João P. Faria

Contact

Address	University of Geneva, Department of Astronomy
	Chemin Pegasi 51b, 1290, Versoix, Switzerland
Phone	+41 22 379 22 76
email	joao.faria@unige.ch

Online

Website	joaofaria.space
github	github.com/j-faria
Orcid	0000-0002-6728-244X

Research Interests

Exoplanet detection and characterization in radial-velocity data; modelling and correction of the effects of stellar activity in radial velocities and photometry; spectroscopic analysis; properties of exoplanet populations; constraints on planet formation and evolution; optimal scheduling of observations; Bayesian inference, probabilistic data analysis, statistical methods, Gaussian processes.

Academic background

Jan 2018	**Ph.D. in Astronomy**	**University of Porto**
	Advisors: Nuno C. Santos and Pedro Figueira	FCT grant SFRH/BD/93848/2013
	Dissertation: "Exoplanet detection in metal-poor stars"	
Jul 2013	**M.Sc. in Astronomy**	**University of Porto**
	Advisors: Mário J. P. F. G. Monteiro and Margarida S. Cunha	
	Dissertation: "Asteroseimology of 16 Cyg A and B"	
Jul 2011	**B.Sc. in Physics**	**University of Lisbon**

Research Experience

2023 - present	Research & Teaching Fellow
	Department of Astronomy, University of Geneva, Switzerland
2018 - 2023	Post-doctoral Researcher
	Institute of Astrophysics and Space Sciences, Porto, Portugal

Publications

Full list in ADS **101** refereed papers. **3640** citations
7 first-author papers. **295** citations

Selected first-author publications

Faria, **J. P.** et al. (2025), *in press*
  Inferring Planet Occurrence Rates from Radial Velocities.
Faria, **J. P.** et al. (2022), *A&A* 658, A115
  A Candidate Short-Period Sub-Earth Orbiting Proxima Centauri.
Faria, **J. P.** et al. (2018), *JOSS* 3.26, 487
  kima: Exoplanet detection in radial velocities.
Faria, **J. P.** et al. (2016), *A&A* 589, A25
  The HARPS search for southern extra-solar planets. XL. Searching for Neptunes around metal-poor stars.
Faria, **J. P.** et al. (2016), *A&A* 588, A31
  Uncovering the planets and stellar activity of CoRoT-7 using only radial velocities.

Teaching Experience

2019, 2021, 2023	**Exoplanets: Detection, Characterization, Population** *Doctoral Program in Astronomy, University of Porto* Course for first-year PhD students; 15h of lectures
July 17-27, 2016	**Detecting Planetary Transits and Radial-Velocity Signals** *IVth Azores International Advanced School in Space Sciences* 4.5hrs tutorial in the Summer school "Asteroseismology and Exoplanets: Listening to the Stars and Searching for New Worlds" covering data analysis methods for the detection of exoplanets in transit lightcurves and radial-velocity datasets. DOI: 10.1007/978-3-319-59315-9
February, 2016	**Bayesian Statistics** *Advanced Course, Institute of Astrophysics and Space Sciences* Created and lectured a course about Bayesian statistics, composed of a seminar talk (2h) and two hands-on computational classes (6h). Lecture notes are also available. Online repository.
November, 2015	**Python for Astronomers** *Advanced Course, Center for Astrophysics University of Porto* Teaching assistant for introductory programming classes. Online repository.
Aug 31 - Sep 4, 2015	**Escola de Verão de Física (Physics Summer School)** *Summer School, Faculty of Sciences, University of Porto* Supervised and lectured a project about "The energy of stars" for a class of 5 high-school students.
March 26-28, 2014	**Stellar evolution models with the MESA code** *Advanced Course, Center for Astrophysics University of Porto* Developed and coordinated a series of three hands-on tutorial classes demonstrating the use of the MESA stellar evolution code (Paxton et al. 2011; 2013).

Other research outcomes

- PoET Science Team and ESPRESSO Science Team: Working Group leader
- PI of FCT exploratory project (EXPL/FIS-AST/0615/2021, SAM); awarded 45 k€
- PI of cooperation project FCT-DAAD (Porto-Göttingen); awarded 2000€
- PI of **4** ESO observing proposals (ESPRESSO @ VLT), co-I of **20** accepted ESO/OPTICON observing proposals
- co-I of **2** accepted ISSI International Team proposals
- member of the PLATO Work Package 115100, dealing with *Astrophysical Noise Sources*
- observing experience from several missions to the La Silla and Paranal observatories
- referee for A&A, MNRAS, ApJ, and AJ

Supervision

- Ph.D. (co-supervisor): Eduardo Gonçalves
  "Leveraging Sun-as-a-star high-resolution spectra [...]"

- Ph.D. (co-supervisor): João D. Camacho
  "Statistical Analysis for the Detection of Other Earths"

- M.Sc.-level fellowship: João Gomes da Silva
  new activity indicators; development of ACTIN

- M.Sc.: João D. Camacho
  "Gaussian processes [... for ...] exoplanet search"

- Undergraduate projects: Isham Mishra, Ana Barboza, Paul Charpentier, Sofia Iñiguez, among others

Scientific software

- kima: Exoplanet detection in RVs with DNest4 and GPs, described in Faria et al. (2018)
- arvi: Tools to download and analyse RV data
- iCCF: Tools for analysis of CCFs and activity indicators
- BGLS: Bayesian version of the Generalized Lomb-Scargle periodogram, described in Mortier et al. (2015)
- kumaraswamy and loguniform: Implementation of common probability distributions

TALKS / POSTERS

Invited

Stellar challenges in exoplanet search. *Spectral Fidelity*
— Florence, Italy, 4-8 Sep 2023

Revealing new worlds with precise radial velocities. *TOE 3: The Planet-Star connection*
— Porto, Portugal, Jul 17-21, 2023

Detecting the closest Earth-mass planets with ESPRESSO. *The Alpha Centauri System*
— Nice, France. 26-30 Jun 2023

Statistical Methods for Estimating Radial Velocities in the Presence of Stellar Activity. *EPRV IV*
— Grindelwald, Switzerland. Mar 17-21, 2019

Dealing with stellar activity in radial velocities. *EXO.AR 1 – 1st Argentinian Workshop on Exoplanets*
— Buenos Aires, Argentina. Oct 30 - Nov 2, 2017

Gaussian processes for the analysis of RV data. *EPRV III*
— State College, USA, Aug 14-17, 2017

Contributed (abridged list; T: talk, P: poster, S: splinter session)

T Probing the Correlation Between Outer Giant Planets and Inner Sub-Neptunes. *51 Peg b*, OHP. 7 Oct, 2025

S Gaussian processes and deep learning for stellar activity mitigation. EPRV 6. Porto, 1 Jul 2025

T A principled Bayesian workflow for planet detection. *EPRV V*, Santa Barbara, CA, USA. 27-30 Mar, 2023

T Exoplanet detection in radial velocities with kima. *EMAC Workshop*, Online. 9 Feb, 2023

T Searching for low-mass planets around metal-poor stars. *EPRV IV*, Grindelwald. 21 Mar, 2019

T Realistic simulation of stellar radial velocities. *Observing the Sun as a Star*, Göttingen. 13 Sep, 2018

T Power of Gaussian processes as stellar activity models. *CHEOPS 5th Science Workshop*. Leibnitz. 24 Jul, 2017

T Searching for planets around metal-poor stars. *IA Seminar*. Porto. 24 May, 2017

T Trans-dimensional Bayesian inference. *ESO MCMC coffee*. Santiago. 30 Mar, 2017

T Detecting planets around active stars with RV observations. *ESO seminar*. Santiago. 30 Mar, 2017

T Searching for low-mass planets around metal-poor stars. *INAF/OAT*. Torino. 20 Oct, 2016

P The search for low-mass planets around metal-poor stars. *4th Annual GMT Community Science Meeting*. Pacific Grove, CA, USA. 26-28 Sep, 2016

P CoRoT-7 as seen with HARPS radial velocities. *Exoplanets I*. Davos, Switzerland. 3-8 Jul, 2016

P A radial velocity search for low mass planets around metal-poor stars: first statistical results. *EPRV II*. Yale University, USA. 5-8 Jul, 2015

T The interesting case of HD41248: stellar activity, no planets?. *TOE II - The Star-Planet Connection*, Porto. 16 Sep, 2014