

RESEARCH INTERESTS

My research is aimed at studying galaxy evolution. In particular, I focus on the brightest galaxy clusters and the brightest galaxy groups to understand the role of AGN feedback in shaping the different properties and life-cycle of the cold gas. I utilize various space-based and ground facilities, including ALMA, MUSE, NOEMA, and Chandra.

RESEARCH EXPERIENCE & EDUCATION

- 2020 – present **Postdoctoral Researcher**, *University of Kentucky (US)*
Mentor: Prof. Yuanyuan Su
- 2017 – 2020 **Ph.D in Astronomy and Astrophysics**, *Observatoire de Paris (FR)*
Thesis: "Unveiling the origin of filamentary structures around central galaxies in groups and clusters"
Supervisor: Prof. Philippe Salomé, Co-supervisor: Prof. Françoise Combes
- 2014 – 2016 **Master in Sciences mention Physics**, *Universidad de Concepción (CL)*
Thesis: "High-Resolution Spatially Resolved Spectroscopy of Sub-mm Galaxies at high redshift"
Supervisor: Prof. Ezequiel Treister, Co-supervisor: Dr. G. Privon
- 2010 – 2014 **Major: Astronomy**, *Universidad de Concepción (CL)*
- 2010 – 2013 **Bachelor in Astronomy**, *Universidad de Concepción (CL)*

Experience

MENTORING

2021 - Ryan Martinez-Eskenasy – PhD student at University of Kentucky (US)

OBSERVING EXPERIENCE

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.
2015 - Atacama Pathfinder EXperiment (APEX) telescope, bolometer arrays (LABOCA), 10 days.

GRANTED OBSERVING PROPOSALS

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)

SERVICES

Referee of the Astrophysical Journal (ApJ)

Referee of the Astronomy & Astrophysics (A&A) journal

Referee of ESO proposals

Referee of ALMA proposals

Referee of the IRAM conference proceedings

Full member of American Astronomical Society

2014-2016 - Former member of Astronomical Outreach Team (Equipo de divulgación Astronómica) Universidad de Concepción (CL)

TEACHING & OUTREACH

2014 – 2016 Advisor at the "Astronomical School Congress", *Universidad de Concepción (Anillo de Conicyt project)*

Role: Tutor for the participants from elementary and middle schools for 7 scholar projects.

2016 Tutor at the "Astronomical School for Professors", *Universidad de Concepción (Proyecto Anillo de Conicyt)*

Role: Lectures for professors from middle and high schools.

2014 – 2016 Various outreach activities and lectures with elementary and middle school students

2015 – 2015 Teaching Assistant for Software and Astronomical data Analysis Classes, *Universidad de Concepción*
Responsibilities include grading and tutorials.

2014 – 2014 Teaching Assistant for Programming Classes, *Universidad de Concepción*
Responsibilities include grading and tutorials

2013 – 2013 Teaching Assistant for Stellar Astrophysics Classes, *Universidad de Concepción*
Responsibilities include tutorials and lectures.

PUBLICATION SUMMARY

13 accepted refereed publications + 1 under review

Total of 229 citations, h-index=7 for refereed publications (ui.adsabs.harvard.edu)

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 - "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 - "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 - "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 - "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 - "New insights in Brightest Group Galaxies with MUSE : I. Morphology and dynamics 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

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

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

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. Vantyghem, R. E. A. Canning, G. Ferland, B. Godard, M. Hogan, S. Peirani, G. Pineau des Forets. 2019, A&A, A22, 631

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. Vantyghem. 2019, MNRAS, 490, 3025R

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

2018 - "Cold gas in a complete sample of group-dominant early-type galaxies?"

E. OSullivan, F. Combes, P. Salomé, L. P. David, A. Babul, J. M. Vrtilek, **V. Olivares**, S. Raychaudhury, G. Schellenberger. 2018, A&A, A126, 618

2016 - "Spatially Resolved Spectroscopy of Sub-mm Galaxies at $z \simeq 2$ "

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

CONTRIBUTED AND INVITED CONFERENCE TALKS

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)

04/2022 - Multi-line Diagnostics of the Interstellar Medium, Nice, FR (Contributed 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 presentation)

04/2021 - Kentucky Area Astronomical Society (KAAS) meeting, USA (via zoom) (Contributed talk)

01/2021 - Astronomy seminar, University of Kentucky, USA (via zoom) (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 (Invited talk)

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 presentation)

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 presentation)

Grants, Honors and Awards

08/2022 - 08/2024 - NSF grant (278,074 USD) (N. 2107711): National Science Foundation/ USA

03/2020 - Travel grant (500 EUR): IAU/Brasil

10/2017 – 10/2022 - IEcole Doctorale Astronomie et Astrophysique d'Ile-de-France (ED 127) fellowship (52,920 Euros):
Observatoire de Paris/ France

2018 - Travel grant (500 EUR): Ecole doctoral de Paris/ France

2017 - Travel grant (1,000 EUR): Leids Kerkhoven-Bosscha Fonds (LKBF)/ Netherlands

12/2016 - University Prize (Highest academic distinction): Universidad de Concepcion Chile

03/2014 - 12/2015 - Scholarship for Master studies (15,000 USD): Universidad de Concepcion/ Chile