Valeria Olivares

Observational Astrophysicist — Multiphase Gas AGN Feedback

Early-career observational astrophysicist working on multi-wavelength studies of multiphase gas and AGN feedback in brightest group and cluster galaxies. Experienced in ALMA, Chandra, MUSE and NOEMA data analysis, student supervision, and public outreach.

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CURRENT POSITIONS

Assistant Professor

Universidad de Santiago de Chile 2024 – present Santiago, Chile

Associate Director of Outreach and Community Engagement, Department of Physics

Universidad de Santiago de Chile 2026 – present Santiago, Chile

PREVIOUS POSITIONS

NASA NPP Fellow

NASA Ames Research Center 2023 – 2024 USA

Postdoctoral Researcher

University of Kentucky 2020 – 2023 USA

EDUCATION

PhD in Astronomy & Astrophysics

Observatoire de Paris 2017 – 2020 France

MSc in Science (Physics), Maximum Distinction

Universidad de Concepción 2014 – 2016 Chile

BSc in Astronomy (First Class Honours)

Universidad de Concepción 2010 – 2013 Chile

SELECTED GRANTS & AWARDS

- 2026–2036: CIRAS-AI Project, FIUF137139-USACH (collaborative project, co-PI).
- 2025–2028: Fondecyt Regular 1251702 (PI).
- 2025: ADAP NASA 24-ADAP24-0011, 360,000 USD (scientific-PI).
- 2024–2026: NASA NPP Fellowship, 180,000 USD.
- 2024–2026: ESO Mixed Committee (76,000 USD) — project on gender equality at USACH.
- 2022: NRAO Student Observing Support (SOS) fellowship for PhD student I co-supervised, 10,000 USD (scientific PI).
- 2021–2024: NSF collaborative grant (co-PI) 278,074 USD, n. 2107711.
- 2017–2020: PhD fellowship (ED 127), 52,920 EUR.
- 2016: Leids Kerkhoven-Bosscha Fonds (1,000 EUR)
- Premio University for Academic Excellence.
- 2014–2015: Fellowship for Master Studies (15,000 USD).

SUPERVISION (SELECTED)

- 2025–present: PhD co-supervision, University of Modena Reggio Emilia (Davide Brustio).
- 2021–present: PhD co-supervisor, University of Kentucky (Ryan Martinez-Eskenasy, about to graduate this year).
- 2026–present: Undergraduate student supervision (Martín Raffo Schuda; Tomás Cortés Bassano).
- 2025: Undergraduate student supervision (Thomas Salazar Mallea).
- 2026: Undergraduate student supervision (Ursula Saez Parra).
- 2026: Undergraduate student supervision (Martin Raffo Schuda).
- 2024: Internship supervision, University of North Texas NASA Ames (ALMA project).

TEACHING

- Galactic Astrophysics & Cosmology (USACH) — 2024, 2025, 2026.
- Modeling in Astrophysics (USACH) — 2025, 2026.
- Active Galactic Nuclei (USACH) — 2025, 2026.
- Physics I (USACH) — 2024.

MEMBERSHIPS & COLLABORATIONS

- BlackHoleWeather collaboration.
- American Astronomical Society.

- LYRICS collaboration.
- CLoGS collaboration.
- Antlia collaboration.
- 2014–2016: Astronomical Outreach Team (E.D.A), Universidad de Concepción.

OUTREACH MEDIA (SELECTED)

- Several interviews for radio USACH, Radio ADN, Radio Universo.
- Podcast (Agujeros negros).
- Cuentos en revista Cambiala "Universo" (2026)
- Stand en Planaterio USACH en la actividad vacacioens de invierno de pequeños "Construye tu propio cumulo de galaxias", "Preguntas estelares" (2026).
- Participacion en escuela de invierno Facultad de Ciencia con taller "Detectives del Universo: descubriendo galaxias" (2026).
- Many public talks in many school, high-schools: Escuela Técnica Rancagua (2026), for the Academia Atómicas (2026).
- Charla online "Evolucion de galaxias en Atomicas". ”Tertulia de Poesía, Ciencia y Música” (2025), Planetarium talks and Science Day activities (2025).
- A few acvitities for underrepresented minorities in the US (It’s Eclipse Time!” and “Full STEM Ahead” public talks to children at the Lexington Public Library, 2023)

PRESS RELEASES COVERAGE (SELECTED)

- 01/2025: NASA press — Black Holes Can Cook for Themselves”; Chandra media feature.
- 01/2025: Coverage on sci.news, NDTV, The Economic Times, and multiple outlets for NASA/Chandra results.
- 06/2023: Astronomía y Género” coverage (Ciencia Chile) for ESO Mixed Committee awards.
- 06/2022: Press AAS 240 (University of Kentucky, Newswise, Astrobites).

GRANTED OBSERVING PROPOSALS

2026 ALMA/2026.1.00857.S (co-I)
2026 CFHT/SITELLE, K1-05-00062 (co-I)
2026 JWST, ID 10106, priory A 29.9 hr (co-I)
2026 ESO/FORS2, 117.2A19.001 priory A 2hr (PI)
2025 Merkaat, MKT-25200, priory A 28hr (co-I)
2025 NOEMA, Cycle B, W25CL (co-I)
2025 XRISM/Cycle 2, 200ks (co-I)
2025 XRISM/Cycle 2, 100ks (co-I)
2025 Chandra/27800123 (co-PI)
2025 ALMA/2025.1.00734.S, 21hr B (PI)
2025 ALMA/2025.1.01216.S, B (co-I)
2025 APEX, M9501C, 9.6hrs priority A (co-I)
2024 VLT/MUSE/115.28BU, 1hrs (co-I)
2024 VLT/MUSE/115.286K, 4hrs (PI)
2024 XMM-Newton/096258, 25.0 ks (co-I)
2024 XMM-Newton/096327, 81.0 ks, (co-I)
2024 Chandra/26800141, 306.00 ks, (co-I)
2024 Chandra/26800045, 270.00 ks, (co-I)
2024 Chandra/26610120, 28.00 ks, (co-I)
2024 VLT/FORS2, 2.5 hrs, (PI)
2024 VLA/24B-185, 10 hrs, (co-I)
2024 JWST, ID 5018 22.49 hrs, (co-I)
2024 APEX, M9501C113, 15.6 hrs, B priority (co-I)
2023 VLT, MUSE, 113.26H3/113-B/2023, 7 hrs (PI) grade C
2023 094226/2023, XMM-Newton, 50.00ks (co-I)
2023 25800027/2023, XMM-Newton, 200.00ks (co-I)
2023 25800027/2023, Chandra, 200.00ks (co-I)
2023 25800020/2021, Chandra, 125.00ks (co-I)
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 110.23ZY.001/110-B/2022, VLT, MUSE, 7 hrs (PI)
2022 084-22/winter/2022, IRAM30m, 24 hrs, grade B (co-I)
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-I)
2021 2021.1.00776.S/cycle8/2021, ALMA+ACA, 23 hrs, grade B (PI)
2021 23800288/2021, Chandra, 115.00ks (co-I)
2021 090162/2021, XMM-Newton 155ks (co-I)
2020 088208/2020, XMM-Newton, 65ks (co-I)
2020 S20BD/Summer/2020, IRAM 30m, PolyFiX, 25.6 hours (co-I)
2019 2019.2.00122.S/cycle 7/2019, ALMA, ACA instrument, 22.5 hrs (co-I)
2019 2019.1.01665.S/cycle 7/2019, ALMA, 23 hrs no observed (co-I)
2019 193-19/Winter/2019, IRAM 30m, PolyFiX, 13 hrs (co-I)
2019 065-19/Summer/2019, IRAM 30m, PolyFiX, 25 hrs (co-I)
2019 0102.A-0442/102-A/2019, VLT, MUSE, 8 hrs. (co-I)

CONTRIBUTED INVITED TALKS (SELECTED)

More than 15 invited talks, seminars and colloquium at various Universities and conferences. 07/2026 “AGN – FAAST” (Contributed talk) ESO, Germany
06/2026 “Supermassive Black Holes and Blue Notes” (Contributed talk) Montreal, CA
02/2026: AGN & Energy Flows (Invited), USA.
12/2025: BlackHoleWeather I (Invited), Sesto, Italy.
10/2025: Multi-phase, Multi-temperature and Complex (Contributed), Italy.
08/2025: Invited Colloquium, Universidad Diego Portales, Chile.
06/2025: JWST collaboration meeting, Observatoire de Paris, France.
06/2025: Invited Colloquium, Universidad de Atacama, Chile.
05/2025: Galaxy Cluster meeting, Harvard Smithsonian, USA (Invited).
04/2025: Invited seminar, Centro de Astrofísica y Tecnologías Afines, Chile.
04/2025: Invited colloquium, Pontificia Universidad Católica de Chile.
03/2025: AGN Talk series, Instituto de Astrofísica de Canarias (remote).
09/2024: AGN feedback and Star Formation Across Cosmic Scales and Time (Invited), Italy.
07/2024: Galaxy Groups in the era of eROSITA and Euclid (Invited), Sesto, Italy.
05/2024: McNamara@65 (Invited), Waterloo, Canada.
04/2024: Astronomy seminar, Universidad Santiago de Chile.
04/2024: HEAD 21 meeting (Contributed), Texas, USA.
08/2023: A journey through galactic environments (Contributed), Porto Ercole, Italy.
05/2023: Midwest Magnetic Fields Workshop (Contributed, online).

04/2023: KAAS meeting (Contributed), Univ. of Kentucky.
02/2023: Astronomy seminar (Invited), Univ. of Michigan.
02/2023: IFPU workshop (Invited), Trieste, Italy.
01/2023: AAS241 (Contributed), Seattle, USA.
12/2022: ESO Garching meeting (Contributed).
06/2022: AAS240 (Invited press talk & contributed), Pasadena, USA.
06/2021: Galaxy Cluster Formation II (Poster), ESO.
03/2020: IAU Symposium 359 (Contributed), Bento Gonçalves, Brazil.
07/2019: Tracing Cosmic Evolution with Clusters (Contributed), Sesto, Italy.
06/2019: EWASS 2019 (Contributed), Lyon, France.
10/2018: IRAM Interferometry School (Poster), Grenoble, France.
05/2017: Seminar (Invited), Paris Observatory.
10/2016: NOVA Fall School (Contributed), ASTRON, NL.
10/2015: Lunch talk (Invited), Leiden Observatory.
07/2015: Galaxy Evolution Group (Invited), Universidad de Concepción.
03/2015: Unveiling the AGN/Galaxy Evolution Connection (Poster), Puerto Varas, Chile.

SELECTED REFEREED PUBLICATIONS

33 accepted refereed publications + 6 under review + several in preparation.
Total citations: 652; h-index = 14 (ADS).

FULL PUBLICATION LIST

Full refereed publications, proceedings and preprints available via ADS and at: valeriaolivares.com.

1. Hlavacek-Larrondo, Julie ; Choi, Hyunseop ; Guo, Minghao ; Marquis, Mathieu ; Pereira, Olivia ; Voit, G. Mark ; Albert, Loïc ; Barrera-Ballesteros, Jorge ; Canning, Rebecca E. A. ; D'Eugenio, Francesco ; Donahue, Megan ; Fabian, Andrew C. ; Ferland, Gary J. ; Gallagher, John S. ; Gendron-Marsolais, Marie-Lou ; Guillard, Pierre ; Hatch, Nina ; Kottulla, Ralf ; Li, Yuan ; Maiolino, Roberto ; Man, Allison ; McDonald, Michael A. ; McNamara, Brian R. ; **Olivares, V.**, et al. 2026. "JWST reveals how black holes are fed: kiloparsec-scale multiphase filaments feed sub-kiloparsec circumnuclear disks." arXiv e-prints. doi:10.48550/arXiv.2605.27502.
2. Piana, O., Gaspari, M., Barbani, F., Cammelli, V., Stel, G., Brustio, D. M., **Olivares, V.**, et al. 2026. "BlackHoleWeather – Spin-coupled chaotic cold accretion across the meso-scale: Morphology and thermodynamics." arXiv e-prints. doi:10.48550/arXiv.2605.27502.
3. Cammelli, V., Gaspari, M., Piana, O., Barbani, F., Stel, G., Brustio, D. M., **Olivares, V.**, et al. 2026. "BlackHoleWeather – Jet-regulated chaotic cold accretion across the meso scale: Morphology and thermodynamics." arXiv e-prints. doi:10.48550/arXiv.2605.27503.
4. Barbani, F., Gaspari, M., Piana, O., Cammelli, V., Jennings, F. J., Brustio, D. M., Stel, G., **Olivares, V.**, et al. 2026. "BlackHoleWeather – Chaotic cold accretion across the meso-scale: Variability and kinematics." arXiv e-prints. doi:10.48550/arXiv.2605.27504.
5. Barbani, F., Gaspari, M., Cammelli, V., Piana, O., Jennings, F. J., Brustio, D. M., Stel, G., **Olivares, V.**, et al. 2026. "BlackHoleWeather – Chaotic cold accretion across the meso-scale: Morphology and thermodynamics." arXiv e-prints. doi:10.48550/arXiv.2605.27507.
6. Piana, O., Gaspari, M., Cammelli, V., Barbani, F., Brustio, D. M., Stel, G., **Olivares, V.**, et al. 2026. "BlackHoleWeather – Spin-coupled chaotic cold accretion across the meso scale: Variability and kinematics." arXiv e-prints. doi:10.48550/arXiv.2605.27508.
7. Cammelli, V., Gaspari, M., Barbani, F., Piana, O., Stel, G., Brustio, D. M., **Olivares, V.**, et al. 2026. "BlackHoleWeather – Jet-regulated chaotic cold accretion across the meso scale: Variability and kinematics." arXiv e-prints. doi:10.48550/arXiv.2605.27511.
8. Temi, P., Ubertosi, F., Brighenti, F., Maragkoudakis, A., **Olivares, V.**, et al. 2026. "Active Galactic Nucleus Feedback and the Development of Dusty Multiphase Gas in X-Ray Emitting Elliptical Galaxies." ApJ, 1000, 144. doi:10.3847/1538-4357/ae4972.
9. Eskenasy, R., **Olivares, V.**, & Su, Y. 2026. "The Rise of Ionized Gas Filaments in Early-Type Galaxies." Open Journal of Astrophysics, 9, 58379. doi:10.33232/001c.158379.
10. Poitras, C., Gendron-Marsolais, M.-L., **Olivares, V.**, et al. 2026. "Observations of AGN-driven feedback: dynamics and ionization of the filaments in M87." MNRAS, 545, staf1981. doi:10.1093/mnras/staf1981.
11. **Olivares, V.**, Su, Y., Temi, P., Eskenasy, R., Russell, H., Gaspari, M., et al. 2026. "The relationship between warm and hot gas-phase metallicity in massive elliptical galaxies and the influence of active galactic nucleus feedback." A&A, 705, A249. doi:10.1051/0004-6361/202555070.
12. Picquenot, A., Acero, F., **Olivares, V.**, Negro, M., & Pratt, G. W. 2025. "Direct Observation of the X-Ray Counterpart of the Hα Filaments and of the Sloshing Spiral in the Perseus Galaxy Cluster." ApJL, 993, L32. doi:10.3847/2041-8213/ae14fc.
13. Riesco, C., Treister, E., Venturi, G., Bauer, F. E., Privon, G. C., et al., **Olivares, V.**, et al. 2025. "High-resolution Optical IFU Spectroscopy of the Complex Galaxy Merger II Zw 096." ApJ, 990, 136. doi:10.3847/1538-4357/adee18.
14. Ubertosi, F., Gitti, M., Temi, P., O'Sullivan, E., **Olivares, V.**, et al. 2025. "JVLA and VLBA Study of the Merging Cool Core CHIPS 1911+4455 at z $\sim$ 0.5." ApJ, 989, 128. doi:10.3847/1538-4357/adf19c.
15. **Olivares, V.**, Picquenot, A., Su, Y., Gaspari, M., Gendron-Marsolais, M.-L., Polles, F. L., & Nulsen, P. 2025. "An Hα-X-ray surface-brightness correlation for filaments in cooling-flow clusters." Nature Astronomy, 9, 449–457. doi:10.1038/s41550-024-02473-8.
16. O'Sullivan, E., Rajpurohit, K., Schellenberger, G., Vrtilek, J., David, L. P., et al. **Olivares, V.**, et al. 2024. "A Hot Core in the Group-dominant Elliptical Galaxy NGC 777." ApJ, 970, 65. doi:10.3847/1538-4357/ad4ed6.
17. Eskenasy, R., **Olivares, V.**, Su, Y., & Li, Y. 2024. "The formation channels of multiphase gas in nearby early-type galaxies." MNRAS, 527, 1317–1332. doi:10.1093/mnras/stad3209.
18. Su, Y., Combes, F., **Olivares, V.**, Castignani, G., Torne, P., & van Weeren, R. 2023. "The composition and thermal properties of a cool core lacking a brightest cluster galaxy." MNRAS, 526, 6052–6058. doi:10.1093/mnras/stad3172.
19. **Olivares, V.**, Su, Y., Forman, W., Gaspari, M., Andrade-Santos, F., Salome, P., et al. 2023. "X-Ray Cavity Dynamics and Their Role in the Gas Precipitation in Planck Sunyaev-Zeldovich Selected Clusters." ApJ, 954, 56. doi:10.3847/1538-4357/ace359.

20. Ganguly, S., Li, Y., **Olivares, V.**, Su, Y., et al. 2023. “The nature of the motions of multiphase filaments in the centers of galaxy clusters.” Frontiers in Astronomy and Space Sciences, 10, 1138613. doi:10.3389/fspas.2023.1138613.

21. Ubertosi, F., Gitti, M., Brighenti, F., **Olivares, V.**, O’Sullivan, E., & Schellenberger, G. 2023. “Waking the monster: The onset of AGN feedback in galaxy clusters hosting young central radio galaxies.” A&A, 673, A52. doi:10.1051/0004-6361/202345894.

22. Lagos, P., Loubser, S. I., Scott, T. C., O’Sullivan, E., Kolokythas, K., Babul, A., Nigoche-Netro, A., **Olivares, V.**, & Sengupta, C. 2022. “Spatially resolved properties of early-type group-dominant galaxies with MUSE.” MNRAS, 516, 5487–5506. doi:10.1093/mnras/stac2535.

23. Beckmann, R. S., Dubois, Y., Pellissier, A., Polles, F. L., & **Olivares, V.** 2022. “AGN jets do not prevent the suppression of conduction by the heat buoyancy instability in simulated galaxy clusters.” A&A, 666, A71. doi:10.1051/0004-6361/202243873.

24. **Olivares, V.**, Salomé, P., Hamer, S. L., Combes, F., Gaspari, M., et al. 2022. “Gas condensation in brightest group galaxies unveiled with MUSE. Morphology and kinematics of the ionized gas.” A&A, 666, A94. doi:10.1051/0004-6361/202142475.

25. **Olivares, V.**, Su, Y., Nulsen, P., Kraft, R., Somboonpanyakul, T., Andrade-Santos, F., Jones, C., & Forman, W. 2022. “AGN feedback duty cycle in Planck SZ selected clusters using Chandra observations.” MNRAS Letters, 516, L101–L106. doi:10.1093/mnrasl/slac096.

26. Beckmann, R. S., Dubois, Y., Pellissier, A., **Olivares, V.**, Polles, F. L., et al. 2022. “Cosmic rays and thermal instability in self-regulating cooling flows of massive galaxy clusters.” A&A, 665, A129. doi:10.1051/0004-6361/202142527.

27. Loubser, S. I., Lagos, P., Babul, A., O’Sullivan, E., Jung, S. L., **Olivares, V.**, & Kolokythas, K. 2022. “Merger histories of brightest group galaxies from MUSE stellar kinematics.” MNRAS, 515, 1104–1121. doi:10.1093/mnras/stac1781.

28. Polles, F. L., Salomé, P., Guillard, P., Godard, B., Pineau des Forêts, G., **Olivares, V.**, et al. 2021. “Excitation mechanisms in the intracluster filaments surrounding brightest cluster galaxies.” A&A, 651, A13. doi:10.1051/0004-6361/202039730.

29. Russell, H. R., McNamara, B. R., Fabian, A. C., Nulsen, P. E. J., Combes, F., Edge, A. C., Madar, M., **Olivares, V.**, Salomé, P., & Vantyghem, A. N. 2019. “Driving massive molecular gas flows in central cluster galaxies with AGN feedback.” MNRAS, 490, 3025–3045. doi:10.1093/mnras/stz2719.

30. **Olivares, V.**, Salome, P., Combes, F., Hamer, S., Guillard, P., et al. 2019. “Ubiquitous cold and massive filaments in cool core clusters.” A&A, 631, A22. doi:10.1051/0004-6361/201935350.

31. Beckmann, R. S., Dubois, Y., Guillard, P., Salome, P., **Olivares, V.**, et al. 2019. “Dense gas formation and destruction in a simulated Perseus-like galaxy cluster with spin-driven black hole feedback.” A&A, 631, A60. doi:10.1051/0004-6361/201936188.

32. Hamer, S. L., Fabian, A. C., Russell, H. R., Salomé, P., Combes, F., **Olivares, V.**, et al. 2019. “Discovery of a diffuse optical line emitting halo in the core of the Centaurus cluster of galaxies.” MNRAS, 483, 4984–4998. doi:10.1093/mnras/sty3459.

33. O’Sullivan, E., Combes, F., Salomé, P., David, L. P., Babul, A., Vrtilek, J. M., Lim, J., **Olivares, V.**, Raychaudhury, S., & Schellenberger, G. 2018. “Cold gas in a complete sample of group-dominant early-type galaxies.” A&A, 618, A126. doi:10.1051/0004-6361/2018335

34. **Olivares, V.**, Treister, E., Privon, G. C., Alaghband-Zadeh, S., Casey, C. M., et al. 2016. “Spatially Resolved Spectroscopy of Submillimeter Galaxies at z $\simeq$ 2.” ApJ, 827, 57. doi:10.3847/0004-637X/827/1/57.

CONFERENCE PROCEEDINGS

Olivares, V. 2022, “Gas condensation in Brightest Group Galaxies unveiled with MUSE”, EPJ Web Conf., 265, 00015. DOI

Olivares, V., Salomé, P. 2021, IAU Symp. 359, 182–184. DOI