


Thiago Ferreira dos Santos

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Department of Astronomy, Yale University, 219 Prospect St., New Haven, CT 06511, USA

EDUCATION

Yale University

Ph.D. in Astronomy

08/2023 – Present

New Haven (CT), US

Universidade de São Paulo

M.Sc. in Astronomy

08/2021 – 06/2023

São Paulo (SP), Brazil

Dissertation: [Unveiling Planetary Systems in Solar Twins with High-Precision Radial Velocity](#)

Advisor: Jorge Luis Meléndez Moreno, Ph.D.

Universidade Federal de Santa Catarina

B.Sc. in Physics

03/2016 – 08/2021

Florianópolis (SC), Brazil

PUBLICATIONS

Full record at [ADS Library](#)

Referred Publications

4. **Ferreira, T.**, Saito, R.K., Minniti, D., et al., 2024, MNRAS, 527, 10737.
A Benchmark White Dwarf-Ultracool Dwarf Wide Field Binary.
3. Botan, E., et al., (incl. **Ferreira, T.**), 2021, MNRAS, 504, 654.
Unveiling short-period binaries in the inner VVV bulge.
2. Herpich, F.R., et al., (incl. **Ferreira, T.**), 2021, A&A, 647, A169.
VVV survey near-infrared colour catalogue of known variable stars
1. **Ferreira, T.**, Saito, R.K., Minniti, D., et al., 2019, MNRAS, 586, 1220.
The asymptotic evolution of the stellar merger V1309 Sco: a Blue Straggler in the making?

Non-Referred Publications & Conference Proceedings

8. **Ferreira, T.** & Meléndez, J., 2022. Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun.
HIP 102152b: A low-mass planet candidate around an old solar twin
7. **Ferreira T.S.**, Saito, R.K., & Minniti D., 2021, The Astronomer's Telegram #14626.
VVV near-IR observations of the X-ray transient Swift J174038.1-273712.
6. **Ferreira T.S.**, Saito, R.K., & Minniti D., 2021, The Astronomer's Telegram #14625.
VVV near-IR observations of V6585 Sgr progenitor.
5. **Ferreira dos Santos, T.** & Kalbusch Saito, R. 2020, Planets 2020, Ground and Space Observatories 11.
Exoplanetary transits in the Galactic bulge.
4. **Ferreira, T.**, Saito, R.K., Gran, F. et al. 2018, RNAAS, 2, 39.
VVV Survey Orbital Period Confirmation for the Cataclysmic Variable IGR J17014-4306.
3. Masetti, N., **Ferreira, T.S.**, Saito, R.K., et al. 2018, The Astronomer's Telegram #11992.
The possible VVV near-infrared counterpart of IGR J17503-2636.
2. Kammers, R., **Ferreira, T.S.**, Saito, R.K. & Minniti, D. 2018. The Astronomer's Telegram #11365.
The likely progenitor of Nova ASASSN-18ds.
1. **Ferreira, T.S.** & Saito, R.K. 2017, The Astronomer's Telegram #10780.
The likely progenitor of Nova ASASSN-16ra.

RESEARCH EXPERIENCE

Pre-Thesis Doctoral Research

08/2023 – Present

Department of Astronomy, Yale University

Abstract: TOI-2533 b and Brown Dwarfs Formation. We investigate the intermediary nature of brown dwarfs between giant gaseous planets and ultra-cool dwarf stars, focusing on their orbital orientations to enhance our understanding of formation processes. Using data from the NEID/WIYN spectrograph, we determine a sky-projected stellar obliquity of TOI-2533 *b*, which is noteworthy as it represents one of the few brown dwarf systems with a measured stellar obliquity. Our findings indicate that TOI-2533 *b* likely formed from disc fragmentation in a spin-orbit aligned orientation.

Advisor: Malena Rice, Ph.D.

M.Sc. Graduate Research Assistant

08/2021 – 08/2023

Seeking Solar System Analogues

Abstract: We aim to elucidate the uniqueness of the Solar System by characterising exoplanetary systems with Jupiter analogues through high-precision ESO/HARPS radial velocity observations of solar twins. Moreover, we study the possible connection between those planets and the chemical compositions of their host stars.

Advisor: Jorge Luis Meléndez Moreno, Ph.D.

Undergraduate Research Assistant

08/2017 – 08/2021

Time-series analysis of near-IR variabilities with the ESO/VVV & VVV-X surveys

Abstract: We examined relatively small photometric variations in the near-IR Ks-band light curves of the ESO/VISTA Variables in the Via Láctea (VVV) & VVV eXtended (VVV-X) surveys by implementing the Lomb-Scargle method for characteristically sine-like signals of variable stars, and the Box Least-Squares method to detect and model exoplanetary transit candidates on M dwarf stars, primarily selected based on VVV photometric and *Gaia* DR3 astrometric datasets.

Advisor: Roberto Kalbusch Saito, Ph.D.

OBSERVING PROPOSALS

HIRES/Keck I – 1 night (PI M. Rice)

2024A

Probing the Nature of WD J1918+3339

PFS/Magellan II – 5 nights (PI J. Y. Galarza)

2023A

Searching for exoplanets in wide binaries: Testing the star-planet connection with The Planet Finder Spectrograph

HARPS/ESO 3.6-m – 6 nights (dPI - P111)

2023A

How rare are analogues of the Solar System?

TEACHING APPOINTMENTS

AGA0502 - Planets and Planetary Systems (IAG/USP)

08/2022 – 12/2022

led by Prof. Jorge Meléndez

Worked with computational activities for about 34 students.

Introductory class about the formation, composition and evolution of the Solar System and exoplanetary systems.

FELLOWSHIPS, AWARDS & GRANTS

- GSAS Yale Graduate Fellowship 08/2023 – Present
- CAPES M.Sc. Research Fellowship at IAG/USP-Brazil 08/2021 – 07/2023
- exoLaTam 2022 Travel Award 12/2022
- Teaching Improvement Program at IAG/USP 08/2022 – 12/2022
- ESO/ALMA Planets2020 Workshop Travel Award 03/2020
- CNPq Undergrad. Research Fellowship at Dept. of Physics – UFSC/Brazil 2017, 2018, 2019, 2021

CONFERENCE PRESENTATIONS

- | | |
|---|---------|
| 14. exoLaTam 22 – Santiago, Chile | 12/2022 |
| HIP 102152b: A low-mass planet candidate around an old solar twin [Talk]. | |
| 13. XLV Annual Meeting of the Brazilian Astronomical Society – Virtual | 10/2022 |
| HIP 102152b: A low-mass planet candidate around an old solar twin [Poster & Flash Talk]. | |
| 12. Cool Stars 21 – Virtual | 07/2022 |
| HIP 102152b: A low-mass planet candidate around an old solar twin [Poster & Flash Talk]. | |
| 11. 31° Seminário de Iniciação Científica – UFSC – Virtual | 07/2021 |
| Studies of stellar astrophysics and exoplanets in the central region of the Milky Way [Talk] | |
| 10. Exoplanets III – Virtual | 07/2021 |
| A Box-fitting implementation for the transit method detection of exoplanets [Poster] | |
| 9. Sagan Exoplanet Summer Workshop – Virtual | 07/2021 |
| Time-series analysis of near-IR variabilities on VVV M dwarf stars [Poster & Flash Talk] | |
| 8. 30° Seminário de Iniciação Científica – UFSC – Virtual | 10/2020 |
| Transiting extrasolar planets orbiting red dwarf stars towards the Galactic bulge [Talk] | |
| 7. ALMA Planets2020 Workshop – Santiago, Chile | 03/2020 |
| Exoplanetary Transits in the Galactic bulge [Poster & Flash Talk] | |
| 6. VIII PPGFSC/UFSC Meeting, Florianópolis – Brazil | 02/2020 |
| The asymptotic evolution of the blue straggler V1309 Sco [Poster] | |
| 5. 29° Seminário de Iniciação Científica – UFSC – Virtual | 10/2019 |
| Stellar variability towards the central region of the Milky Way with the VVV/VVV-X surveys [Talk] | |
| 4. EWASS 2019 – European Astronomical Society | 06/2019 |
| Infrared counterparts of Gaia alerts by Ivanov+ (incl. Ferreira, T.) [Poster] | |
| 3. 28° Seminário de Iniciação Científica – UFSC – Virtual | 10/2018 |
| Stellar variability towards the central region of the Milky Way with the VVV/VVV-X surveys [Talk] | |
| 2. VVV & VVV-X Science Workshop – Florianópolis, Brazil | 04/2018 |
| On the photometric study of the cataclysmic variable IGR J17014-4306 [Poster & Flash Talk] | |
| 1. VI PPGFSC/UFSC Meeting, Florianópolis – Brazil | 02/2018 |
| Stellar variability towards the central region of the Milky Way with the VVV/VVV-X surveys [Poster] | |

WORKSHOPS AND ADVANCED SCHOOLS ATTENDED

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| • New York Area Exoplanets Meeting – New York, USA | 05/2024 |
| • exoLaTam 22 – Santiago, Chile | 12/2022 |
| • ESO The Star-Planet Connection Workshop - Virtual Workshop | 10/2021 |
| • XIII CBPF School – Virtual | 08/2021 |
| • ZTF Summer School on Variable Stars – Virtual | 08/2021 |
| • Sagan Exoplanet Summer Workshop on Circumstellar Disks and Young Planets – Virtual | 07/2021 |

ACADEMIC REFERENCES

Jorge Luis Meléndez Moreno, PhD (MSc Advisor)

jorge.melendez@iag.usp.br

Departamento de Astronomia/IAG, Universidade de São Paulo – Brazil

Roberto Kalbusch Saito, PhD (Undergrad Advisor)

robsaito@gmail.com

Departamento de Física, Universidade Federal de Santa Catarina – Brazil

Dante Minniti, PhD

vvvdante@gmail.com

Instituto de Astrofísica, Facultad de Ciencias Exactas, Universidad Andres Bello – Chile

Vatican Observatory, I-00120 Vatican City State, Italy

COMPLEMENTARY INFORMATION

Languages

- Portuguese: Native
- English (advanced): Understands/reads/writes well, speaks acceptably.
- Spanish (elementary): Understands/reads/writes/speaks little.

Other

- Programming: \LaTeX , PYTHON (5+ years); Little experience with C, R, JAVA, BASH.
- Databases & Softwares: VISTA Science Archive (<http://horus.roe.ac.uk/vsa/>), TOPCAT, IRAF/DS9, VOSA.