

Sebastián Carrazco Gaxiola

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Atlanta, GA, USA

Education

Georgia State University, Atlanta, GA

Ph.D. in Astronomy (Expected Fall 2027)

Fall 2022 - Present

Department of Physics and Astronomy

- Project: Stellar Characterization of All-Sky Volume Limited sample of K dwarfs within 40 pc.
- Advisor: Prof. Todd J. Henry

Georgia State University, Atlanta, GA

M.S. in Physics, Concentration in Astronomy

Fall 2022 - Summer 2024

Department of Physics and Astronomy

Universidad Autónoma de Sinaloa, Culiacán, Sinaloa

B.S. in Astronomy (Graduated with Honors)

Fall 2016 - Spring 2021

A.S. in Geosciences (Surveying and Topography)

Facultad de Ciencias de la Tierra y el Espacio

- Honor Thesis: *The TAOS-II and DDOTI Projects to Search Transiting Exoplanets from the OAN-SPM*
- Advisor: Prof. Yilen Gómez Maqueo Chew and Dr. Emma Margarita Pereyra Talamantes

Research Experience

CTIO/SMARTS 1.5m Telescope Fellow,

January 2023 - Present

RECONS Institute, Chambersburg, PA

- CHIRON Spectrograph support. Tasks: Manage observing queue, provide scientific and technical support for users, assist with telescope operations in coordination with CTIO staff. Telescope observer for 2-3 two weeks turnos a year.

Graduate Research Assistant,

August 2022 - Present

Department of Physics and Astronomy, Georgia State University

- RKSTAR Characterization Survey. Leading the stellar Characterization of an All-Sky volume-complete sample of K dwarfs within 40 pc. Surveying Space Kinematics, Chromospheric Activity, Fundamental Properties, and Ages.

Post-bac Research Assistant,

January 2022 - July 2022

Instituto de Astronomía, UNAM, Mexico City

- Member of the SAINT-EX project at the San Pedro Mártir Observatory. Conducted remote observations. Developed data pipelines to analyze the nightly systematic and weather conditions during the acquisition of light curves of potential exoplanet candidates.

Undergraduate Research Assistant,

August 2019 - December 2021

Instituto de Astronomía, UNAM, Mexico City

- *Thesis*: Preliminary Study of the TAOS-II and DDOTI Projects to Search for Transiting Exoplanets: Investigated exoplanetary candidates through the analysis of white dwarf stars, utilizing data from the TAOS-II survey and DDOl archive. Developed reduction pipelines and analyzed light curves to identify potential exoplanet transits.

Teaching

TA — Exoplanets Lab Instructor

June 2026

Instituto de Astronomía, UNAM-CU

Exoplanets Lab Instructor for the "UNAM-Tonazintla Summer REU" classes.

Guest Lecture

March 2026

Georgia State University

Kinematics and Young Stars in the Solar Neighborhood.

TA — Physics & Astronomy Lab Instructor

2022 - 2026

Georgia State University

Lab Instructor of: Astronomy-1020 — Stars and Galaxies, Astronomy-1010 — Solar System, Physics-1111K — Intro Physics I

TA and Tutor

2018–2020

Facultad de Ciencias de la Tierra y el Espacio

Served as a grader and proctor for Calculus I–II in the Geoinformatics and Geodesic Engineering programs. Tutored undergraduate students in mathematics, astronomy, programming, and astrophysics courses.

Mentoring

Ben Tipton, GSU24', RECONS Post-bac

Fall 2025 - present

Project: *RKSTAR Characterization of 30 K Subdwarfs within 50 pc*. Project: *Spectral Energy Distributions and Space Kinematics of 4466 K dwarfs in the RKSTAR Catalog*

Publications

First & Second author

- Tipton, B., **Carrazco-Gaxiola, S.** in prep. The Solar Neighborhood ???: Population of Subdwarf and Halo K dwarfs within 50 pc
- **Carrazco-Gaxiola, S.** in prep. The Solar Neighborhood ???: RKSTAR's Volume-Completed Sample of K dwarfs within 40 pc: Kinematics, Lithium, Chromospheric Activity, and New Members of Young Moving Groups.
- Hubbard-James, H. S., **Carrazco-Gaxiola, S.**, Henry, T. J., et al. (2026). The Solar Neighborhood LV: Spectral Characterization of an Equatorial Sample of 580 K Dwarfs. *The Astronomical Journal*, 171(3), 175.

Contributed

- Kane, C. J., White, R. J., Jones, J., et al. (2026). The Debris Disk Host β Piscis Austrinus is a Rapidly Rotating Star Seen Nearly Pole-on. *The Astrophysical Journal*, 1006(2), 228.
- Fetherolf, T., Gupta, A. F., Newton, E. R., et al. (2026). HWO Target Stars and Systems: Activity and Rotation Catalog (ARC) of Potential Target Stars for the Habitable Worlds Observatory. *Publications of the Astronomical Society of the Pacific*, 138(7), 074205.
- Anugu, N., Klement, R., Monnier, J. D., et al. (2026). Detection and Astrometry of the Ba–Bb Subsystem in α Piscium: First Dual-field Interferometry at the CHARA Array. *The Astronomical Journal*, 171(4), 253.
- Wilson, T. G., Simpson, A. M., Collier Cameron, A., et al. (2026). Gas-depleted planet formation occurred in the four-planet system around the red dwarf LHS 1903. *Science*, ead12348.
- Barber, M. G., Mann, A. W., Vanderburg, A., et al. (2026). TESS Investigation—Demographics of Young Exoplanets (TI-DYE). IV. A Jovian-radius Planet Orbiting a 34 Myr Sun-like Star in the Vela Association. *AJ*, 171(1), 20.

- Bentz, M. C., Brown, R., Carrazco-Gaxiola, S., et al. (2025). R-Band Monitoring of Patroclus and Menoetius Mutual Events. *Minor Planet Bulletin*, 52(1), 79–81.
- Luque, R., Osborn, H. P., Leleu, et al. (2023). A Resonant Sextuplet of Sub-Neptunes Transiting the Bright Star HD 110067. *Nature*, 623(7989), 932–937.
- Barkaoui, K., Timmermans, M., Soubkiou, A., et al. (2023). TOI-2084 b and TOI-4184 b: Two New Sub-Neptunes Around M Dwarf Stars. *Astronomy & Astrophysics*, 677, A38.

Presentations

Contributed Talks

- Carrazco-Gaxiola, S. et al. (2026). *An All-Sky Spectroscopic Reconnaissance of more than 2100 K Dwarfs within 40 Parsecs using High-Resolution Spectra* **247rd AAS Meeting, Phoenix, AR.**, In-Person
- Carrazco-Gaxiola, S. et al. (2025). *Chromospheric Activity, Lithium, and Rotational Velocities Among 1600 K dwarfs within 40 pc* **Know Thy Star Know Thy Planet 2, Pasadena, CA.**, In-Person

Invited Talks

- Carrazco-Gaxiola, S. et al. (2026). *RKSTAR's Southern K dwarfs within 40 pc: Kinematics, Lithium, and Chromospheric Activity* **Seminario de Astrofísica INAOE, Cholula, Puebla, MX**, In-Person
- Carrazco-Gaxiola, S. et al. (2026). *Towards a Volume-All-Sky Spectroscopic Survey of 2200 Nearby K Dwarfs within 40 Parsecs: Insights of the Young K dwarfs Paradox.* **NSFs NOIRLab South Colloquium Series, NOIRLab South, La Serena, Chile**, In-Person
- Carrazco-Gaxiola, S. et al. (2026). *A Volume-Complete All-Sky Spectroscopic Census of More Than 2,100 Nearby K Dwarfs: Insights from the RKSTAR Project.* **Press release, 247rd AAS Meeting, Phoenix, AR.**, In-Person

Posters

- Carrazco-Gaxiola, S. et al. (2024). *Identifying Young and Active Stars Among the Nearest 1500 K Dwarfs within 40 Parsecs with the CHIRON Spectrograph.* **Cool Stars 22, San Diego, CA.**, In-Person
- Carrazco-Gaxiola, S. et al. (2024). *Identifying Young and Active Stars Among the Nearest 1500 K Dwarfs within 40 Parsecs with the CHIRON Spectrograph.* **243rd AAS Meeting, New Orleans, LA.**, In-Person
- Carrazco-Gaxiola, J. S., et al. 2021. Sample of White Dwarfs to Search for Transiting Exoplanets from OAN-SPM. *RMxAC*, 55, 93. **III Congreso Latinoamericano de Astrobiología** (Online)

Awarded Telescope Time

CHARA Array, Mount Wilson

2026-present

PI of 2 **Awarded** half-nights, using MIRCX and MYSTIC.

FLWO Tillinghast 1.5m telescope, Chile

2023-2025

Co-I of 30 **Awarded** nights using the TRES Spectrograph

Observing Experience

SMARTS CTIO 1.5m telescope , Chile	2023-2025
48 nights using the CHIRON Spectrograph, classical mode	
APO ARC 3.5m telescope , Chile	2025
3 half-nights using the ARCES spectrograph, classical mode	
SMARTS CTIO 0.9m telescope , Chile	2023
11 nights using CCD camera, classical mode	
OAN-SPM SAINT-EX 1.0m telescope , Mexico	February - June 2022
60 half-nights CCD camera (remote)	
INAOE Guillermo Haro Observatory , Cananea, Mexico	November 2017 - December 2018
13 nights using NIR CCD camera, classical mode	

Technical Skills

- **Programming Languages:** Python, LaTeX, SQL, Bash, IDL
- **Software:** IRAF, PyRAF, AstroPy, Matplotlib, TOPCAT, Jupyter, Microsoft Office
- **Observational Tools:** Echelle Spectroscopy, CCD cameras, 1.5m, 0.9m, 2.12m telescopes
- **Data Analysis:** Spectroscopic Analysis, Data Reduction, Time Series Analysis, Data Quality Control
- **Languages:** English (Fluent), Spanish (Native)

Awards and Grants

Outstanding Graduate Student Astronomy (\$500 prize)	
<i>Georgia State University, Atlanta, GA</i>	2025
Paris Pişmiş Award for Outstanding Undergraduate Student in Astronomy	
<i>Instituto de Astronomía, UNAM, Mexico City</i>	2022
Best Undergraduate Research Poster Presentation Award	
<i>Universidad Autónoma de Sinaloa, Culiacán, Sinaloa</i>	2019