Jhon Yana Galarza

Personal Information

Address:	Av. Professor Mello Morais 1235, AP F-302, São Paulo, Brazil
Telephone:	+55 11 961251130
email:	ramstojh@usp.br
github:	https://github.com/ramstojh

Formal Education/Degree

Current	Ph.D. Candidate in Astronomy, Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo, São Paulo, Brazil Supervisor: Prof. Dr. Jorge Meléndez
April 2016	Master in Astronomy, Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo, São Paulo, Brazil Thesis: *Analysis of the chemical composition of the solar twins HIP 100963, HD 45184 and the discovery of the solar twin Inti 1* Supervisor: Prof. Dr. Jorge Meléndez
May 2013	Licentiate in Physics, Facultad de Ciencias Físicas, Universidad Nacional Mayor de San Marcos, Lima, Perú. Undergraduate thesis: *Number Counts and Non-Gaussianity* Supervisors: Dr. Sarah Shandera and Dr. Teófilo Vargas
December 2012	Bachelor in Physics, Facultad de Ciencias Físicas, Universidad Nacional Mayor de San Marcos, Lima, Perú. Supervisor: Dr. Teófilo Vargas

Languages

Spanish (Native language), Portuguese, and English

Computer skills

Programming languages:	python, IRAF, RStudio, fortran
Operating systems:	Linux, Windows
Codes:	Stellar parameters determinations, Chemical abundance estimations, Automatic Equivalent widths measurements, Spectra normalization techniques

Research Interests

- Galactic Archaeology through solar-type stars and solar twins.
- Connection between the architecture of planetary systems and the stellar chemical composition.
- Exoplanet hunting using radial velocity and transit methods.
- Stellar rotation and magnetic activity.
- Asteroseismology using Kepler/TESS light curves and radial velocities.

List of publications

First author: 5, from which 1 is submitted to MNRAS. *Second author:* 10, from which 1 is in preparation. *Total of citations as first author:* 41. ORCID: https://orcid.org/0000-0001-9261-8366

First author

1. *Searching for new solar twins: The Inti survey for the Northern Sky.*
Yana Galarza J., López-Valdivia R., Lorenzo-Oliveira D., et al. 2020. Submitted to MNRAS.
2. *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., Asplund M., and Lorenzo-OliveiraD. 2020. Accepted for publication in MNRAS.
3. *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: 13
4. *High-precision analysis of the solar twin HIP 100963.*
Yana Galarza J., Meléndez J., Ramírez I., et al. 2016, *A&A*, 589, A17. Citations: 16
5. *Serendipitous discovery of the faint solar twin Inti 1.*
Yana Galarza J., Meléndez J., and Cohen J. C. 2016, *A&A*, 589, A65. Citations: 12

Contributing author

6. *Binary systems as Maunder Minimum states detectors: The first observational candidate ζ^2 Ret.*
Flores M., et al. (including **Yana Galarza J.**) 2020, Accepted for publication in A&A.
7. *TESS lightcurves as an age indicator through solar twins.*
Ponte G., et al. (including **Yana Galarza J.**) 2021, to be submitted $<$ 2 months.
8. *Rotation of Solar Analogs Crossmatching Kepler and Gaia DR2.*
do Nascimento J. D. J, et al. (including **Yana Galarza J.**) 2020, *ApJ*, 898:173.
9. *How Magnetic Activity Alters What We Learn from Stellar Spectra.*
Spina L., et al. (including **Yana Galarza J.**) 2020, *ApJ*, 895:52.
10. *The ancient main-sequence solar proxy HIP 102152 unveils the activity and rotational fate of our Sun.*
Lorenzo-Oliveira D., (including **Yana Galarza J.**) 2020, *MNRAS*, 495, L61–L65.
11. *Constraining the evolution of stellar rotation using solar twins.*
Lorenzo-Oliveira D., (including **Yana Galarza J.**) 2019, *MNRAS*, 485, L68–L72.
12. *The Li–age correlation: the Sun is unusually Li deficient for its age.*
Carlos M., (including **Yana Galarza J.**) 2019, *MNRAS*, 485, 4052–4059.
13. *Thorium in solar twins: implications for habitability in rocky planets.*
Botelho R., (including **Yana Galarza J.**) 2019, *MNRAS*, 482, 1690–1700.
14. *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., (including **Yana Galarza J.**) 2017, *A&A*, 597, A34.
15. *Number counts and non-Gaussianity.*
Shandera S., (including **Yana Galarza J.**) 2013, *PHYSICAL REVIEW*, D 88, 103506.

Scientific Talks

I have delivered more than 10 scientific talks at conferences, workshops and seminars. I was invited to give 4 talks on spectroscopy of high resolution.

- La Silla Observing Summer School: *Characterising Nearby Galaxies with Optical Imaging*. 2020, Santiago, Chile. **Oral presentation.**
- Pulsations Along Stellar Evolution: *Asteroseismology of the binary system 16 Cyg*. 2019, La Plata, Argentina. **Oral Presentation.**
- Workshop de espectroscopia de alta resolução: *Searching for new solar twins: The Inti survey for the Northern Sky*. 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*. 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*. 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.**
- Seminario de la Universidad Diego Portales: *The effect of stellar activity on the stellar parameters of the young solar twin*. 2018, Santiago, Chile. **Oral presentation.**
- Extremely Precise Radial Velocities III: *A new sample for hunting planets around solar twins*. 2017, State College, PA, USA. **Poster presentation.**
- Seminario de Ciencias del Instituto Peruano de Geofísica: *Serendipitous discovery of the faint solar twin Inti 1*. 2016, Lima, Perú. **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 Perú. **Invited to give a talk.**
- First Peruvian School of Astronomy: *Serendipitous discovery of the faint solar twin Inti 1*. 2016, Lima, Perú. **Invited to give a talk.**
- XXXIX Reunião Anual da SAB: *O descobrimento da gêmea solar Inti 1*. 2015, Ouro Preto, MG, Brazil. **Poster presentation.**
- XXXVIII Reunião Anual da SAB: *Spectral Classification of Stars and the Temperature Scale of B-A-F-G-K Stars*. 2014, Búzios, RJ, Brazil. **Poster presentation.**

Honours and awarded Grants

- **IAU, OAD call for COVID-19 related proposals**. $1k as Co-PI of the program *Pregúntale a un Astrónomo*. Science divulgation through Instagram and Facebook. 2020
- **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 Perú**. Equiv $1.5k for attending the First Peruvian Space Week 2016. Lima, Perú.
- **Reserva técnica 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 Leadership and Teaching Activities

- **Supervision of Bachelor Student - Daniel Gamarra**. I created, planned and supervised the project *Searching for new solar twins using public spectroscopic surveys*. Project will be disseminated as a publication. Universidad Nacional Mayor de San Marcos. 2020-2021.
- **Supervision of Bachelor Student - Aldair Portal**. I created, planned and supervised the project *Quilla: a tool for a fast spectroscopic stellar parameter determinations*. Project will be disseminated as a publication. Universidad Nacional Mayor de San Marcos. 2020-2021.
- **Supervision of Bachelor Student - Guilherme de Oliveira**. I helped installing the programs and taught how to estimate spectroscopic stellar parameters. *Project Solar Twins Blue stragglers*. Universidade de São Paulo. 2017.
- **Organizer of the Precision Spectroscopy workshops 2015, 2016, 2017, 2018, and 2019**. I helped organizing the scientific program and was in charge of the logistics.
- **Teaching Assistant: Introdução à astronomia.** Undergraduate course. Prof. Vera Jatenco. Universidade de São Paulo. 2020-I.
- **Teaching Assistant: Atmosferas estelares.** Undergraduate online course. Prof. Teófilo Vargas. Universidad Nacional Mayor de San Marcos. 2019-II.
- **Teaching Assistant: Introdução à astronomia.** Undergraduate course. Prof. Vera Jatenco. Universidade de São Paulo. 2019-I.
- **Teaching Assistant: Fundamentos da astronomia.** Undergraduate course. Prof. Augusto Damineli. Universidade de São Paulo. 2018-II.
- **Teaching Assistant: Transporte de Energia em Astrofísica.** Undergraduate course. Prof. Marcos Peres Diaz. Universidade de São Paulo. 2017-II.

Telescope Experience

Approved Proposals:
I created, wrote and planned all the proposals listed bellow. As Brazil is not member of some of the observatories listed bellow, the proposals were submitted thanks to our collaborators with me as Co-PI.

- **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: 10 h).

- **Gemini Observatory**, Mauna Kea, USA:
    - I 8-m Gemini N. + GRACES spectrograph, *solar twins in the Kepler field*. **PI: J. Yana Galarza**, 2020-I (total: 12 h).
    - II 8-m Gemini N. + GRACES spectrograph, *solar twins in the Kepler field*. **PI: J. Yana Galarza**, 2018-II (total: 4 h).
    - III 8-m Gemini N. + GRACES spectrograph, *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.
- **European Southern Observatory**, La Silla, Chile:
    - I 3.6 m telescope + HARPS, high-resolution spectroscopy, 2019-I.
    - II Danish 1.54-metre telescope + DFOSC, photometry of galaxies, 2020-I.
- **Magellan telescopes**, Las Campanas, Chile:
    - I 6.5-m + MIKE, high-resolution spectroscopy, 2018-II.
- **SOAR Observatory**, Cerro Pachon, Chile:
    - I 4-m + Goodman spectrograph, moderate-resolution spectroscopy, from 2017-I to 2019-II.
- **Laboratorio Nacional de Astrofísica**, Minas Gerais, Brazil:
    - I 1.6-m telescope + MUSICOS, moderate-resolution spectroscopy. 2016-II, 2017-I, 2019-II.
    - II 1.6-m telescope + Cassegrain, moderate-resolution spectroscopy, 2015-I.

References

- **Prof. Dr. Jorge Meléndez**
  Universidade de São Paulo, Brazil
  jorge.melendez@iag.usp.br
- **Prof. Dr. Ivan Ramírez**
  Tacoma Community College, USA
  iramirez@tacomacc.edu