

Aline Novais

POSTDOCTORAL FELLOW · SCIENCE COMMUNICATOR

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Education

Postdoctoral Fellow in Exoplanet Atmospheres · Lund University	2024 – PRESENT
PhD in Astronomy · Valongo Observatory, Federal University of Rio de Janeiro (OV/UFRJ) · Guest researcher at the Ludwig Maximilian University of Munich (LMU-Munich)	2019 – 2024 February 1 – July 31, 2023
Master Degree in Astronomy · Valongo Observatory, Federal University of Rio de Janeiro (OV/UFRJ)	2017 – 2019
Bachelor Degree in Astronomy · Valongo Observatory, Federal University of Rio de Janeiro (OV/UFRJ) · Research at the National Observatory (ON), Rio de Janeiro	2012 – 2017 2015 – 2017

Publication

- A. Novais**, C. Fisher, K. Heng, L. Ghezzi (in prep). *Parameter degeneracies associated with interpreting HST WFC3 transmission spectra of exoplanetary atmospheres*.
- A. Lueber, **A. Novais**, C. Fisher, K. Heng, 2024. *Information content of JWST spectra of WASP-39b*. *Astronomy & Astrophysics (A&A)*, Forthcoming article. [[arXiv](#)] [[PDF](#)]
- A. Novais**, C. Fisher, L. Ghezzi, K. Heng, 2023. *Effects of pressure dependency in exoplanetary atmospheric retrieval*. *Bulletin of the Brazilian Astronomical Society (SAB)*, v. 35, n. 1, p. 7-11. ISSN: 0101-3440. [[PDF](#)]
- A. Novais**, D. Andrade, H. Boechat-Roberty, 2020. *Formation and destruction of organic molecules in the upper atmosphere of Titan*. *Bulletin of the Brazilian Astronomical Society (SAB)*, v. 32, n. 1, p. 10-11. ISSN: 0101-3440. [[PDF](#)]

Projects

Information content of JWST spectra of WASP-39b

Members: A. Novais, A. Lueber, C. Fisher, K. Heng 2023 – 2024
· We use data from JWST ERS Program from four different instruments to reassess the atmospheric composition and thermal structure of WASP-39b. Using a suite of atmospheric retrievals, we attempt to address the level of complexity (in temperature-pressure profile and cloud treatment) required to fit JWST spectra.

Parameter degeneracies associated with interpreting HST WFC3 transmission spectra of exoplanetary atmospheres

Members: A. Novais, C. Fisher, L. Ghezzi, K. Heng 2019 – PRESENT
· We revisit previously studied HST WFC3 transmission spectra for 38 objects in order to identify, comprehend, and possibly overcome degeneracies between parameters in atmospheric retrievals [[read full thesis](#)]

Formation and Destruction of Organic Molecules in the Upper Atmosphere of Titan

Members: A. Novais, D. P. P. Andrade, H. M. Boechat-Roberty 2017 – 2019
· We used the DASSLC/MATLAB model by Pinotti & Boechat-Roberty (2016) to simulate the chemical reactions and obtain molecule abundances that possibly occur in Titan's atmosphere [[read full thesis](#)]

Study of Possible Atmospheres from a Sample of Terrestrial Exoplanets Identified by the Kepler Mission

Members: A. Novais, M. Garcia, M. Borges Fernandes 2015 – 2017
· We used the photochemical code written by Kasting et al. (1985) and Pavlov et al. (2001), and their two separate models – high O₂ and high CO₂/CH₄ – to study the atmospheres of seven rocky planets [[read full thesis](#)]

Presentation

ORAL PRESENTATION

XVII Latin American Regional IAU Meeting (LARIM) · Montevideo, Uruguay	November 28, 2023
XLVI Anual Meeting of the Brazilian Astronomical Society (SAB)* · Rio de Janeiro, Brazil *Plenary session	October 2, 2023
Goldschmidt · Lyon, France	July 11, 2023
CN-2 “Planets and other Habitats” Science Afternoon · Garching, Germany	March 6, 2023
XLV Anual Meeting of the Brazilian Astronomical Society (SAB) · Online	September 28, 2022
Exoplanet Atmospheres Workshop · Online	March 9, 2022

IV Anual Meeting of the Brazilian Society of Astrobiology (SBAstrobio) · Online	November 26, 2021
Astrobiology Graduate Conference (AbGradCon) · Online	September 17, 2021
XLIV Anual Meeting of the Brazilian Astronomical Society (SAB) · Online	September 14, 2021
Astrobiology Graduates in Europe (AbGradE) · Online	September 2, 2021
Exoplanet Atmosphere Characterization: from HST and Spitzer to JWST · Online	March 11, 2021
1st Brazilian Women's Meeting in Astrophysics, Gravitation and Cosmology · Online	February 8, 2021
Precision Spectroscopy Stellar Connections: From Galaxy Evolution to Exoplanets · Online	February 1, 2021
II Anual Meeting of the Brazilian Society of Astrobiology (SBAstrobio) · São Paulo, Brazil	October 17, 2019
Astrochemistry LLAMA Meeting (ALLAM) · São Paulo, Brazil	August 9, 2019
Astrobiology Graduate Conference (AbGradCon) · Salt Lake City, USA	July 22, 2019
Precision Spectroscopy 2018: From the First Stars to Exoplanets · São Paulo, Brazil	September 10-11, 2018

POSTER PRESENTATION

Astrobiology Graduates in Europe + Europlanet Early Career Network (AbGradEPEC) · La Palma, Spain	May 5, 2023
Exoplanets III · Online	July 31, 2020
XLIII Anual Meeting of the Brazilian Astronomical Society (SAB) · São Paulo, Brazil	September 12, 2019
XLII Anual Meeting of the Brazilian Astronomical Society (SAB) · São Paulo, Brazil	July 12, 2018
1st Anual Meeting of the Brazilian Society of Astrobiology (SBAstrobio) · São Paulo, Brazil	July 11, 2018
XL Anual Meeting of the Brazilian Astronomical Society (SAB) · Ribeirão Preto, Brazil	August 31, 2016

Teaching Experience

Mentoring for Freshmen Students: "Astrobiology and Exoplanets" · Federal University of Rio de Janeiro (UFRJ)	2021 – 2023
Teaching Traineeship: "Planetary Systems" (bachelor level) · Federal University of Rio de Janeiro (UFRJ)	2020
Teaching Traineeship: "Astrobiology" (bachelor level) · Federal University of Rio de Janeiro (UFRJ)	2019
Introduction Course: "Astrochemistry and the Molecules of Life" · Museum of Astronomy and Related Sciences (MAST)	May 2, 2019
Tutoring: "Physics IV (Optics, Special Relativity)" (bachelor level) · Federal University of Rio de Janeiro (UFRJ)	2015

Referee Experience

Examining Board for Bachelor Thesis "Ionic Desorption of Methanol Ice in Different Space Environments" by candidate Tarek Eduardo Haimuri Guimarães · Federal University of Rio de Janeiro (UFRJ)	February 23, 2024
Abstract Reviewer for Astrobiology Graduate Conference (AbGradCon) 2023 · Online	March, 2023
Examining Board for Bachelor Thesis "Use of Machine Learning for Stellar Spectral Classification" by candidate Julia Camões Alves · Federal University of Rio de Janeiro (UFRJ)	August 19, 2022

Honors and Awards

Honorable Mention · National Observatory (ON/MCTIC)	2017
Scientific Initiation Journey at the National Observatory (JICON) for the work "Study of the Possible Atmospheres from a Sample of Terrestrial Exoplanets Identified by the Kepler Mission"	

Extracurricular Activities

Science Outreach Talks and Roundtable Discussions	2018 – PRESENT
Valongo Observatory (OV/UFRJ), Institute of Physics (IF/UFRJ), "Pint of Science"	
Interviews, Podcasts, and Live Streams	2019 – PRESENT
"Superinteressante", "g1", "CNN Brazil", "Canal Tech"	
Science Outreach on Social Media	2017 – PRESENT
Twitter, Instagram, YouTube	
Graduate Students Representative	2017 – 2019, 2021 – 2022
Valongo Observatory, Federal University of Rio de Janeiro (OV/UFRJ)	