

Valeria Olivares

www.valeriaolivares.com valeria.olivares@usach.cl

RESEARCH EXPERIENCE AND EMPLOYMENT

2024 – present	Assistant Professor UNIVERSIDAD DE SANTIAGO DE CHILE · Chile 
2024	NASA NPP fellow AMES RESEARCH CENTER · USA 
2020 – 2023	Postdoctoral Researcher UNIVERSITY OF KENTUCKY · USA  Multi-wavelength studies of clusters of galaxies.
2017 – 2020	Ph.D. in Astronomy & Astrophysics OBSERVATOIRE DE PARIS · France  Thesis: "Unveiling the origin of filamentary structures around central galaxies in groups and cluster". Supervisors: Philippe Salome & Francoise Combes
2014 – 2016	Master in Science, mention Physics UNIVERSIDAD DE CONCEPCION · Chile  Thesis: "SINFONI observations of high-redshift submillimeter galaxies". Supervisor: Ezequiel Treister
2010 – 2013	Bachelor in Astronomy, First Class Honours UNIVERSIDAD DE CONCEPCION · Chile 

PROFESSIONAL EXPERIENCE

Mentoring

- 2024** Internship, University of North Texas and NASA Ames Research Center. "Investigating the turbulent motions of filaments in cluster center galaxies with ALMA."
- 2021 – Current** PhD co-supervisor, University of Kentucky, USA. "The formation channels of multiphase gas in nearby early-type galaxies using MUSE and *Chandra* observations"

Teaching

- 2024** Astrophysics extragalactic and Cosmology
- 2024** Physics I

Observing

- 2022** IRAM 30m telescope, PolyFix, 3 days in remote mode.
- 2017** IRAM 30m telescope, PolyFix, 2 nights in remote mode.
- 2016** Australia Telescope National Facility, Australia Telescope Compact Array (ACTA), 12 nights (onsite).
- 2015** Atacama Pathfinder Experiment (APEX) telescope, bolometer arrays (LABOCA), 10 days (onsite).

Granted Observing Proposals

2024 VLT/MUSE/115.286K, 4hrs (PI)
2024 XMM-Newton/096258, 25.0 ks (co-PI)
2024 XMM-Newton/096327, 81.0 ks, (co-PI)
2024 Chandra/26800141, 306.00 ks, (co-PI)
2024 Chandra/26800045, 270.00 ks, (co-PI)
2024 Chandra/26610120, 28.00 ks, (co-PI)
2024 VLT/FORS2, 2.5 hrs, (PI)
2024 VLA/24B-185, 10 hrs, (co-PI)
2024 JWST, ID 5018 22.49 hrs. (co-PI)
2024 APEX, M9501C113, 15.6 hrs, B priority (co-PI)
2023 VLT, MUSE, 113.26H3/113-B/2023, 7 hrs (PI) grade C
2023 094226/2023, XMM-Newton, 50.00ks (co-PI)
2023 25800027/2023, XMM-Newton, 200.00ks (co-PI)
2023 25800027/2023, Chandra, 200.00ks (co-PI)
2023 25800020/2021, Chandra, 125.00ks (co-PI)
2023 112.25KS.001/112-A/2023, VLT, MUSE, 5 hrs (PI)
2023 112.25JS.001/112-A/2023, VLT, MUSE, 6 hrs (PI)
2022 110.2405.001/110-A/2022, VLT, MUSE, 20 hrs (PI)
2022 084-22/winter/2022, IRAM30m, 24 hrs, grade B (co-PI)
2022 030-22/summer/2022, IRAM30m, 11.5 hrs, grade A (PI)
2022 2022.1.01488.S/cycle9/2022, ALMA, 10 hrs, grade A (PI)
2021 2021.1.01626.S/cycle8/2021, ALMA, ACA, 7 hrs, grade B (co-PI)
2021 2021.1.00776.S/cycle8/2021, ALMA+ACA, 23 hrs, grade B (PI)
2021 23800288/2021, Chandra, 115.00ks (co-PI)
2021 090162/2021, XMM-Newton 155ks (co-PI)
2020 088208/2020, XMM-Newton, 65ks (co-PI)
2020 S20BD/Summer/2020, IRAM 30m, PolyFiX, 25.6 hours (co-PI)
2019 2019.2.00122.S/cycle 7/2019, ALMA, ACA instrument, 22.5 hrs (co-PI)
2019 2019.1.01665.S/cycle 7/2019, ALMA, 23 hrs no observed (co-PI)
2019 193-19/Winter/2019, IRAM 30m, PolyFiX, 13 hrs (co-PI)
2019 065-19/Summer/2019, IRAM 30m, PolyFiX, 25 hrs (co-PI)
2019 0102.A-0442/102-A/2019, VLT, MUSE, 8 hrs. (co-PI)

Astronomical Techniques

Chandra Imaging and spectra analysis using **CIAO**, **PyXSPEC** and **Sherpa**
ALMA Calibration and analysis using various versions of CASA.
Disk modeling Using 3^D Barolo.
NOEMA/IRAM Calibration and analysis using various using Gildas (MAPPING and CLASS).
MUSE/SINFONI Data reduction and analysis using various ESOREX, PpXF, Platefit, & ZAP.
JVLA Data calibration of 3GHz (S-Band) continuum survey (1 pointing, 190 hrs of data), using the JVLA pipeline, CASA and Python.

Computer Skills

Languages Python, IDL/GDL, Cluster computing, LATEX
Operating systems MacOS, GNU/Linux

Journal referee and services

NASA reviewer panel (USA)
Referee of the Astrophysical Journal (ApJ)
Referee of the Astrophysical Journal letters
Referee of the Astronomy & Astrophysics (A&A) journal
Referee of ESO proposals
Referee of ALMA proposals
Referee of the IRAM conference proceedings of 2022

Memberships/Collaborations

Member of the American Astronomical Society
Member of the LYRICS collaboration
Member of the CLoGS collaboration
Member of the Antlia collaboration
2014 – 2016 Former member of Astronomical Outreach Team (E.D.A), Department of Astronomy, University of Concepcion

Workshop and Training

- 11/2023** **Training – "ALMA Data Reduction Party: Data Combination"** / NRAO, Charlottesville, VA
Comments: This program is designed to obtain images for at least a subset of their dataset (PIs). It was limited to 10 participants.
- 01/2022 - 05/2022** **Training – "Leadership and Management in Action Program"** / University of Kentucky & and University of Washington, USA
Comments: Program designed to guide postdocs through some of the challenges and concerns that mentees and mentors encounter in mentoring relationships
- 10/2021 - 11/2022** **Training: "Postdoc Mentoring Training"** / University of Kentucky, USA
Comments: Program designed to guide postdocs through some of the challenges and concerns that mentees and mentors encounter in mentoring relationships
- 10/2018** **Training: "10th IRAM millimeter interferometry school"** / Grenoble, FR "
Comments: Workshop to acquire a knowledge of interferometry and data reduction techniques at millimeter wavelengths, with a emphasis on the NOEMA interferometer and its new capabilities
- 02/2016 - 02/2017** **Science visit: Leiden Observatory**, NL
Comment: Research collaboration to develop a pipeline to do the data reduction and calibration of ~200 hours of S-Band JVLA data (one pointing)
- 06/2016** **Training: "15th Synthesis Imaging Workshop"** / NRAO and New Mexico Institute of Mining and Technology, Socorro, US
Comments: The workshop comprised of a week of lectures on aperture synthesis theory and techniques.
- 10/2016** **Training – "NOVA fall School"** / Netherlands Institute for Radio Astronomy (ASTRON), NL
- 09/2015** **Training: "Third La Serena School of Data Science"** / AURA Campus, Chile.
Workshop focused on applied tools for handling big astronomical data. At the end of the workshop a short science project was done : Looking for supermassive black hole binaries in CRTS data.

Outreach

- 2024** Lecture at the "Viaje a través de las galaxias". An eight-week online Astronomy course for the general public (coming soon).
- 2023** Speaker at the "It's Eclipse Time!": Astronomy talk to kids of underrepresented background at the Public Library Lexington, US
- 2023** Speaker at the "Festival de la Astronomia" University of Kentucky, USTalk to more than 100 school students of underrepresented background.
- 2023** Speaker at the "Full STEM Ahead: Solar Telescopes" Astronomy talk to kids of underrepresented background at the Public Library Lexington, US
- 2014 – 2016** Advisor at the "Astronomical School Congress"Universidad de Concepción (CONICYT Project)Role: Tutor for the participants from elementary and middle schools for 7 scholar projects every year.
- 2016** Tutor at the "Astronomical School for Professors"Universidad de Concepción (CONICYT project)Role: Lectures for professors from middle and high schools.
- 2014 – 2016** Various outreach activities and lectures with elementary and middle school students as part of the E.D.A outreach team

Scientific meeting organization

- 2020** LOC of CLEARNESS IAP 2020: The Circum galactic medium around galaxies: when baryons invest haloS (22-26 June 2020, IAP, Paris)

AWARDS & GRANTS

- 2025 – 2027** ADAP NASA proposal, "Probing the Physics of Multiphase Gas Condensation in Central Cluster and Group Galaxies" 360,000USD (scientific-PI).
- 2024 – 2026** ESO Comité Mixto, 76,000USD
- 2024 – 2026** NASA NPP Fellow, 180,000USD
- 2022** NRAO Student Observing Support (SOS) Program fellowship for the PhD student I co-supervised 10,000USD (scientific PI)
- 2021 – 2024** NSF grant (co-PI) 278,074 USD Collaborative Research:
A Systematic and Comprehensive Study of Black Hole-Driven Turbulence in Massive Galactic Systems, n. 2107711.
- 2020** IAU travel grant / 500 EUR, awarded to participate of the IAU Symposium 359
- 2017 – 2020** l'Ecole Doctorale Astronomie & Astrophysique d'Ile-de-France (ED 127) 52,9200 EUR, for doctoral studies, FR (Awarded one of 18 French fellowships)
- 2018** Ecole Doctorale de Paris travel funding / 500 EUR, for attending Interferometry School, FR
- 2016** Leids Kerkhoven-Bosscha Fonds (LKBF) (Netherlands) / 1,000 EUR, for attending 15th Synthesis Imaging Workshop, US
- 2016** "Premio Universidad de Concepcion" for Academic Excellence / Universidad de Concepcion
- 2014 – 2015** Fellowship for Master Studies / 15,000 USD, Universidad de Concepcion

CONTRIBUTED AND INVITED TALKS

- 09/2024** AGN feedback and Star Formation Across Cosmic Scales and Time, Italy (Invited speaker)
07/2024 Galaxy Groups in the era of eROSITA and Euclid: a multiwavelength view, Sesto, Italy (Invited speaker)
05/2024 McNamara@65: Feedback in Galaxies and Clusters, Waterloo, University of Waterloo, CA (Invited speaker)
04/2024 Astronomy seminar, Universidad Santiago de Chile, Chile
04/2024 HEAD 21 meeting, Texas, USA (Contributed talk)
08/2023 A journey through galactic environments, Porto Ercole, Italy (Contributed talk)
05/2023 Midwest Magnetic Fields Workshop 2023 (Contributed talk, online)
04/2023 KAAS meeting, University of Kentucky (Contributed talk)
02/2023 Astronomy seminar, University of Michigan (Invited Seminar)
02/2023 IFPU workshop: on complex dynamical systems in astrophysics, Trieste, IT (Invited seminar talk)
01/2023 AAS241 meeting, Seattle, US (Contributed talk)
12/2022 Multi-phase, Multi-temperature and Complex: how AGN feedback shapes the nature of the circum-galactic and halo gas in galaxy groups (ESO Garching) (Contributed talk)
07/2022 NAM2022, UK (via zoom) (Invited talk)
06/2022 AAS240 meeting, Pasadena, US (Invited conference press talk)
06/2022 AAS240 meeting, Pasadena, US (Contributed talk)
06/2022 Multiphase AGN Feeding & Feedback II, Sesto, IT (Invited talk)
04/2022 LYRICS meeting, Paris, FR (Seminar talk, 2 weeks workshop)
04/2022 Multi-line Diagnostics of the Interstellar Medium, Nice, FR (Contributed talk)
03/2022 Large-Volume Spectroscopic Analysis and Star-forming galaxies in the Era of JWST workshop (Via zoom) (Poster talk)
01/2022 XVII SOCHIAS Meeting, Santiago, CL (via zoom) (Contributed talk)
11/2021 The 1st KIAA Forum on Gas in Galaxies for Early Career Scientists, China (via zoom) (Contributed talk)
11/2021 KAS 2021 Annual Meeting, Kentucky, USA (via zoom) (Contributed talk)
06/2021 Galaxy Cluster Formation II, ESO, Germany (via zoom) (Poster talk)
04/2021 Kentucky Area Astronomical Society (KAAS) meeting, USA (via zoom) (Contributed talk)
01/2021 Astronomy seminar, University of Kentucky, USA (via zoom) (Invited seminar)
09/2020 Galaxy Cluster group meeting, CfA, USA (via Zoom) (Invited seminar)
03/2020 Galaxy Journal Club, Institut d'Astrophysique de Paris (IAP), FR (Invited talk)
03/2020 IAU Symposium 359, Bento Gonçalves, BR (Contributed talk & poster presentation)
07/2019 Tracing Cosmic Evolution with Clusters of Galaxies, Sesto, IT (Contributed talk)
06/2019 EWASS 2019 symposium, Lyon, FR (Contributed talk)
10/2018 IRAM Interferometry School 2018, Grenoble, FR (Poster talk)
09/2018 48th YERAC Young European Radio Astronomers Conference, ASTRON, NL (Contributed talk)
05/2017 Paris Observatory, FR (Invited seminar)
10/2016 NOVA fall School for Astronomy, ASTRON, NL (Contributed talk)
10/2015 Lunch Talk, Leiden Observatory, NL (Invited seminar)
07/2015 Galaxy Evolution Group, Universidad de Concepción, CL (Invited talk)
03/2015 Unveiling the AGN/Galaxy Evolution Connection 2015, Puerto Varas, CL (Poster talk)

PRESS RELEASES & PRENSA

- 06/2023** "Astronomía y Género: Facultad de Ciencia sobresale con dos proyectos en concurso del Comité Mixto-ESO"
[Ciencia Chile](#)
06/2022 "Black Hole Activity not Evolving in Central Cluster Galaxies" – Press conference at the AAS 240 meeting in California, US.)
[from University of Kentucky](#), [from News Wise](#), and [from Astrobites](#)

REFERENCES

- Dr. Pasquale Temi** NASA Ames / pasquale.temi@nasa.edu
Prof. Yuanyuan Su University of Kentucky / yuanyuan.su@uky.edu
Prof. Philippe Salome Paris Observatoire / philippe.salome@obspm.fr
Prof. Françoise Combes Paris Observatoire / francoise.combes@obspm.fr
Prof. Massimo Gaspari Princeton University / astro.princeton.edu

PAPERS

18 accepted refereed publications + 2 under review + 3 in prep
Total of 436 citations, h-index=10 for refereed publications (ui.adsabs.harvard.edu)

- 2024•accepted** "H α and X-ray Surface Brightness Correlation of Filaments in Cooling Flow Clusters."
Valeria Olivares, Adrien Picquenot, Yuanyuan Su, Marie-Lou Gendron-Marsolais, Fiorella L. Polles, Massimo Gaspari, Paul Nulsen, **Submitted to Nature Astronomy** <https://doi.org/10.21203/rs.3.rs-3117255/v1>
- 2024** "A hot core in the group-dominant elliptical galaxy NGC 777."
E O'Sullivan, K Rarajpurohit, G. Schellenberger, J. Vrtilik, L. David, **V. Olivares**, F. Ubersoti, K. Kolokythas, I. Loubbers. **Submitted to ApJ**
- 2024** "The formation channels of multiphase gas in nearby early-type galaxies."
Ryan Eskenasy, **Valeria Olivares**, Yuanyuan Su, Yuan Li, MNRAS, 527, 1317. <https://doi:10.1093/mnras/stad3209>
- 2023** "The composition and thermal properties of a cool core lacking a brightest cluster galaxy."
Y. Su, F. Combes, **V. Olivares**, G. Castagnani, P. Torne, R. Weeren, 2023, MNRAS, 526, 6052. <https://doi:10.1093/mnras/stad3172>
- 2023** "X-ray Cavity Dynamics and their Role in the Gas Precipitation in Planck Sunyaev-Zeldovich (SZ) Selected Clusters."
V. Olivares, , Su Y., Forman W., Gaspari M., Andrade-Santos F., Salome P., Nulsen P., et al., 2023, ApJ, 954, 56. doi:10.3847/1538-4357/ace359
- 2023** "Waking the monster: the onset of AGN feedback in galaxy clusters hosting young central radio galaxies."
F. Ubertosi, M. Gitti, F. Brighenti, **V. Olivares**, E. O'Sullivan, and G. Schellenberge, 2023, A&A, 673A, 52U <https://doi.org/10.1051/0004-6361/202345894>
- 2023** "Turbulence Traced with Multiphase Filaments in the Centers of Galaxy Clusters."
Ganguly, Shalini; Li, Yuan, **Olivares, Valeria**; Su, Yuanyuan; Combes, Françoise; Prakash, Sampadaa; Hamer, Stephen; Guillard, Pierre; Ha, Trung, 2023, FrASS.1038613G <https://doi.org/10.3389/fspas.2023.1138613>
- 2022** "AGN feedback duty cycle in Planck SZ selected clusters using Chandra observations."
V. Olivares, Y. Su, P. Nulsen, R. Kraft, T. Somboonpanyakul, F. Andrade-Santos, C. Jones, W. Forman, 2022 MNRAS 516L 1010 <https://doi:10.1093/mnras/516L1010>
- 2022** "Merger histories of brightest group galaxies from MUSE stellar kinematics."
I. Loubser , P. Lagos , A. Babul , E. O'Sullivan , S. L. Jung, **V. Olivares**, and K. Kolokythas, 2022 MNRAS, 515 1104L <https://doi.org/10.1093/mnras/stac1781>
- 2022** "Spatially-resolved properties of early-type group-dominant galaxies: gas content, ionisation mechanisms and metallicity gradients."
Lagos, P.; Loubser, S. I.; Scott, T. C.; O'Sullivan, E.; Kolokythas, K.; Babul, A.; Nigoche-Netro, A.; **Olivares, V**; Sengupta, C, 2022, MNRAS 516 5487L <https://academic.oup.com/mnras/article/516/4/5487/6694265>
- 2022** "AGN jets do not prevent the suppression of conduction by the heat buoyancy instability in simulated galaxy clusters."
Beckmann, Ricarda S., Dubois, Yohan, Pellissier, Alisson, Polles, Fiorella L., **Olivares, Valeria**, 2022 A&A 666A 71B <https://doi:10.1051/0004-6361/202243873>
- 2022** "Cosmic rays and thermal instability in self-regulating cooling flows of massive galaxy clusters."
Ricarda S. Beckmann, Yohan Dubois, Alisson Pellissier-Michel, **Valeria Olivares**, Fiorella L. Polles, Pierre Guillard, and Matthew D. Lehnert, 2022 A&A 665A, 129B <https://doi:10.1051/0004-6361/202142527>
- 2022** "Gas condensation in brightest group galaxies unveiled with MUSE. Morphology and kinematics of the ionized gas."
V. Olivares, P. Salome, S. L. Hamer, F. Combes, P. Guillard, R. S. Beckmann, M. D. Lehnert, O'Sullivan, R. Canning, F. L. Polles, et al., A&A, 666, A94 <https://doi.org/10.1051/0004-6361/202142475>
- 2021** "Excitation mechanisms in the intracluster filaments around the Brightest Cluster Galaxies."
F. L. Polles, P. Salome, F. Combes, P. Guillard, G. Pineau des Forets, **V. Olivares**, R. S. Beckmann, M. D. Lehnert, S. L. Hamer, R. Canning, F. Combes , Y. Dubois, A. C. Edge, A. C. Fabian, G. J. Ferland, S. L. Hamer, and M. D. Lehnert, et al. 2021, A&A, 651A, 13P <https://doi:10.1051/0004-6361/202039730>
- 2019** "Dense gas formation and destruction in a simulated Perseus-like galaxy cluster with spin-driven black hole feedback."
R. S. Beckmann, Y. Dubois, P. Guillard, P. Salome, **V. Olivares**, F. Polles, C. Cadiou, F. Combes, S. Hamer, M. D. Lehnert, and G. Pineau des Forets. 2019, A&A, A60, 631 <http://doi.org/10.1051/0004-6361/201936188>
- 2019** "Ubiquitous cold and massive filaments in cool core clusters."
V. Olivares, P. Salome, F. Combes, S. Hamer, P. Guillard, M. D. Lehnert, F. Polles, R. S. Beckmann, Y. Dubois, M. Donahue, A. Edge, A. C. Fabian, B. McNamara, T. Rose, H. Russell, G. Tremblay, A. Vantghem, R. E. A. Canning, G. Ferland, B. Godard, M. Hogan, S. Peirani, G. Pineau des Forets. 2019, A&A, A22, 631 <http://doi.org/10.1051/0004-6361/201935350>
- 2019** "Driving massive molecular gas flows in central cluster galaxies with AGN feedback."
H. R. Russell, B. R. McNamara, A. C. Fabian, P. E. J. Nulsen, F. Combes, A. C. Edge, M. Madar, **V. Olivares**, P. Salome, A. N. Vantghem. 2019, MNRAS, 490, 3025R <http://10.1093/mnras/stz2719>
- 2019** "Discovery of a diffuse optical line emitting halo in the core of the Centaurus cluster of galaxies: Line emission outside the protection of the filaments."
S. L. Hamer, A. C. Fabian, H. R. Russell, P. Salome, F. Combes, **V. Olivares**, F. L. Polles, A. C. Edge, R. S. Beckmann. 2019, MNRAS, 483 <http://doi.org/10.1093/mnras/sty3459>
- 2018** "Cold gas in a complete sample of group-dominant early-type galaxies?"
E. O'Sullivan, F. Combes, P. Salomé, L. P. David, A. Babul, J. M. Vrtilik, **V. Olivares**, S. Raychaudhury, G. Schellenberger. 2018, A&A, A126, 618 <http://doi.org/10.1051/0004-6361/201833580>
- 2016** "Spatially Resolved Spectroscopy of Sub-mm Galaxies at $z \approx 2$ "
V. Olivares, E. Treister, G. Privon, S. Alaghband-Zadeh, C. Casey, S. Chapman, K. Schawinski, A. M. Swinbank, I. Smail, E. Gawiser, P. Kurczynski, N. Nagar, F. Bauer. 2016, ApJ, 827, 570 <http://doi.org/10.3847/0004-637X/827/1/57>

CONFERENCE PROCEEDINGS

- 2022** "Gas condensation in Brightest Group Galaxies unveiled with MUSE"
V. Olivares, 2022, Multi-line Diagnostics of the Interstellar Medium, Nice, France, Edited by Bouscasse, L.; Kramer, C.; Gueth, F.; EPJ Web of Conferences, Volume 265, id.00015 <https://10.1051/epjconf/202226500015>
- 2021** "Ubiquitous cold and massive filaments in brightest cluster galaxies"
V. Olivares, P. Salome, 2021, Galaxy Evolution and Feedback across Different Environments. Proceedings of the International Astronomical Union, Volume 359, pp. 182-184 <https://10.1017/S1743921320002355>