



# NATALIA LUCÍA OLIVEROS GÓMEZ

## PHD STUDENT IN ASTROPHYSICS

Johns Hopkins University - USA

## MASTER IN ASTROPHYSICS

Universidad de Guanajuato - México

## PHYSICIST

Universidad Industrial de Santander - Colombia



noliver8@jh.edu  
onatalialucia@gmail.com



Outreach: @arrecifecosmico



<https://onatalialucia.wixsite.com/astronomia>



astrophysics  
data system

Oliveros-Gomez, N

I research the atmospheres of brown dwarfs and exoplanets to understand their internal composition. Also, I love to transmit knowledge in education and outreach.



## EDUCATION

**Johns Hopkins University (JHU) - Astrophysics PhD**

2023 - TODAY **Thesis:** Study of physical mechanisms of brown dwarf atmospheres and their variability (3rd year)

**Advisors:** Elena Manjavacas, David Sing

**Universidad de Guanajuato (UG)**

Master in Science - class grades: 9.75/10.0

2022 - 2023 **Thesis:** Study of brown dwarf atmospheres (**With highest honors**)

**Advisors:** Elena Manjavacas, Dennis Jack

2023 - 2025

**Johns Hopkins University (JHU)**

Master of Arts (Physics) - class grades: 8.00/10.0

**Universidad Industrial de Santander (UIS)**

Physicist (Grade point average: 4.10/5.0)

2016-2021 **Thesis:** Study of a chromospheric eclipse of Zeta Aurigae, Fall 2019 (**Grade: 5.0/5.0**)

**Advisors:** Klaus-Peter Schröder, Luis A. Núñez.



## ACADEMIC EXPERIENCE

### Training, Internships, Summer and Winter Schools

2025 **ExoSlam: Summer School:** Characterization of brown dwarfs and exoplanet atmospheres  
Université de Montréal, QC, CA (Duration: 1 week)

2022 **VLT-How: The VLT High angular resolution Observations Workshop (Project: Exoplanets with GRAVITY),** European South Observatory, Santiago, Chile (Duration: 2 weeks)

2023 **Sagan Exoplanet Summer (Characterizing Exoplanet Atmospheres: The Next Twenty Years),** NASA Exoplanet Science Institute, California Institute Of Technology, Pasadena, CA (Duration: 1 week)

2021 **RECA Internship PROGRAM 2021,** ONLINE with STScI researcher in Brown Dwarf variability project, (Duration: 2 and a half months)

### Talks, Posters and Meetings

2025 **Talk,** Islas Canarias, España  
Brown dwarfs Keep Their Cool: 30 Years of substellar science: Physical mechanisms that generate variability in WISE 1049AB

2024 **Talk,** San Diego, CA, USA  
Cool Stars 21: Identify T-type brown dwarf variable candidates and perspectives to Y-dwarfs

2022 **Posters,** Toulouse, Francia  
Cool Stars 21: Method to identify T-type brown dwarf variables candidates

2023 **Talk,** Montevideo, Uruguay  
Latin American Regional IAU Meeting (LARIM 2023): Systematic method for identification of L-type variable brown dwarfs

2022 **Posters,** Toulouse, Francia  
Cool Stars 21: Study of chromospheric eclipse of Zeta Aurigae and Detecting variability in late-T Brown Dwarfs



## ACCEPTED PROPOSALS

2024-2025 **10 Nights** awarded at APO-3.5m/NICPS: Validation of the method for the detection of variable brown dwarfs L- and T-type.

2022 **3 Nights** awarded at SPM-2.1m/CAMILA: Validation of the method for the detection of variable brown dwarfs T-type.



## LANGUAGES

**Spanish:** Native      **English:** B1

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## COMPUTER SKILLS

### Programming languages

Python   
LaTeX   
Matlab   
R 

### Astronomical packages

iSpec   
astropy   
IRAF   
PHOENIX 



## AWARDS/PRIZES/GRANTS/FELLOWSHIPS

2024 Public Engagement prize - Europlanet – (\$1000 EUR)

2024 IAU/OAD Grant (BARCo project) – 1 year (\$7000 EUR)

2023 Davidsen Fellowship (STScI) – 3 years of PhD

2018- 2019- 2020 International Physics Tournament

Winners National. Semifinalists (3/10), Varsovia, Polonia (**ONLINE**)

Semifinalists (4/18) École polytechnique Fédérale de Lausanne (EPFL), Switzerland



## PUBLICATIONS

### Heterogeneous clouds and Thermochemical instabilities, drivers of WISE 1049AB's variability



Natalia Oliveros-Gomez, Elena Manjavacas, et. al.



December, 2025



The Astrophysical Journal



[ApJ](#), [ArXiv](#)

### Study of variability in L- and T-type Brown Dwarfs: Spectral indices and theoretical models



Natalia Oliveros-Gomez, et. al.



March, 2023



The Astrophysical Journal



[ApJ](#), [ArXiv](#)

### Informed systematic method to identify variable mid and late-T dwarfs



Natalia Oliveros-Gomez, Elena Manjavacas, Afra Ashraf, Daniella C. Bardalez-Gagliuffi, Johanna M. Vos, Jacqueline K. Faherty, Theodora Karalidi, Daniel Apai



November, 2022



The Astrophysical Journal



[ApJ](#), [ArXiv](#)

### Tracing the Top-of-the-atmosphere and Vertical Cloud Structure of a fast-rotating late T-dwarf



Elena Manjavacas, Theodora Karalidi, Xianyu Tan, Johanna M. Vos, Ben W. P. Lew, Beth A. Biller, Natalia Oliveros-Gomez...



July, 2022



The Astronomical Journal



[ADS](#), [ArXiv](#)



## ONGOING PROJECTS

### Repository of Light Curves Brown Dwarfs

We are collecting the light curves of brown dwarfs whose variability has been measured, intending to make new research collaborations and find relationships between parameters of the studied objects.

### Brown dwarfs and Exoplanets comparison

We study the emission spectra of exoplanets to compare the atmospheres of these objects with brown dwarfs that share characteristics such as temperature, colors, and others to know if brown dwarfs can function as templates for exoplanets.

### One Network by Colombian students of astronomy to develop and improve the Colombian professional astronomical community



RECA Collaboration



In preparation

The Colombian Astronomy Student Network (RECA) is an association that seeks to help the community of astronomy students to develop astronomy in Colombia and overcome barriers in academia and research. The main current projects of the network are: (1) The RECA mentoring program (2) The summer internship (3) The education program. All these programs are currently available in their second versions and have acquired benefits for many students of all academic levels, on the other hand, there are other programs that are in the process of being formalized.