# Heitor Ernandes, Ph.D.


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Gender Male
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## Education

01/11/2022 – 01/11/2025 **Postdoc., Lunds Universitat/Uppsala Universitat** Astronomy.
Research Group lead by Sofia Feltzing
Fellowship from AKW - SELTIC

2018 – 15/09/2022 **Ph.D., Universidade de São Paulo** Astronomy.
Thesis title: *Abundances in field and globular cluster stars of the Galactic bulge.*
Advisor: Beatriz Barbuy
Fellowship from CAPES
(Nominated) CAPES Prize for the best thesis in Physics and Astronomy in 2022

2019 – 2020 **Ph.D., University of Edinburgh** Astronomy.
Thesis title: *Abundances in field and globular cluster stars of the Galactic bulge.*
Advisor: Chris Evans
Fellowship from CAPES

2013 – 2018 **B.Sc. Universidade de São Paulo** in Physics.

## Visiting Scholar

2023 **MIAPbP** - Stellar Astrophysics in the era of Gaia, Spectroscopic, and Asteriseismic surveys

**MIAP-Heidelberg** - Supervisor: Maria Bergemann.
Funding: MIAP

2018 **University of Edinburgh/STFC**,Supervisor: Chris Evans.
Funding: UK-Brazil Global Challenges Research Fund

2017 **ESO-Chile** - Supervisor: Bruno Dias.
Funding: ESO

## Participation in the scientific teams

2022- **Participation in the scientific team of 4MOST**
As part of the 4MIDABLE (S4) Survey

**Participation in the scientific team of the ANDES spectrograph**
Developing the Data Analysis Software in Uppsala

2019- **Participation in the scientific team of the CUBES spectrograph**
Building the stellar astrophysics science case

**Participation in the scientific team of the MOSAIC spectrograph**
Working on the COMPASS simulations for metal-poor stars

## Research Publications

110 citations /h-index = 5 ADS link.
132 citations /h-index = 6 Google Scholar link.

### Journal Articles

1. Barbuy, B., Friaça, A. C. S., Ernandes, H., Moura, T., Masseron, T., Cunha, K., … Razera, R. (2023). Light elements Na and Al in 58 bulge spheroid stars from APOGEE., *526*(2), 2365–2376. doi:10.1093/mnras/stad2888

2. **Ernandes, H.**, Castro, M. J., Barbuy, B., Spite, M., Hill, V., Castilho, B., & Evans, C. J. (2023). Reanalysis of neutron-capture elements in the benchmark r-rich star CS 31082-001. *arXiv e-prints*, arXiv:2306.17627. arXiv: 2306.17627 [astro-ph.SR]

3. Souza, S. O., **Ernandes, Heitor**, Valentini, M., Barbuy, B., Chiappini, C., Pérez-Villegas, A., … Bica, E. (2023). Chrono-chemodynamical analysis of the globular cluster NGC 6355: Looking for the fundamental bricks of the Bulge. *arXiv e-prints*, arXiv:2301.05227. arXiv: 2301.05227 [astro-ph.GA]

4. Evans, C., Cristiani, S., Opitom, C., Cescutti, G., D'Odorico, V., Alcalá, J. M., … Zafar, T. (2022). The CUBES science case. *Experimental Astronomy*. doi:10.1007/s10686-022-09864-7. arXiv: 2208.01677 [astro-ph.IM]

5. Razera, R., Barbuy, B., Moura, T. C., **Ernandes, H.**, Pérez-Villegas, A., Souza, S. O., … Zoccali, M. (2022). Abundance analysis of APOGEE spectra for 58 metal-poor stars from the bulge spheroid. doi:10.1093/mnras/stac2136. arXiv: 2208.06634 [astro-ph.SR]

6. Zanutta, A., Cristiani, S., Atkinson, D., Baldini, V., Balestra, A., Barbuy, B., … Zorba, S. (2022). CUBES phase a design overview. *Experimental Astronomy*. doi:10.1007/s10686-022-09837-w. arXiv: 2203.15352 [astro-ph.IM]

7. **Ernandes, H.**, Barbuy, B., Friaça, A., Hill, V., Spite, M., Spite, F., … Evans, C. J. (2022). Be, V, and Cu in the halo star CS 31082-001 from near-UV spectroscopy., *510*(4), 5362–5375. doi:10.1093/mnras/stab3789. arXiv: 2202.04450 [astro-ph.SR]

8. **Ernandes, H.**, Barbuy, B., Castilho, B., Evans, C. J., & Cescutti, G. (2022). Simulated observations of heavy elements with CUBES. *Experimental Astronomy*. doi:10.1007/s10686-021-09829-2. arXiv: 2203.15693 [astro-ph.IM]

9. Barbuy, B., **Ernandes, H.**, Souza, S. O., Razera, R., Moura, T., Meléndez, J., … Bica, E. (2021). Gemini/Phoenix H-band analysis of the globular cluster AL 3. ***A&A***, *648*, A16. doi:10.1051/0004-6361/202039761. arXiv: 2102.12674 [astro-ph.SR]

10. **Ernandes, H.**, Barbuy, B., Friaça, A. C. S., Hill, V., Zoccali, M., Minniti, D., … Ortolani, S. (2020). Cobalt and copper abundances in 56 Galactic bulge red giants. ***A&A***, *640*, A89. doi:10.1051/0004-6361/202037869. arXiv: 2007.00397 [astro-ph.SR]

11. **Ernandes, H.**, Dias, B., Barbuy, B., Kamann, S., Ortolani, S., Cantelli, E., … Rossi, L. (2019). A MUSE study of the inner bulge globular cluster Terzan 9: a fossil record in the Galaxy. ***A&A***, *632*, A103. doi:10.1051/0004-6361/201936431. arXiv: 1910.09893 [astro-ph.GA]

12. Barbuy, B., Muniz, L., Ortolani, S., **Ernandes, H.**, Dias, B., Saviane, I., … Held, E. V. (2018). High-resolution abundance analysis of four red giants in the globular cluster NGC 6558. ***A&A***, *619*, A178. doi:10.1051/0004-6361/201833953. arXiv: 1810.11703 [astro-ph.SR]

13. **Ernandes, H.**, Barbuy, B., Alves-Brito, A., Friaça, A., Siqueira-Mello, C., & Allen, D. M. (2018). Iron-peak elements Sc, V, Mn, Cu, and Zn in Galactic bulge globular clusters. ***A&A***, *616*, A18. doi:10.1051/0004-6361/201731708. arXiv: 1801.06157 [astro-ph.SR]

14. Barbuy, B., Cantelli, E., Vemado, A., **Ernandes, H.**, Ortolani, S., Saviane, I., … Siqueira-Mello, C. (2016). High-resolution abundance analysis of red giants in the metal-poor bulge globular cluster HP 1. ***A&A***, *591*, A53. doi:10.1051/0004-6361/201628106. arXiv: 1604.02095 [astro-ph.SR]

### Conference Proceedings

1. Cristiani, S., Alcalá, J. M., Alencar, S. H. P., Balashev, S., Bastian, N., Barbuy, B., … Zanutta, A. (2022). CUBES: the Cassegrain U-band Efficient Spectrograph. In C. J. Evans, J. J. Bryant, & K. Motohara (Eds.), *Ground-based and airborne instrumentation for astronomy ix* (Vol. 12184, 121840A). doi:10.1117/12.2629990. arXiv: 2208.01672 [astro-ph.IM]

2. **Ernandes, H.**, Evans, C. J., Barbuy, B., Castilho, B., Cescutti, G., Christlieb, N., … Smiljanic, R. (2020). Stellar astrophysics in the near-UV with VLT-CUBES. In *Society of photo-optical instrumentation engineers **(SPIE)** conference series* (Vol. 11447, p. 1144760). doi:10.1117/12.2562497. arXiv: 2102.02205 [astro-ph.IM]

3. **Ernandes, H.**, Dias, B., Barbuy, B., Kamann, S., Ortolani, S., Rossi, L., … Bica, E. (2018). A MUSE study of the inner bulge globular cluster Terzan 9 : a fossil record in the Galaxy. In *The galactic bulge at the crossroads* (p. 62). doi:10.5281/zenodo.2651064

## Fellowships

2018 – 2022 **Ph.D., Universidade de São Paulo** CAPES.
Thesis title: *Abundances in field and globular cluster stars of the Galactic bulge.*
Advisor: Beatriz Barbuy

2019 – 2020 **Sandwich Ph.D., University of Edinburgh** PRINT-CAPES.
Thesis title: *Abundances in field and globular cluster stars of the Galactic bulge.*
Advisor: Chris Evans

2014 – 2017 **Undergraduate research project** PIBIC.
*Abundância de elementos do pico do ferro em aglomerados globulares.*
Advisor: Beatriz Barbuy

## Activities

2023 - **Outreach in The open nights at Lund Observatory**

2022 - **Group seminars** (Organizer-Chair)

## Congress, meeting, and workshops

2023 **Seminar in Stockholm University-"The Bright Future of the Ground-Based Near-UV Spectroscopy for r-rich stars"** (Invited Speaker)

**Workshop: The Milky Way as seen through Neutron-Capture Elements** (Invited Speaker)

**MIAPbP on Stellar Astrophysics in the era of Gaia, Spectroscopic, and Asteriseismic surveys** (Congress)

**Congress: EAS 2023** (Congress)

**IAUS 379 Dynamical Masses of Local Group Galaxies** (Congress)

2021 **Workshop on the Future of MOS Technologies** (Workshop)

## Congress, meeting, and workshops (continued)

2020 **JWST-UFRGS** (School)

**Pristine Meeting.Pristine Meeting** (Meeting)
Presenting: CUBES and MOSAIC simulations

2018 **Dark Matter and Neutrinos** (School)

**IAU XXX** (Congress)

**The Galactic Bulge at the crossroads.** (Congress)
Presenting: Terzan 9 a MUSE analysis

2016 **Internation Coloquium ASSOS** (Workshop)

**Congress of Physics Paulo Leal** (Congress)

**School of Spectroscopy in Astrophysics and Laboratory Plasmas** (School)