

Jhon Yana Galarza

PERSONAL INFORMATION

ADDRESS: Rua do Matão 1226, Cidade Universitária, São Paulo - SP, Brazil
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GITHUB: <https://github.com/ramstojh>

CURRENT POSITION

June 2021-2022 | CNPq Postdoctoral Fellowship,
Mackenzie Presbyterian University, Brazil
Project: *Searching starspots with TESS: Investigating the connection between chromospheric activity, spot coverage fraction and spectroscopic ages*

FORMAL EDUCATION/DEGREE

June 2021	DOCTOR IN ASTROPHYSICS, Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo, São Paulo, Brazil Thesis: <i>The Inti survey for new solar twins and magnetic activity effects, supernova and planet engulfment</i> Supervisor: Dr. Jorge MELÉNDEZ
April 2016	MASTER IN ASTROPHYSICS, Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo, São Paulo, Brazil Thesis: <i>Analysis of the chemical composition of the solar twins HIP 100963, HD 45184 and the discovery of the solar twin Inti 1</i> Supervisor: Dr. Jorge MELÉNDEZ
May 2013	LICENTIATE IN PHYSICS, Facultad de Ciencias Físicas, Universidad Nacional Mayor de San Marcos, Lima, Peru Thesis: <i>Number Counts and Non-Gaussianity</i> Supervisors: Dr. Sarah SHANDERA and Dr. Teófilo VARGAS
December 2012	BACHELOR IN PHYSICS, Facultad de Ciencias Físicas, Universidad Nacional Mayor de San Marcos, Lima, Peru Supervisor: Dr. Teófilo VARGAS

LANGUAGES

ENGLISH, PORTUGUESE and SPANISH (Native language)

RESEARCH EXPERIENCE

- Post-doctoral Research Fellow. Mackenzie Presbyterian University. Jun. 2021 - present.
- La Silla Observing Summer School/ESO/Santiago-Chile, February 3-14, 2020. During the school I had lectures of observing techniques and how to prepare proposals for ESO. Final project: *Characterising Nearby Galaxies with Optical Imaging*.
- VIII La Plata International School. Pulsations Along Stellar Evolution. Summer School, 11-22 November 2019, La Plata, Argentina. During the school I had lectures in the field of stellar pulsations. Final project: *Asteroseismology of the binary system 16 Cyg*.

COMPUTER SKILLS

I have extensive experience programming in Python and IRAF. My codes are publicly available on my [GitHub/ramstojh](https://github.com/ramstojh) and also listed below:

- [terra](#). A python tool to model chemical abundance patterns of solar-type stars. The code also models planet engulfment events in solar-type stars.
- [kanchay](#). A python tool for measuring stellar rotation periods using TESS and Kepler light curves.

- [TS23-reduction](#). Tools based on Python and IRAF for the reduction of echelle spectra of the Robert G. Tull Coudé Spectrograph/McDonald Observatory.
- [q2](#). A Python package to determine atmospheric parameters and chemical abundances of stars. *It is important to note that I am not the owner of this package, but I am one of the maintainers.*

HONOURS AND AWARDED GRANTS

- **CNPq** Postdoctoral Fellowship.
- **European Southern Observatory travel grant**. Equiv \$1k for attending La Silla Observing Summer School. 2020, Santiago, Chile.
- **Universidad de la Plata**. Equiv \$1k for attending the Pulsations Along Stellar Evolution. 2019, La Plata, Argentina.
- **Universidad Pontificia Católica del Peru**. Equiv \$1.5k for attending the First Peruvian Space Week 2016. Lima, Peru.
- **Research Contingency Funds CNPq**. Equiv \$4k for attending workshops, seminars and visiting observatories.
- **CNPq** Fellowship for PhD Studies, Universidade de São Paulo, Brazil.
- **CAPES** Fellowship for Master Studies, Universidade de São Paulo, Brazil.
- **Undergraduate Theoretical Physics Summer Program** at Perimeter Institute, Ontario, Canada (Equiv \$8k).

SCIENTIFIC TALKS

- The Star-Planet Connection - Virtual Workshop: *Evidence of rocky planet engulfment in the binary system HIP 71726/HIP 71737*. October 2021. **Poster presentation and 1-min talk.**
- Colloquium Lectures at Mackenzie: *Evidence of rocky planet engulfment in the binary system HIP 71726/HIP 71737*. September 2021, São Paulo, SP, Brazil. **Invited to give a talk.**
- XLIV Annual Meeting of the Astronomical Society of Brazil: *Searching for new solar twins: The Inti survey for the Northern Sky*. September 2021, São Paulo, SP, Brazil. **Oral presentation.**
- XLIV Annual Meeting of the Astronomical Society of Brazil: *Evidence of rocky planet engulfment in the binary system HIP 71726/HIP 71737*. September 2021, São Paulo, SP, Brazil. **Oral presentation.**
- Precision Spectroscopy: From Galaxy Evolution to Exoplanets. *A solar twin with a distinct odd-even effect*. February 2021, São Paulo, Brazil. **Oral presentation.**
- La Silla Observing Summer School: *Characterising Nearby Galaxies with Optical Imaging*. January 2020, Santiago, Chile. **Oral presentation.**
- Pulsations Along Stellar Evolution: *Asteroseismology of the binary system 16 Cyg*. November 2019, La Plata, Argentina. **Oral Presentation.**
- LNA - High-Resolution Spectroscopy Workshop: *Searching for new solar twins: The Inti survey for the Northern Sky*. October 2019, Campos do Jordão, SP. **Oral Presentation.**
- Precision Spectroscopy: Rotation, Magnetic Activity and Lithium. *The effect of stellar activity on the stellar parameters of the young solar twin HIP 36515*. September 2019, São Paulo, Brazil. **Oral presentation.**
- Rynberg Conference on Star-Planet connection: *The effect of stellar activity on the stellar parameters of the young solar twin HIP 36515*. June 2019, Tegernsee, Munich, Germany. **Poster presentation.**
- Precision Spectroscopy: From the First stars to exoplanets. *The effect of stellar activity on the stellar parameters of a young solar twin*. 2018, São Paulo, Brazil. **Oral presentation.**
- UDP Seminars, Núcleo de Astronomía, Universidad Diego Portales; *The effect of stellar activity on the stellar parameters of the young solar twin*. 2018, Santiago, Chile. **Invited to give a talk.**
- Extremely Precise Radial Velocities III: *A new sample for hunting planets around solar twins*. 2017, State College, PA, USA. **Poster presentation.**
- Colloquium Lectures at Instituto Peruano de Geofísica: *Serendipitous discovery of the faint solar twin Inti 1*. 2016, Lima, Peru. **Invited to give a talk.**
- First Peruvian Space Week 2016: *The search for new solar twins, planets and the study of star-planet connection*. 2016, Lima Peru. **Invited to give a talk.**

- First Peruvian School of Astronomy: *Serendipitous discovery of the faint solar twin Inti 1*. 2016, Lima, Peru. **Invited to give a talk.**
- XXXIX Annual Meeting of the Astronomical Society of Brazil: *O descobrimento da gêmea solar Inti 1*. 2015, Ouro Preto, MG, Brazil. **Poster presentation.**
- XXXVIII Annual Meeting of the Astronomical Society of Brazil: *Spectral Classification of Stars and the Temperature Scale of B-A-F-G-K Stars*. 2014, Búzios, RJ, Brazil. **Poster presentation.**

SCIENTIFIC COMMUNITY WORK

- **Outreach & Service.** I co-founded Ask an Astronomer ([link, Spanish](#)), which is a science education and outreach project carried out fortnightly on social media (Instagram and Facebook).
- **Outreach & Service.** Member of *Atendimento Virtual para Escolas* ([link, Portuguese](#)), which is an education programme for disseminating astronomical knowledge in schools. 2017-2020.
- **Public Talks.** James Webb Telescope: The most powerful space telescope. São Paulo Planetarium. October 2021 ([link, Portuguese](#)).
- **Public Talks.** Grandes Telescopios. Viernes Astronómicos. Universidad Nacional Mayor de San Marcos. Peru. April 2020.
- **Public Talks.** Solar twins. Sociedade Astronomica Brasileira. São Paulo, Brazil. 2021 ([link, Portuguese](#)).
- **Press Notes.** Astrónomos peruanos hallan indicios de que un planeta rocoso fue “tragado” por una estrella. El Comercio. October 2021 ([link, Spanish](#)).
- **Press Notes.** Astrónomos peruanos descubren 129 gemelos del Sol. Sophimania: Portal de Ciencia y Tecnología. April 2021 ([link, Spanish](#)).
- **Press Notes.** Astrónomos peruanos descubren 129 gemelos del Sol. El Comercio. April 2021 ([link, Spanish](#)).
- **Press Notes.** Científicos de La Serena y San Juan detectan una estrella singular que servirá para estudiar mejor al Sol. Noticia-Universidad de la Serena. February 2021 ([link, Spanish](#)).
- **Press Notes.** Separadas no berço: brasileiros buscam nossa origem em estrela gêmea do Sol. Universo Online (UOL). February 2021 ([link, Portuguese](#)).
- **Press Notes.** Accidentally Finding a Solar Twin. Astrobites. January 2018 ([link, English](#)).

SCIENTIFIC LEADERSHIP AND TEACHING ACTIVITIES

- **Supervision of Bachelor Student** - *Geovanne de Castro Boscatti, Edllyn de Jesus Silva, and André Assayag*. I created and planned the project: *The search for stellar starspots and flares with TESS*. Mackenzie Presbyterian University, Brazil. 2021-2022.
- **Supervision of Bachelor Student** - *Kayleigh Meneghini*. I created and planned the project: *Likiuma: a new tool for measuring lithium abundances*. Universidade de São Paulo, Brazil. 2021-2022.
- **Supervision of Bachelor Student** - *Aldair Portal*. I created, and planned the project: *Searching for new solar twins using public spectroscopic surveys*. Universidad Nacional Mayor de San Marcos, Peru. 2020-2021.
- **Organizer of the Precision Spectroscopy workshops 2015, 2016, 2017, 2018, 2019, and 2021.** I helped organizing the scientific program and was in charge of the logistics.
- **Teaching Assistant:** *Stellar Atmospheres*. Undergraduate online course. Prof. Teófilo Vargas. Universidad Nacional Mayor de San Marcos. 10/2021 - 01/2022.
- **Teaching Assistant:** *Introduction to Astronomy*. Undergraduate course. Prof. Vera Jatenco. Universidade de São Paulo. 02/2019 - 07/2019 and 02/2020 - 07/2020.
- **Teaching Assistant:** *Stellar Atmospheres*. Undergraduate online course. Prof. Teófilo Vargas. Universidad Nacional Mayor de San Marcos. 07/2019 - 12/2019.
- **Teaching Assistant:** *Fundamental Astronomy*. Undergraduate course. Prof. Augusto Damineli. Universidade de São Paulo. 07/2018 - 12/2018.
- **Teaching Assistant:** *Energy Transport in Astrophysics*. Undergraduate course. Prof. Marcos Peres Diaz. Universidade de São Paulo. 07/2017 - 12/2017.

TELESCOPE EXPERIENCE

Approved Proposals:

I created (60 %), wrote and planned all the proposals listed below. As Brazil is not member of some of the observatories listed below, the proposals were submitted thanks to my collaborators.

- **TESS Space Telescope, USA** (Guest Investigator program):
 - I *Asteroseismology of solar twins with TESS: The Sun as a star.* [Program ID: G022106](#). Sectors: 14-26. **PI: J. Yana Galarza**, 2019.
 - II *Asteroseismology of solar twins with TESS: The Sun as a star.* [Program ID: G011208](#). Sectors: 1-13. **PI: J. Yana Galarza**, 2018.
- **Subaru Observatory, Mauna Kea, USA** (exchange with Gemini):
 - I 8-m Subaru + HDS spectrograph. *Solving the Sun midlife crisis: stellar evolution with NASA/TESS and Subaru/HDS.* **PI: Jorge Meléndez. Co-PI: J. Yana Galarza**, 2020-II (total: 20 h).
- **Gemini Observatory, Mauna Kea, USA:**
 - I 8-m Gemini N. + GRACES. *Solar twins in the Kepler field.* **PI: J. Yana Galarza**, 2020-I (total: 12 h).
 - II 8-m Gemini N. + GRACES. *Solar twins in the Kepler field.* **PI: J. Yana Galarza**, 2018-II (total: 4 h).
 - III 8-m Gemini N. + GRACES. *Faint solar twins.* **PI: J. Yana Galarza**, 2018-I (total: 4.9 h).
- **SOAR Observatory, Cerro Pachon, Chile:**
 - I 4-m + Goodman spectrograph, *solar twin search.* **PI: J. Yana Galarza**, From 2017-I to 2019-II (total: 96 h).
- **Magellan telescopes, Las Campanas, Chile:**
 - I 6.5-m + MIKE spectrograph, *Chemical abundance of solar twins.* **PI: Marcelo Tucci Maia. Co-PI: J. Yana Galarza**, 2019-II (total: 16 h).
 - II 6.5-m + MIKE spectrograph, *Chemical abundance of solar twins.* **PI: Marcelo Tucci Maia. Co-PI: J. Yana Galarza**, 2018-II (total: 16 h).
- **McDonald Observatory, Texas, USA:**
 - I 2.7-m + 2dcoudé, *Chemical abundance of solar twins.* **PI: Ricardo López Valdivia. Co-PI: J. Yana Galarza**, From 2018-I to 2021-II (total: 216 h).
- **Laboratorio Nacional de Astrofísica, Minas Gerais, Brazil:**
 - I 1.6-m telescope + Cassegrain, *Solar twin binaries.* **PI: J. Yana Galarza**, 2019-I, 2020-I (total: 128 h).

Observing experience:

- **Subaru Observatory, Mauna Kea, USA:**
 - I 8-m Subaru + HD, high-resolution spectroscopy, 2020-II. **Total: 20 h.**
- **European Southern Observatory, La Silla, Chile:**
 - I 3.6 m telescope + HARPS, high-resolution spectroscopy, 2019-I. **Total: 20 h.**
 - II Danish 1.54-metre telescope + DFOSC, photometry of galaxies, 2020-I. **Total: 10 h.**
- **Magellan telescopes, Las Campanas, Chile:**
 - I 6.5-m + MIKE, high-resolution spectroscopy, 2018-II. **Total: 10 h.**
- **SOAR Observatory, Cerro Pachon, Chile:**
 - I 4-m + Goodman spectrograph, moderate-resolution spectroscopy, from 2017-I to 2019-II. **Total: 96 h.**
- **McDonald Observatory, Texas, USA:**
 - I 2.7-m + 2dcoudé, high-resolution spectroscopy of solar twins, 2020-II. **Total: 10 h.**
- **Laboratorio Nacional de Astrofísica, Minas Gerais, Brazil:**
 - I 1.6-m telescope + MUSICOS, moderate-resolution spectroscopy. 2016-II, 2017-I, 2019-II. **Total: 200 h**
 - II 1.6-m telescope + Cassegrain, moderate-resolution spectroscopy, 2015-I. **Total: 40 h.**

LIST OF PUBLICATIONS

First author: [6](#). Contributing author: [10](#). Number of citations as first author: [63](#).

ORCID: [0000-0001-9261-8366](#).

ADS library: <https://ui.adsabs.harvard.edu/public-libraries/Q4nwjehfSvyzTCdNb83wXA>.

First author

1. *Evidence of rocky planet engulfment in the wide binary system HIP 71726/HIP 71737*
Yana Galarza J., López-Valdivia R., Meléndez J., Lorenzo-Oliveira D. 2021. [ApJ](#), [arXiv:2109.00679](#). Citations: [1](#)
2. *Searching for new solar twins: The *Inti* survey for the Northern Sky.*
Yana Galarza J., López-Valdivia R., Lorenzo-Oliveira D., et al. 2021. [MNRAS](#), [504](#), 1873–1887. Citations: [2](#)
3. *Explosive nucleosynthesis of a metal-deficient star as the source of a distinct odd-even effect in the solar twin HIP 11915.*
Yana Galarza J., Meléndez J., Karakas A. I., et al. 2021, [MNRAS](#), [502](#), L104–L109. Citations: [4](#)
4. *The effect of stellar activity on the spectroscopic stellar parameters of the young solar twin HIP 36515.*
Yana Galarza J., Meléndez J., et al. 2019, [MNRAS](#), [490](#), L86–L90. Citations: [19](#)
5. *High-precision analysis of the solar twin HIP 100963.*
Yana Galarza J., Meléndez J., Ramírez I., et al. 2016, [A&A](#), [589](#), A17. Citations: [22](#)
6. *Serendipitous discovery of the faint solar twin *Inti* 1.*
Yana Galarza J., Meléndez J., and Cohen J. C. 2016, [A&A](#), [589](#), A65. Citations: [15](#)

Contributing author

7. *Radial velocity precision of ESPRESSO through the analysis of the solar twin HIP 11915*
Yuri Netto., et al. (including Yana Galarza J.) 2021. [ApJ](#), [162](#), 160.
8. *Detecting prolonged activity minima in binary stars. The case of ζ^2 Reticuli*
Flores M., et al. (including Yana Galarza J.) 2021, [A&A](#), [645](#), L6
9. *Rotation of Solar Analogs Crossmatching Kepler and Gaia DR2.*
do Nascimento J. D. J., et al. (including Yana Galarza J.) 2020, [ApJ](#), [898](#), 173
10. *How Magnetic Activity Alters What We Learn from Stellar Spectra.*
Spina L., et al. (including Yana Galarza J.) 2020, [ApJ](#), [895](#), 52
11. *The ancient main-sequence solar proxy HIP 102152 unveils the activity and rotational fate of our Sun.*
Lorenzo-Oliveira D., et al. (including Yana Galarza J.) 2020, [MNRAS](#), [495](#), L61–L65
12. *Constraining the evolution of stellar rotation using solar twins.*
Lorenzo-Oliveira D., et al. (including Yana Galarza J.) 2019, [MNRAS](#), [485](#), L68–L72
13. *The Li-age correlation: the Sun is unusually Li deficient for its age.*
Carlos M., et al. (including Yana Galarza J.) 2019, [MNRAS](#), [485](#), 4052–4059
14. *Thorium in solar twins: implications for habitability in rocky planets.*
Botelho R., et al. (including Yana Galarza J.) 2019, [MNRAS](#), [482](#), 1690–1700
15. *The Solar Twin Planet Search. V. Close-in, low-mass planet candidates and evidence of planet accretion in the solar twin HIP 68468.*
Meléndez J., et al. (including Yana Galarza J.) 2017, [A&A](#), [597](#), A34
16. *Number counts and non-Gaussianity.*
Shandera S., et al. (including Yana Galarza J.) 2013, [PHYSICAL REVIEW](#), [D88](#), 103506