

# M. L. L. DANTAS

## PhD in Astrophysics

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## Post-doctoral Experience

Post-doctoral Researcher

**Nicolaus Copernicus Astronomical Center (CAMK)**

Mar. 2021 – ongoing

Warsaw, Poland

## Education

PhD Astrophysics

**Institute of Astronomy, Geophysics, and Atmospheric Sciences  
University of Sao Paulo (IAG-USP)**

Dec. 2015 – Sep. 2020

São Paulo, Brazil

Title: UV bright red-sequence galaxies: a comparative study between UV upturn and UV weak systems

Supervisor: Prof. Paula R. T. Coelho

Internship

**Autonomous University of Madrid**

Sep. 2018 – Mar. 2019

Madrid, Spain

Six-month internship during PhD. Co-supervisor: Prof. Patricia Sánchez-Blázquez

MSc Astrophysics

**IAG-USP**

2013–2015

São Paulo, Brazil

Advisor: Prof. Laerte Sodré Jr.

BSc Physics

**Institute of Physics – University of Sao Paulo (IF-USP)**

2007–2011

São Paulo, Brazil

## Funding

Period	Total stipend	Funding agency	Duration
Postdoc	240,000 PLN	National Science Centre (NCN), Poland.	2yr
PhD	180,000 BRL	Coordination for the Improvement of Higher Education Personnel (CAPES) & National Council for Scientific and Technological Development (CNPq), Brazil.	4yr 10m
MSc	35,600 BRL	CAPES & CNPq, Brazil.	2yr
	3,600 BRL	CNPq – Scientific Initiation	1yr
BSc	3,600 BRL	CNPq – Outreach project	1yr
	6,000 BRL	IF-USP – Computer lab tutor	1yr

## Events: member of local and/or scientific organising committee

III International Workshop on Spectral Stellar Libraries (IWSSL) – **LOC**

2017

Campos do Jordão, Brazil

II IAG Python Boot Camp – **LOC & SOC**

2017

São Paulo, Brazil

I IAG Python Boot Camp – **LOC & SOC**

2015

São Paulo, Brazil

Journal Club – **Weekly seminar lead by graduate students at IAG-USP**

2013–2016

São Paulo, Brazil

## General Info

Date of birth: Aug. 20, 1986  
Place of birth: Brasília, Brazil  
Citizenship: Brazilian

## Ad hoc journal reviewer

The Astrophysical Journal (since 2021)

## Examination board member

Scientific Initiation Symposium

**IAG-USP**

2017

São Paulo, Brazil

Prize for best PhD and MSc theses

**IAG-USP**

2017

São Paulo, Brazil

## Supervising experience

Student: Klaudia Kowalczyk

Summer project at CAMK for undergrad students (1 month)

July 2021

Warsaw, Poland

## Research interests

Resolved and unresolved stellar populations

The Milky Way Galactic archaeology

Galaxy evolution Emission-lines AGN

SED fitting Astrostatistics

## Languages

English ●●●●●  
Portuguese ●●●●●  
French ●●●●●  
Spanish ●●●●●  
German ●●●●●  
Polish ●●●●●

## Programming

python R julia  $\LaTeX$  SQL git github

## Astronomical software skills

STARLIGHT pPXF topcat galpy

## 📌 Selected presentations

### XXXI IAU General Assembly

#### Contributed talk

📅 2022 📍 Busan, South Korea

*Old super-metal rich stars in the solar vicinity: from where did they come?*

### Centre for Astrophysics and Gravitation (CENTRA)

#### Invited seminar

📅 2022 📍 University of Lisbon, Lisbon, Portugal

*A tale of old super metal-rich stars*

### 5th Workshop of the Network for Ultraviolet Astronomy

#### Contributed talk

📅 2020 📍 on-line event

*Assessing the evolution of the UV upturn*

### XLI Brazilian Astronomical Society Meeting

#### Contributed talk

📅 2017 📍 São Paulo, Brazil

*Is the cluster environment quenching the Seyfert activity in elliptical and spiral galaxies?*

### University Week

#### Invited seminar

📅 2017 📍 Universidade de Brasília (UnB), Brasília, Brazil

*Two Years of Astrostatistics: My Experience as an Astrophysicist*

## ✈ Visiting researcher

### University of North Carolina

(Partially funded by the host institute)

**Host: Prof. Rafael S. de Souza**

📅 Nov. 2017 📍 Chapel Hill, NC, USA

### Eötvös Loránd University

(Partially funded by the host institute)

**Host: Prof. Rafael S. de Souza**

📅 Sep. 2016 📍 Budapest, Hungary

### Institut d'Astrophysique de Paris

(Partially funded by the host institute)

**Host: Prof. Stéphane Charlot**

📅 Sep. 2016 📍 Paris, France

## 🏢 Other professional experiences

### Freelance Physics school content creator

**Oxford University Press & Grupo SM**

📅 2015 📍 São Paulo, Brazil

### Project trainee/analyst in finance

**Luz Engenharia Financeira**

📅 2011–2012 📍 São Paulo, Brazil

Financial trainee (2011) and analyst (2011–2012).

## 📊 Presentation statistics

Type of presentation	Number
Invited seminars	2
Contributed talks	6
Poster presentations	9
Tutorials	1
Internal talks	6+
Chaired sessions	2

## 📈 Scholar indices

h-index (ADS):	6
i10-index (ADS):	6
Citations (ADS):	468

## 🔗 Member of:

- The International Astrostatistics Association (IAA);
- The Cosmostatistics Initiative (COIN);
- The Javalambre Physics of the Accelerating Universe (J-PAS);
- The Javalambre and Southern Photometric Local Universe Surveys (J-PLUS and S-PLUS);
- The Gaia-ESO Survey.

## 📖 Teaching experience

### Teaching assistant (at IAG-USP):

- 2014 – Galactic & Extragalactic Astrophysics
- 2014 – Astronomy Topics for Undergraduate Students with Major in Pedagogy
- 2010 – Astronomy Topics for Geophysicists
- 2010 – Position Astronomy
- 2009 – Introduction to Astronomy

### School teaching experience:

- 2007–2018 – Private tutor – Sao Paulo, Brazil
- 2015 – Substitute teacher at the Bradesco Foundation – Osasco, Brazil

## 👤 Referees

### Prof. Paula Coelho

@ pcoelho@usp.br

✉ Astronomy Dept., IAG-USP – Sao Paulo, SP, Brazil

### Prof. Rodolfo Smiljanic

@ rsmiljanic@camk.edu.pl

✉ Nicolaus Copernicus Astronomical Center (CAMK), Warsaw, Poland

### Prof. Rafael S. de Souza

@ drsouza@shao.ac.cn

✉ Shanghai Astronomical Observatory – Shanghai, China

### Prof. Alberto Krone Martins

@ algol@uci.edu

✉ Donald Bren School of Information and Computer Sciences University of California – Irvine, CA, USA

ADS link: <https://ui.adsabs.harvard.edu/public-libraries/CjIt6Yx0Tm-uFdWee1gI0g>

## Major contribution

- [1] **M. L. L. Dantas**, G. Guiglion, R. Smiljanic, et al. "The Gaia-ESO Survey: probing the lithium abundances in old metal-rich dwarf stars in the Solar vicinity". In: (2022). **A&A Letters submitted**.
- [2] **M. L. L. Dantas**, R. Smiljanic, R. Boesso, et al. "The Gaia-ESO Survey: old super metal-rich visitors from the inner Galaxy". In: (2022). **In review – A&A submitted**.
- [3] **M. L. L. Dantas**, P. R. T. Coelho, and P. Sánchez-Blázquez. "UV upturn versus UV weak galaxies: differences and similarities of their stellar populations unveiled by a de-biased sample". In: *MNRAS* 500.2 (Jan. 2021), pp. 1870–1883. DOI: 10.1093/mnras/staa3447.
- [4] **M. L. L. Dantas**, P. R. T. Coelho, R. S. de Souza, and T. S. Gonçalves. "UV bright red-sequence galaxies: how do UV upturn systems evolve in redshift and stellar mass?" In: *MNRAS* 492.2 (Feb. 2020), pp. 2996–3011. ISSN: 0035-8711. DOI: 10.1093/mnras/stz3609.
- [5] R. S. de Souza, **M. L. L. Dantas**, M. V. Costa-Duarte, et al. "A probabilistic approach to emission-line galaxy classification". In: *MNRAS* 472.3 (Dec. 2017), pp. 2808–2822. DOI: 10.1093/mnras/stx2156.
- [6] R. S. de Souza, **M. L. L. Dantas**, A. Krone-Martins, et al. "Is the cluster environment quenching the Seyfert activity in elliptical and spiral galaxies?" In: *MNRAS* 461.2 (Sept. 2016), pp. 2115–2125. DOI: 10.1093/mnras/stw1459.

## Moderate contribution

- [7] P. P. B. Beaklini, A. V. C. Quadros, M. G. B. de Avellar, **M. L. L. Dantas**, and A. L. F. Cançado. "AGN dichotomy beyond radio loudness: a Gaussian mixture model analysis". In: *MNRAS* 497.2 (Sept. 2020), pp. 1463–1474. DOI: 10.1093/mnras/staa2072.
- [8] J. P. Nogueira-Cavalcante, R. Dupke, P. Coelho, **M. L. L. Dantas**, et al. "J-PLUS: Impact of bars on quenching timescales in nearby green valley disc galaxies". In: *A&A* 630, A88 (Oct. 2019), A88. DOI: 10.1051/0004-6361/201935138.

## Minor contribution

- [9] G. Gilmore, S. Randich, C. C. Worley, A. Hourihane, A. Gonneau, G. G. Sacco, J. R. Lewis, L. Magrini, (...), **M. L. L. Dantas**, and et al. "The Gaia-ESO Public Spectroscopic Survey: motivation, implementation, GIRAFFE data processing, analysis, final data products". In: (Aug. 2022). **A&A accepted**. DOI: 10.1051/0004-6361/202243134. arXiv: 2208.05432 [astro-ph.SR].
- [10] E. V. R. Lima, Jr. Sodr e L., C. R. Bom, G. S. M. Teixeira, L. Nakazono, M. L. Buzzo, C. Queiroz, F. R. Herpich, J. L. Nilo Castell n, **M. L. L. Dantas**, et al. "Photometric redshifts for the S-PLUS Survey: is machine learning up to the task?" In: *Astronomy and Computing* (Jan. 2022), p. 100510. ISSN: 2213-1337. DOI: 10.1016/j.ascom.2021.100510.
- [11] S. Nepal, G. Guiglion, R. de Jong, M. Valentini, C. Chiappini, M. Steinmetz, M. Ambrosch, E. Pancino, R. Jeffries, T. Bensby, D. Romano, R. Smiljanic, **M. L. L. Dantas**, et al. "The Gaia-ESO Survey: Preparing the ground for 4MOST & WEAVE galactic surveys – Chemical Evolution of Lithium with Machine-Learning". In: (Aug. 2022). **A&A submitted**. arXiv: 2208.08874 [astro-ph.GA].
- [12] S. Randich, G. Gilmore, L. Magrini, G. G. Sacco, R. J. Jackson, R. D. Je, C. C. Worley, A. Hourihane, (...), **M. L. L. Dantas**, et al. "The Gaia-ESO Public Spectroscopic Survey: Implementation, data products, open cluster survey, science, and legacy". In: (June 2022). **A&A accepted**. arXiv: 2206.02901 [astro-ph.GA].
- [13] S. Bonoli, A. Mar n-Franch, J. Varela, H. V zquez-Rami o, L. R. Abramo, A. J. Cenarro, R. A. Dupke, (...), **M. L. L. Dantas**, et al. "The miniJPAS survey: A preview of the Universe in 56 colors". In: *A&A* 653, A31 (Sept. 2021), A31. DOI: 10.1051/0004-6361/202038841.
- [14] M. V. Costa-Duarte, L. Sampedro, A. Molino, H. S. Xavier, F. R. Herpich, A. L. Chies-Santos, C. E. Barbosa, A. Cortesi, W. Schoenell, A. Kanaan, T. Ribeiro, C. Mendes de Oliveira, S. Akras, A. Alvarez-Candal, C. L. Barbosa, J. L. N. Castell n, P. Coelho, **M. L. L. Dantas**, et al. "The S-PLUS: a star/galaxy classification based on a Machine Learning approach". In: (Sept. 2019). **Pre-print**. arXiv: 1909.08626.
- [15] C. Mendes de Oliveira, T. Ribeiro, W. Schoenell, A. Kanaan, R. A. Overzier, A. Molino, L. Sampedro, P. Coelho, (...), R. Cid Fernandes, **M. L. L. Dantas**, et al. "The Southern Photometric Local Universe Survey (S-PLUS): improved SEDs, morphologies, and redshifts with 12 optical filters". In: *MNRAS* 489.1 (Oct. 2019), pp. 241–267. DOI: 10.1093/mnras/stz1985.
- [16] N. Benitez, R. Dupke, M. Moles, L. Sodre, Cenarro, ..., M. V. Costa-Duarte, A. A. da Costa, (...), **M. L. L. Dantas**, et al. "J-PAS: The Javalambre-Physics of the Accelerated Universe Astrophysical Survey". In: *arXiv e-prints* (Mar. 2014). **Pre-print**. arXiv: 1403.5237.

## Proceedings

- [17] L. J. Zenocratti, M. E. De Rossi, A. V. Smith Castelli, F. R. Faifer, **M. L. L. Dantas**, and L. Sodr e. "Synthetic S-PLUS photometry of simulated galaxies in Fornax-like clusters". In: *Bolet n de la Asociaci n Argentina de Astronom a La Plata Argentina* 63 (July 2022), pp. 205–207.
- [18] A. V. Smith Castelli, C. Mendes de Oliveira, F. Herpich, C. E. Barbosa, C. Escudero, M. Grossi, L. Sodr e, C. R. de Bom, L. Zenocratti, M. E. De Rossi, A. Cortesi, R. Cid Fernandes, A. R. Lopes, E. Telles, G. B. Oliveira Schwarz, **M. L. L. Dantas**, et al. "The Fornax Cluster through S-PLUS". In: *Bolet n de la Asociaci n Argentina de Astronom a La Plata Argentina* 62 (July 2021). **Peer-reviewed proceedings**, pp. 180–182.
- [19] Vinicius Branco, Paula R T Coelho, Ana Chies Santos, and **Maria Luiza L. Dantas**. "Synthetic photometry for J-PLUS and S-PLUS and the multiple populations in globular clusters". In: *Boletim da Sociedade Astron mica Brasileira* 30.1 (2018), pp. 156–157.

## Other

- [20] Michele Delli Veneri, Rafael S. de Souza, Alberto Krone-Martins, E. E. O. Ishida, **M. L. L. Dantas**, and Noble Kennamer. "How Have Astronomers Cited Other Fields in the Last Decade?" In: *Research Notes of the AAS* 6.6 (June 2022), p. 113. DOI: 10.3847/2515-5172/ac74c7.
- [21] **M. L. L. Dantas**, E. Cameron, Rafael S. de Souza, et al. "Women in academia: a warning on selection bias in gender studies from the astronomical perspective". In: (Dec. 2020). arXiv: 2012.09784 [physics.soc-ph].
- [22] William J Ripple, Christopher Wolf, Thomas M Newsome, Phoebe Barnard, William R Moomaw, and **11,258 SCIENTIST SIGNATORIES FROM 153 COUNTRIES**. "World Scientists' Warning of a Climate Emergency". In: *BioScience* (Nov. 2019). **M. L. L. Dantas is a co-signatory**. ISSN: 0006-3568. DOI: 10.1093/biosci/biz088.