Caroline Piaulet-Ghorayeb

E. Margaret Burbidge Prize Postdoctoral Fellow · University of Chicago

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General Information

- Nationality: French
- Languages: French (Native), English (Fluent), German (basics)
- Affiliations: University of Chicago Astronomy & Astrophysics Dept., Canadian Astronomical Society (CASCA)
- Research Expertise: Exoplanet atmosphere modeling and retrievals; Planet structure models; Atmosphere observations (from space & ground); Development of modeling, data reduction and analysis tools; RVs, TTVs.

Academic Appointments

University of Chicago *Chicago, IL, USA*

Margaret Burbridge Prize Postdoctoral Fellowship *Sep 2024-*

- Project Title: Seeing the Unseeable: Opening new windows into exoplanet atmospheres and compositions
- Duration: 3 years

Dept. of Education, University of Helsinki *Helsinki, Finland*

Visiting Researcher (Education & Neuroscience) *Spring 2025*

- Copernicus Project (PI: Kirsi Tirri)
- Application of machine learning algorithms to student brain responses and association with growth/fixed mindset (Puusepp, **Piaulet-G.**, et al., in prep.)

Education

Université de Montréal *Montréal, Canada*

Ph.D. Astrophysics *Jan 2019 - Sep 2024*

- Advisor: Prof. Björn Benneke
- GPA: 4.30/4.30; Thesis received top "Exceptional" mention.

Université de Montréal *Montréal, Canada*

B.Sc. Physics *Sept 2015 - Dec 2018*

- Undergrad thesis advisor: Prof. Björn Benneke
- GPA: 4.30/4.30; 2016, 2017, 2018 Dean's Honor's List; Georges-Baril B.Sc. Excellence Prize

Teaching and Mentorship

2025-	**Supervisor**, Undergrad. student: data reduction of HST/UVIS eclipse dataset
2025	**Co-supervisor**, Ph.D. student: modeling of water world interiors
2023	**Co-supervisor**, Undergraduate summer intern: modeling of giant planet reflected light
2022-2023	**Supervisor**, Team of three high-school mentees: modeling of transit-timing variations
2021	**Teaching Assistant**, PHY 6795P: Modern Analysis of Physical Data (Grad. level)
2020	**Tutor**, PHY 1620: Physics of waves and vibrations (B.Sc. level)
2019-2020	**Teaching Assistant**, PHY 2701: Astron. & Astrophys. (B.Sc. level)

Other Research Experience

Center for Space and Habitability, University of Bern *Bern, Switzerland*

Visiting Intern (Exoplanets, Theory and Modeling) *Summer 2019*

- Supervisor: Prof. Kevin Heng
- Physically-motivated optical phase curve modeling and retrieval code (Morris, Heng, Jones, **Piaulet** et al. 2022)
- FRQNT International Internship Program Scholarship

Université de Montréal, iRex *Montréal, Canada*

PHY 3030 (Undergraduate Thesis) *Fall 2018*

- Supervisor: Prof. Benneke
- Analysis of WASP-107 b's *Spitzer* eclipse and transits
- Presented at the 2019 **Extreme Solar Systems IV** Conference

Université de Montréal, iRex *Montréal, Canada*

Trottier Scholar (Summer internship) *Summer 2018*

- Supervisor: Prof. Benneke
- Implementation of a new temperature structure retrieval method
- Resulting publication: Pelletier, Benneke, Darveau-Bernier, Boucher, Cook, **Piaulet** et al., 2021

Université de Montréal, CERN/ATLAS Group *Montréal, Canada*

Particle Physics Intern *Summer 2017*

- Supervisors: Prof. J.-F. Arguin, Kazuya Mochizuki
- Implementation of machine learning algorithms to reduce charge misidentification in CERN/ATLAS data (**Piaulet** et al., 2017; CERN-COMM)

Université de Montréal *Montréal, Canada*

Astrophysics Intern (Massive Stars, Observations) *Summer 2016*

- Supervisor: Prof. Nicole Saint-Louis
- Spectroscopic data reduction & analysis, stellar binary system WR137 (St-Louis, **Piaulet** et al., 2021)

Major Roles in International Collaborations

Water Worlds JWST Proposal Team

Lead on GJ 9827 d dataset, Atmosphere Modeling Lead on GJ 3090 b dataset *2022-*

- Interdisciplinary team of 30+ researchers worldwide (planet formation, interiors, evolution, data analysis experts)
- Lead author of telescope proposal, team meeting lead (2023-2024).
- Data reduction, analysis, modeling, interpretation for GJ 9827 d (lead); atmosphere modeling for other datasets

Early Release Science (Exoplanet Transits)

NIRSpec prism data reduction + Co-Lead of "Chemically-Consistent" subgroup *2022-*

- Interdisciplinary team of over 340 researchers worldwide
- Contributed main analysis of JWST/NIRSpec PRISM data
- Co-Lead of the "Chemically-Consistent" subgroup for atmosphere modeling and characterization

NEAT JWST Atmosphere Characterization team

Lead on TRAPPIST-1 d dataset, Atmosphere Modeling Lead on WASP-107 b dataset *2022-2025*

- Interdisciplinary team of over 40 researchers (PI: Prof. Lafrenière); Canadian GTO program
- Leading reduction, analysis, modeling, interpretation for TRAPPIST-1 d observations
- Atmospheric retrievals, stellar contamination studies, data reduction, interpretation on other datasets

NIRPS: Near Infra Red Planet Searcher

Sub-Program Champion *2022-2023*

- 3.6m Telescope at La Silla Observatory (ESO, Chili)
- Champion of the scientific proposal for atmospheric characterization of small planets in multiplanetary systems.

Selected PI and Lead Author Observing Proposals

11 SUCCESSFUL PROGRAMS ON SPITZER, CFHT/SPIROU, HST, JWST C1,2,3,4; INCL. 5 (CO-)PI AND 3 LEAD AUTHOR

James Webb Space Telescope Cycle 4 Proposal (Program 9095), "Combining Emission and Transmission Spectroscopy to reveal Exo-Neptune Aerosols, Chemistry, and Formation", 2025, 38 hours (PI: Piaulet-Ghorayeb).

James Webb Space Telescope Cycle 4 Proposal (Program 9101), "Unveiling the Nature of Super-Puffs: A Panchromatic Transmission Spectroscopy Survey", 2025, 95 hours (PIs: Radica & Piaulet-Ghorayeb).

James Webb Space Telescope Cycle 4 Proposal (Program 8696), "Ammonia and methane on a temperate giant planet orbiting a late M dwarf", 2025, 7 hours (PI: Zhang, Piaulet-Ghorayeb Co-I).

James Webb Space Telescope Cycle 3 Proposal (Program 6457), "Thermal emission of a cool, potentially volcanically active exo-Earth", 2021 (PI: Benneke, Piaulet-Ghorayeb co-lead author).

James Webb Space Telescope Cycle 3 Proposal (Program 5967), "Exploring the desert: Thermal characterization of an exposed planetary core", 2023 (PI: Roy, Piaulet-Ghorayeb Co-I).

James Webb Space Telescope Cycle 2 Proposal (Program 4098), "Exploring the existence and diversity of volatile-rich water worlds", 2023, 82 hours (Lead Author: Piaulet, Co-I; PI: Benneke).

Hubble Space Telescope Cycle 30 Proposal (Program 17090), "Anchoring the Energy Budget of the Keystone Jwst ERS Ultra-Hot Target WASP-18 b", 2022, 10 orbits (PI: Piaulet).

James Webb Space Telescope Cycle 1 Proposal (Program 2594), "The twin paradox: assessing planetary radius evolution with a CH4 thermometer", 2021 (PI: Spake, Piaulet Co-I).

SPIRou DDT Proposal (Program 20BD97), "Life on Venus? Mapping potentially biotic phosphine on our nearest neighbour", 2020, 1 hour (PI: Piaulet).

SPIRou Proposal (Program 20AC039), "Spectroscopic Characterization of a Newborn Neptune-Sized Planet", 2020 (PI: Piaulet).

Spitzer Space Telescope DDT Proposal (Program ID: 14256), "Thermal Emission Observations of the Keystone Exoplanet WASP-107b", 2019, 12 hours (Lead Author: Piaulet, Co-I; PI: Benneke).

Selected Publications

5 (+1 SUB.) 1ST-AUTHOR, 51 REF'D (+10 SUBM.), 2,600+ CITATIONS, H-INDEX=27, ORCID: 0000-0002-2875-917X

- **Piaulet-Ghorayeb, C.**, et al., "A window for water-hydrogen demixing on metal-rich warm sub-Neptunes" (2025, in review at AAS Journals)
- **Piaulet-Ghorayeb, C.**, et al., "Strict Limits on Potential Secondary Atmospheres on the Temperate Rocky Exo-Earth TRAPPIST-1 d" (2025, ApJ, 989, 181)
- Luque, R., **Piaulet-Ghorayeb**, et al., "Insufficient evidence for DMS and DMDS in the atmosphere of K2-18 b: From a joint analysis of JWST NIRISS, NIRSpec, and MIRI observations" (2025, A&A, 700, A284)
- **Piaulet-Ghorayeb, C.**, et al., "JWST/NIRISS reveals the water-rich 'steam world' atmosphere of GJ 9827 d" (2024, ApJL, 974, L10)
- **Piaulet, C.**, et al. "Evidence for the volatile-rich composition of a 1.5-Earth-radius planet" (2023, **Nature Astronomy** 7, 206–222)
- **Piaulet, C.**, et al. "WASP-107b's density is even lower: a case study for the physics of planetary gas envelope accretion and orbital migration" (2021, AJ, 161, 70)
- Benneke, B., Wong, I.,**Piaulet, C.**, et al. "Water Vapor and Clouds on the Habitable-zone Sub-Neptune Exoplanet K2-18b" (2019, ApJL, 887, L14)

Contributed open-source software

- **MELT**: Rocky planet energy balance (github.com/cpiaulet/melt); sole contributer.
- **SMINT**: Planet structure modeling (github.com/cpiaulet/smint); sole contributer.
- **EUREKA!**: JWST data reduction (github.com/kevin218/eureka); main contrib. (light curve extraction, fitting).
- **STCTM**: Stellar contamination modeling (github.com/cpiaulet/stctm); sole contributer.

Posters, Talks, Seminars and Lectures

34 TOTAL: 16 INVITED (2020:1; 2021:1; 2022:2 ; 2023:3; 2024:3, **2025:7**), 17 CONTRIB. (4 IN 2025)

Invited Colloquium Speaker, Washington State University, 2025* (upcoming).

Ringberg Meeting, "Signal In the Noise", Germany, 2025.

Invited Speaker, LIFE Space Mission Conference, Barcelona, Spain, "Rocky planet atmospheres: What we know & what's to come", 2025

Contributed talk, Atmospheric Escape and Replenishment in Planetary Systems Workshop, STScI, 2025.

Invited Seminar, Arizona State University, 2025.

Invited Colloquium, University of Arizona, 2025.

Invited Lecturer for the Theoretical Astrophysics Program (TAP) at the University of Arizona, 2025.

Contributed Talk at the EPSC-DPS25 Conference, Helsinki, "TRAPPIST-1 d: A Case Study for Atmospheric Loss at the Inner Edge of the Habitable Zone", 2025.

Contributed Poster (ExoClimes VII conference), "Characterizing the volatile makeup of the 2-Earth-radii 'steam world' planet GJ 9827 d", 2025.

Invited Lecture (ExoSLAM workshop), Demistifying Atmospheric Retrievals, 2025.

Invited Presentation, University of Helsinki (Copernicus team), "From stellar photons to students' sweaty palms", 2025.

Contributed Talk (Know Thy Star workshop), Caltech, 2025.

Invited Talk (MPIA Exocoffee), 2025.

Invited Seminar (ETH Zurich, exoplanet group), 2024.

Invited TAPS Seminar (Center for Space and Habitability, Bern), 2024.

Contributed Talk at The Great Link workshop, Max Plank Institute for Astronomy, Heidelberg, 2024.

Contributed Talk at the Extreme Solar Systems V Conference, 2024.

Invited Talk, CSH Seminar, Center for Space and Habitability, University of Bern, 2024.

Invited Seminar, UT Austin Astronomy & Astrophysics Department, 2023.

Invited ExoCoffee Seminar, University of Chicago Astronomy & Astrophysics Department, 2023.

Contributed Talk at First Year of JWST Science Conference, "Which small rocky planets have atmospheres?", 2023.

Contributed Talk at Annual Conference of the CRAQ, 2023.

Invited Seminar for the Max Planck Institute for Astronomy-MPIA., 2023

Contributed Talk at TEPS Winter Conference, 2022

Contributed Talk at Annual Conference of the CRAQ, 2022. Awarded prize for one of the top student presentations.

Contributed Talk at the Exoplanets IV Conference, "Not all super-Earths are rocky planets", 2022.

Invited Seminar: TEPS Graduate Fellows presentations, 2022

Contributed Talk at NIRPS Science Meeting, 2022

Invited Talk, JWST/NIRISS Science Team Meeting, "The JWST search for atmospheres around Trappist-1 d and f", 2022.

"Three-Minute Thesis"-type Contributed Talk at TEPS Winter Conference, 2021

Contributed Talk at Annual Conference of CASCA, 2021.

Invited Talk at Annual Conference of CRAQ, 2021.

Invited Seminar: TEPS Graduate Fellows presentations, 2020

Contributed Talk at AAS 237 Conf., "Kepler-138d: a temperate Earth-mass planet that might be a water world", 2020.

Contributed Talk at the Extreme Solar Systems IV Conference, "New insights into the keystone WASP-107 system", 2019.

Contributed Talk at Annual Conference of CRAQ, 2019.

Contributed Talk at iREx interns final presentations, 2018.

Poster presentation at Canadian Conference for Undergraduate Women in Physics (CCUWiP), 2017.

Selected Distinctions: Prizes, Awards, Scholarships & Funding

2025	**$ 244,769**, Principal Investigator, Grant awaiting final approval by STScI; "Combining Emission and Transmission Spectroscopy to reveal Exo-Neptune Aerosols, Chemistry, and Formation"	*STScI*
2025	**$ 484,990**, Co-Principal Investigator, Grant awaiting final approval by STScI; "Unveiling the Nature of Super-Puffs: A Panchromatic Transmission Spectroscopy Survey"	*STScI*
2024	**"Exceptional" Mention for PhD Thesis**, Top mention for a doctoral thesis	*UdeM*
2024	**Offered 4 Independent Postdoctoral Fellowships**, Center for Space and Habitability (3yr; Bern, Switzerland; *declined*); STScI (4yr; Baltimore, MD, USA; *declined*); Trottier (2yr; Montreal, QC, Canada; *declined*); M. Burbidge Prize Fellowship, **$ 240,000** (3yr; Chicago, IL, USA; *accepted*)	
2023	**$ 10,000**, First Prize of the "Impact Millénium" contest (for my NPO InitiaSciences); Entrepreneurship pitch competition across for-profit and non-profit organizations in Québec	*Millénium Québécor*
2023	**$ 500**, Engagement Award; Recognizes extraordinary community engagement	*Physics Dept.*
2023	**Finalist**, *Forces Avenir* contest as InitiaSciences (Category: Projects); Recognition of innovation, creativity and active leadership by young university students for a project or organization	*Forces Avenir*
2023	**Finalist**, *Forces Avenir* contest (Category: Personality, Graduate studies); Recognition of personal leadership, community impact and academic excellence	*Forces Avenir*
2022	**$ 50**, Second prize for Student Presentation; Annual Conference of the CRAQ	*CRAQ*
2022	**$ 2,000**, Laureate of 'Osentreprendre' Entrepreneurship contest in the Schools category; With my nonprofit, *InitiaSciences*. Recognizes innovative and creative organizations led by young students.	*Osentreprendre*
2021	**$ 72,000**, Excellence Scholarship for Foreign students; 3yr; Rank: 1 of 3 selected *(declined)*	*NSERC*
2021	**$ 84,000**, Bourse de Doctorat en Recherche; 4yr; Rank: 1 of 4 selected *(declined)*	*FRQNT*
2021	**$ 150,000**, Vanier scholarship; 3yr; Most competitive cross-disciplinary across Canada	*NSERC*
2021	**Student Engagement Award**, Recognition of engagement with youth, university, and the broader public in volunteering activities in parallel with academic excellence.	*Fac. of Arts and Sciences*
2020	**$ 5,000**, DIALOGUE; Science Communication Student Award, Co-created Educational Videos	*FRQS*
2019	**$ 2,000**, Georges-Baril Prize; Recognizes excellence of academic results throughout a BSc.	*Fac. of Arts and Sciences*
2019	**$ 100**, First prize for Student Presentation; Annual Conference of the CRAQ	*CRAQ*
2019	**$ 7,500**, FRQNT International Internship Program: Scholarship; Annual Conference of the CRAQ	*FRQNT*
2019	**$ 27,000**, TEPS scholarship; 3yr; Scholarship for excellent graduate students in exoplanet research.	*TEPS/NSERC*
2019	**$ 21,000**, FRQNT scholarship (B1X); 1yr; Direct bypass to PhD.	*FRQNT*
2019	**$ 20,000**, Excellence scholarship; 2yr; Direct bypass to PhD.	*Physics Dept.*
2018	**$ 6,000**, Trottier excellence scholarship; Summer internship at iREx.	*iREx*
2018	**$ 2,800**, Summer Internship Offer - DAAD RISE program; Competitive DAAD (German Academic Exchange Service) program *(Offer declined)*	*DAAD*
2016,17,18	**Dean's Honor List**,	*Fac. of Arts and Sciences*

Additional professional training

Mar 2022	**JWST Early Release Science (ERS-Transit) Data Challenge**, Workshop to prepare for James Webb data analysis.	*Baltimore, MD, USA*
Jun 2021	**AstroComm 2021 Workshop**, Training on astrophysics science communication	*Online*
May 2021	**ComSciCon-QC**, Networking and expert training on science communication, participation only for selected applicants.	*QC-Online*
May & Oct 2021	**Calcul Québec Training Series**, Compute Canada Spring School, and Calcul Québec JupyterLab training.	*QC-Online*
June 2019	**Exoclimes Simulation Platform (ESP) Summer School**, Summer school, atmosphere modeling training.	*Lenzerheide, Switzerland*

Service, Volunteering, Outreach

HIGHLIGHT: FOUNDED AND LED A HIGH-IMPACT NPO, 40+ TALKS TO PRIMARY, HIGH-SCHOOL CLASSROOMS AND AMATEUR ASTRONOMERS, 8 PRESS RELEASES, 30+ INTERVIEWS FOR TV, RADIO, WRITTEN PRESS

Astronomy Community Service

2025	**HST External Panelist**, Review of Cycle 33 HST proposals
2025	**Volunteer for mm Universe 2025 Conference**, Local setup for conference, U Chicago
2024-	**Referee**, AAS Journals
2023-	**Referee**, Astronomy & Astrophysics
Feb 2023	**EMAC Conference**, Session chair and member of the organizing committee
Oct 2022	**TEPS Winter Conference**, Session chair
August – December 2020	**Organizing committee for the Canadian Space Summit 2020**, Organization and promotion of the “180 Seconds to a Degree” contest, contacting potential invited speakers, event planning; transition to online format (COVID-19).

Community Outreach, Mentoring and Service

Fall 2025-	**UChicago Astronomy & Astrophysics Dept. Climate Committee**, Coordinate climate survey preparation, dissemination and follow-up action plan.
Fall 2022 - Summer 2024	**iREx Diversity Committee**, Planning of the institute’s activities to improve diversity, equity and inclusion in outreach activities and recruitment.
June 2021 – Spring 2025	**InitiaSciences: Founder and President**, Founding and executive direction (team of 20) of InitiaSciences, an independent non-profit organization that aims at making scientific research accessible to high school students by offering them the opportunity to participate in ongoing scientific research projects.
Sept 2020– Summer 2024	**Physics Diversity Committee at UdeM - Shared leadership model**, Lead and encourage conversations,organize invited talks from experts and planning of concrete action to improve EDI by shifting staff and student recruitment practices, mentoring of at-risk students...
Jan 2019 – Summer 2024	**Projet SEUR/Cap Campus Volunteer - 1000 Sciences**, In-person presentations about astrophysics in Cegeps and secondary schools in the Montreal area to encourage minority engagement with STEM. Crafting science and astronomy workshops that aim at sparking interest in science and research.

Nov 2021, Mar 2022	**Panelist, event for cegep students (Online)**, Presentation about my experience, career and life path, and envisioned future pathways from a training in Physics.
Sept 2020 – Mar 2021	**Organizing committee member, Symposium-SAPHARI 2021**, Annual Symposium in Physics for a Future in Research and Industry; Contacting potential industry partners for invited talks, event planning and session chairing.
Oct 2020	**Conception of infographics: women role models in natural sciences**, Social media content describing gender inequality and impact of exposure to female role models (shared on Projet SEUR/1000 Sciences social media).
May 2020	**Jury member, Salon Vivre la Science et les Technologies**, Evaluation of student science projects at Saint-Laurent cegep.
January 2020	**Kiosk during UdeM's Open House day**, Information about BSc, MSc and PhD programs for prospective Physics students.
Fall '19 – Winter '20	**Expo-Sciences project mentor**, Mentoring secondary school students for a scientific project with research and experimenting activities
Mar 2019	**Les Filles et les Sciences: Un Duo électrisant! Kiosk**, Event encouraging young girls' interest in sciences (SEUR Project Kiosk).
Mar – May 2018	**Advisor and Mentor: Initiative XENOS**, Scientific advisor in physics for the "Solar Ecosystem" contest (winning team!)
Fall 2015	**Volunteer for the Physics Student Association at UdeM**, Volunteering at the student café.

Scientific Communication and Outreach Activities

2025	**Invited In-Person Presentation, American Mensa Annual Gathering.**, "Unraveling Distant Worlds: From Cotton-Candy Planets to Ocean Worlds and the Search for Life". American Mensa is the U.S. chapter of the international high-IQ society Mensa.
2022-2024	**Volunteer lecturer for the "Innovators" program (Technoscience - région métropolitaine nonprofit).**, Conferences about astrophysics research in secondary schools.
Nov 2023	**Volunteer at the Researchers' Night event**, Family event; iREx kiosk, centered around transmission spectroscopy
Sept 2023	**Volunteer at Harvest celebration**, Family event; iREx kiosk, explaining the concept of partial and total eclipse
Sept 2023	**JWST First Year Science Conference Videoclip series**, Small outreach video about the exciting science from JWST's first year
June 2023	**Organizing and coordination of the first InitiaSciences symposium** , Entire-day event featuring the research by InitiaSciences mentees and open to the general public for pop-talks and scientific kiosks (about 200 attendees).
April 2023	**Workshop and conference about exoplanets for the "24 hours of science" event**, Near-24h livestream featuring scientists in Quebec. During my session, dozens of classrooms were connected on the livestream channel.
Mar 2023	**Three-Minute Thesis contest participant (ACFAS)**,
2022-2023	**Conception and delivery of a mentored research project for gifted primary school students**, Creation of an 8-week project. Initiation to astrophysics computer programming, reproduction of existing space-based data analysis. Offered to 2 cohorts so far.
2022-2024	**Workshop: the scientific method applied to a research project**, Workshop presentation for secondary school students in the Douance program (CSSMB) and in other high schools.

Nov 2022	**Researchers' Night - Espace pour la vie, Montréal**, Scientist interacting with the general public.
Aug 2022	**Perseid Night with the nonprofit "Chouette à voir"**, Volunteer animation of a presentation about shooting stars during the Perseid Meteor Shower.
Mar 2022	**Mentor/Animator: Initiation to astrophysics research**, Series of three activities for primary school students offered to gifted kids (Douance program, Centre de services scolaires Marguerite-Bourgeoys - CSSMB): initiation to programming and astrophysical data
Dec 2021	**Facilitator for the ceremony "Celebrating Arts and Sciences" Université de Montréal, Montréal, Canada**, Co-animation of the annual event for scholars of the Faculty of Arts and Sciences.
2021-2022	**Co-creation of a series of conferences for cegep students**, Conception in collaboration with iREx and acceSciences of a model for a presentation series about the scientific method, with junior researchers as presenters. Animation of this presentation at the Vanier cegep (March 2022).
Oct 2021	**Recording of a video capsule about physics at UdeM**, Testimony on my experience at UdeM, for cegep students.
June 2021	**Composi-thon and Poster - ComSciCon 2021 (Online)**, Science popularization text about my first PhD research project, and online poster on the exoplanet "Sprint de Science" I co-created with Thomas Vandal (see below).
May 2021	**Speaker: Eurêka! Festival (Online)**, Recording of a video capsule for the "we are astronomers" project.
2020-2021	**Sprint de Science - workshop animation and conception (Coeur des Sciences de l'UQAM)**, Online presentations in secondary schools; over 800 students reached. Animation: workshop on the WR124 nebula. Conception+Animation with Thomas Vandal: workshop about exoplanet research. Initiation to the scientific method.
Feb 2021	**Workshop animator: SEUR/Cap Campus - Giftedness/PGLO**, Presentation to a secondary school class about my career and life path.
2020-2022	**Communications Intern - ExoBite videos**, Help with conception and diffusion of six videos of science populatization about exoplanets. Speaker in video 3: Extraterrestrial life.
Jan 2020	**Facilitator - Day for Initiation to Research in Physics**, Introduction to Python programming for cegep students.
Nov 2019	**Exoplanets in the Classroom Speaker: Royal Astronomical Society of Canada pilot project**, Presentation about exoplanets for the members of the Toronto Jarvis College astronomy club (high school).
Aug 2019	**Valedictory at the graduation event**, Faculty of Arts and Sciences at UdeM.
May 2019	**Speaker: an astronomer in your classroom**, Interactive presentation in a primary school.
May 2019	**Speaker: "Searching for Earth 2.0" – Académie de Roberval**, - Presentation about exoplanet detection and characterization methods.
Aug 2018	**Volunteer at the Astronomy Day at Campus MIL**, Organization of the event, animation of the James Webb Space Telescope kiosk.
June 2018	**Volunteer and animator, Eurêka! Festival**, Explain astronomy context via interactive activities (family event, kiosk of the Centre de Recherche en Astrophysique du Québec).

Interviews and media citations

August 2025	**Interviews for *Scientific American*, and *NBC News***, Commentary on TRAPPIST-1 e atmospheric reconnaissance JWST results.
August 2024	**Press release: Piaulet-Ghorayeb et al. (2025a) results**, Results of my JWST atmospheric reconnaissance study on the temperate rocky Earth-size planet TRAPPIST-1 d. Press release relayed by NASA/STScI, ESA, CNRS, and featured in the New York Times, Universe Magazine, Universe Today, Sci.News.
May 2025	**Feature in AAS Nova research highlights**, Results of the study led by Eva-Maria Ahrer where I led the atmosphere modeling for the interpretation of tentative atmosphere signatures on the small sub-Neptune planet GJ 3090 b.
May 2025	**Press release: Luque, Piaulet-Ghorayeb et al. (2025) results**, Results of the study led by Rafa Luque and featuring my modeling on a revision of the evidence for biosignatures on the habitable-zone planet K2-18 b. Press release relayed by the New York Times.
May 2025	**Radio interview for the radio show *Les Années-Lumière de Radio Canada***, Communication on recent findings regarding the habitable-zone planet K2-18 b.
October 2024	**Press release: Piaulet-Ghorayeb et al. (2024) results**, Results of my study revealing the first evidence for a planet with a water-rich "steam world" atmosphere composition. Relayed by Space.com, Science News, Discover Magazine.
October 2024	**Curium Magazine: Interview for the Oct. 2024 edition**, Special deep-dive focused on exoplanet research in popular Québec children's magazine.
Apr 2023	**Special collaboration with Le Devoir journal**, Portrait of my research and outreach work.
Dec 2022 -Feb 2023	**Interviews and citations in written press for Science & Avenir, CBC/Radio Canada, Universe Today, La Presse, le Journal de Montréal, The New York Post**, Communication on Piaulet et al. (2023) results
Dec 2022 -Feb 2023	**Radio interviews for the Radio-Canada francophone radios tour (Moncton, Sudbury, Toronto, Vancouver, Regina), the *Les Années-Lumière de Radio Canada* show, and TV interviews for the *Salut Bonjour* show and for SETI Live**, Communication on Piaulet et al. (2023) results
Dec 2022	**Press release: Piaulet et al. (2023) results**, Results of my study of the two candidate "water world" planets Kepler-138 c and d. PR relayed by *Hubblesite*.
Nov 2022	**Press release: First results of the James Webb Space Telescope**, Results of the ERS team's first paper series, for which I led a main analysis of NIRSpec PRISM data. PR relayed by *NASA*.
Sept. 2021	**Press release: results from Pelletier et al. 2021 (incl. Piaulet)**, High-resolution spectroscopy of a hot Jupiter.
Apr. 2021	**Interview for the *Quartier Libre* journal**, Exoplanet research.
Jan-Sept 2021	**Interviews for *PopSci*, CBC, Supercluster, Beyond Space, Sciences et Avenir, Science et vie, the *Les Années Lumière* (brèves) de Radio-Canada show, The McGill Tribune, the *Le Devoir* journal** , Communication on Piaulet et al. (2021) results
Jan 2021	**Press release: Piaulet et al. (2021) results**, Proposing a new formation mechanism for gas giant planets.
Sept 2020	**Interview for the radio show *Les Années Lumière* de Radio-Canada**, Discussing the phosphine discovery claim in Venus' atmosphere.
Sept 2019	**Press release: Benneke, Wong, Piaulet, et al. (2019)**, Detection of water in the atmosphere of a habitable-zone mini-Neptune planet.