, A., Rainot, A. **Ramírez-Tannus, M. C.**, de Wit, W. J., *On the origin of close massive binaries in the M17 star-forming region*, 2022, *A&A*, 663, 26
9. Xiang, M., Rix, H-W., Ting, Y-S.,..., incl. **Ramirez-Tannus, M.C.**, et al., *Stellar labels for hot stars from low-resolution spectra - I. the HotPayne method and results for 330,000 stars from LAMOST DR6*, 2022, *A&A*, 662, 66

8. **Ramírez-Tannus, M. C.**, Backs, F., de Koter, A. et al., *A relation between the radial velocity dispersion of young clusters and their age. Evidence for hardening as the formation scenario of massive close binaries*, 2021, *A&A*, 645, L10
7. Gravity Collaboration: Koutoulaki, M.; Garcia Lopez, R.; Natta, A.... incl. **Ramírez-Tannus, M.C.**, et al., *The GRAVITY young stellar object survey. IV. The CO overtone emission in 51 Oph at sub-au scales*, 2021, *A&A*, 645, 50
6. *van Gelder, M. L., Kaper, L., Japelj, J, **Ramírez-Tannus, M.C.**, et al., *VLT/X-shooter spectroscopy of massive young stellar objects in the 30 Doradus region of the Large Magellanic Cloud*, 2020, *A&A*, 636, A54
5. **Ramírez-Tannus, M.C.**, Poorta, J., et al., *The young stellar content of the giant H II regions M 8, G333.6-0.2, and NGC 6357 with VLT/KMOS*, 2020, *A&A*, 633, A155
4. **Ramírez-Tannus, M.C.**, Cox, N. L. J., Kaper, L., de Koter, A., *Diffuse interstellar bands in the HII region M17: Insights into their relation with the total-to-selective visual extinction R_V* , 2018, *A&A*, 620, A52
3. **Ramírez-Tannus, M.C.**, Kaper, L., de Koter, A., Tramper, F., et al., *Massive pre-main sequence stars in M17*, 2017, *A&A*, 604, A78
2. Sana, H., **Ramírez-Tannus, M. C.**, de Koter, A., Kaper, L., Tramper, F., & Bik, A., *A dearth of short-period massive binaries in the young massive star forming region M 17. Evidence for a large orbital separation at birth?*, 2017, *A&A*, 599, L9 (showcased in Nature News & Views; Geller, A. M. 2017, *Nature*, 547, 41)
1. García-Varela, A., Sabogal, B., **Ramírez-Tannus, M. C.**, *A Study on the Universality and Linearity of the Leavitt Law in the LMC and SMC Galaxies*, 2013, *MNRAS*, 431, 2278

PUBLICATIONS WITHOUT PEER-REVIEWING PROCESS

*STUDENT (CO-)SUPERVISION

4. *Derkink, A., Kaper, L., de Koter, A., **Ramírez-Tannus, M.C.**, Backs, F., Poorta, H., *Variability as a diagnostic tool in massive young stellar objects*, *Proceedings of the MOBSTER-1 virtual conference held 12-17 July 2020*, id. 51
3. **Ramírez-Tannus, M. C.**, Kaper, L., de Koter, A., Tramper, F., Sana, H., Ramírez-Agudelo, O. H., Bik, A., Ellerbroek, L. E., Ochsendorf, B. B., *Massive pre-main sequence stars in M17*, *Proceedings of the International Astronomical Union, IAU Symposium, Volume 329*, pp. 439-439
2. **Ramírez-Tannus, M. C.**, Kaper, L., Ellerbroek, L. E., Ochsendorf, B. B., *Massive pre-main sequence stars in M17*, *Proceedings of the International Astronomical Union, IAU Symposium, Volume 315*, article id. E67
1. **Ramírez-Tannus, M.C.** ; Kaper, L., *VLT/X-shooter spectroscopy of massive pre-main-sequence stars in M17*, *IAU General Assembly, Meeting 29*, id.2235517