Elyar **Sedaghati**

ESO Faculty/Staff Astronomer

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Education

DLR & ESO (German Space Agency, European Southern Observatory)

Berlin, Germany & Santiago, Chile

PhD in Astronomy & Astrophysics

Oct. 2014 - Jun. 2017

- Thesis: Exploring Alien Skies: Detection & Characterisation of Exoplanetary Atmospheres with Groundbased Transmission Spectroscopy
- Defence: 30. Jun. 2017. Summa Cum Laude
- Advisors: Prof. Heike Rauer (DLR) & Dr. Henri Boffin (ESO)
- Publication Record: 3 first-author publications in peer-reviewed journals.

Freie Universität Berlin

Berlin, Germany

Master's in Physics & Astronomy

2012 - 2014

- Thesis: 1-year research project of exoplanet transmission spectroscopy with FORS2/VLT. Grade 1.0
- Grade: 120 ECTS (European Credit Transfer System) credits. Overall grade 1.5 (Scale 1.0 to 5.0)

Clare College, Cambridge University

Cambridge, United Kingdom

Master's of Arts, Natural Sciences

2008

- Awarded automatically to all graduates of Cambridge University.

Clare College, Cambridge University

Cambridge, United Kingdom

Bachelor's of Arts, Natural Sciences

2001 - 2004

- 1st year: Physics Ia, Mathematics Ia, Computer software, Computer hardware
- 2nd year: Physics Ib, Advanced Physics II, Mathematics Ib.
- 3rd year: Part II Astrononmy at the IoA.

Vocational Experience

European Southern Observatory

Santiago, Chile

Faculty Staff Astronomer

Jul. 2022

- VLT support astronomer (UT1 & UT2)
- FORS2 Instrument Scientist
- ESPRESSO Instrument Scientist (#2)
- ELT-ANDES contact point (future instrument scientist)
- Chair of the ESO-ALMA colloquium team

Universidad Adolfo Ibáñez – Instituto Milenio de Astrofísica

Santiago, Chile

Post-doctoral Research Fellow

Sep. 2021 - Jul. 2022

- Membership of ACCESS collaboration, exoplanet transmission spectroscopy survey.

Instituto de Astrofísica de Andalucía

Granada, Spain

Post-doctoral Research Fellow

Oct. 2020 - Sep. 2021

- CARMENES consortium, atmospheric working group.
- ELT-ANDES Scientific Technical Committee (was offered to lead the group at IAA).

European Southern Observatory

Santiago, Chile

VLT support astronomer (UT1 & UT3), Post-doctoral Fellow

Aug. 2017 - Oct. 2020

- Support astronomer for UT1 & UT3 at Paranal observatory.
- Operational certifications for FORS2, KMOS, NACO, ESPRESSO, SPHERE instruments.
- Instrument fellow for FORS2 & ESPRESSO instruments, with training certification.

Internationale Schule Frankfurt Rhein–Main

Frankfurt am Main, Germany

Head of Science Department

2006 - 2012

- Head of science department responsible for some 10 teachers in the upper school.
- Teacher of Physics and Mathematics at the school.

CVC Capital Partners

London, United Kingdom

Financial risk analyst at the proprietary desk

2004 - 2006

- Management of financial accounts and risk assessment for a variety of financial portfolios.

Professional Skills

Research interests	Exoplanet atmospheres [observations & modelling], Low-resolution multi-object spectrophotometry, High-resolution spectroscopy, non-LTE, non-/equilibrium chemistry, 1D/2D/3D atmosphere models, Atmospheric retrieval algorithms for low & high resolution spectra, Planet formation theories through observations of the Rossiter-McLaughlin effect, Telluric correction of high resolution spectra. Astronomical instrumentation, Exoplanet demographics and phase space densities.
Programming Languages	Python [preferred], bash, html/css, IDL [basic], JavaScript [basic]
Data handling/reduction	IRAF, PyRAF, Esoreflex/Esorex, Gasgano, Skycat, FIMS, Molecfit, PySQL, ADQL
Web interface & misc.	HTML/CSS, Django with Python, LaTeX
Analysis techniques	Bayesian inference with MCMC & Nested Sampling, Machine Learning, Gaussian Processes, Cross Correlation analysis
Python interests	Multi-threading, multi-processing, GPU acceleration, vectorization, OOP
Python modules	ARoMEpy: theoretical Rossiter-McLaughlin effect translated from a C library and added orbital functions **Github repository**

Scientific Activities

Student supervision at ESO

- **2-year ESO studentship (2024-2026)**: Scarlett Royle PhD student University of Liverpool, UK (primary supervisor)
- **1-year ESO studentship (2023-2024)**: Bibiana Prinoth PhD student Lund University, Sweden (primary supervisor)
- **1-year ESO studentship (2019-2020)**: Dr. Mathis Houlle PhD student, Marseille, France (Fellow mentor)
- **SSDF 4-month studentship (2023-2024)**: Joana Wokittel, AIP, Germany. Project analysing ESPRESSO exoplanet transits, testing planet formation theories
- **SSDF 3-month studentship (2023)**: Cathal Maguire PhD student Trinity College Dublin, Ireland. Project on testing impacts of different telluric correction methods on retrieval of exoplanetary atmospheres from high resolution spectroscopy.
- **Paranal internship (2024)**: Larissa Antunes, PSO short-term internship working on Short-Term Scheduling Simulations IOT project
- **Paranal internship (2023)**: Bruno Medina, Universidad Catolica de Chile, correlated noise analysis of ESPRESSO spectra.
- **Paranal internship (2019-2020)**: Yared Reinarz, Universidad Católica del Norte. ESPRESSO QC0 GUI and TCCD analysis.
- **OfS 2-month internship (2023)**: Alonso Guerrero, universidad de Valparaíso working on neural network detection of exo-rings.
- **OfS 2-month internship (2017)**: Catalina Zamora, Universidad de Valparaíso.
- **PhD first-year thesis supervisor (2024)**: Pascal Torres, Universidad Catolica de Chile, Doppler tomography in an MCMC framework
- **Master's thesis supervisor (2023-2024)**: Pascal Torres, Universidad Catolica de Chile, Doppler tomography of exoplanetary transits
- **Master's project supervisor (2017)**: Quentin Duchaufour, Marseille, France.
- **Bachelor's thesis project supervisor (2020)**: Bastian Olivares, Universidad Católica del Norte, exoplanet transmission spectroscopy with HARPS.
- **3-month ESO studenship (2023-2024)**: Jiri Zak, ESO Garching, exoplanet transit analysis of the Rossiter McLaughlin effect.
- **3-month ESO Scientific visitor (2018)**: Dr. Raissa Estrela PhD student from Universidade Presbiteriana Mackenzie (JPL research scientist)

Teaching

- **La Silla Observing School Tutor (2024)** one of 4 supervisors for the 2 week biannual school.
- **Lecture series Univerisdad Católica del Norte (2021)**, Exoplanet transit modelling, Bayesian statistics & Gaussian Processes
- **Electivo Universidad Antofagasta (2019)**: exoplanet atmospheres for the Exoplanets Masters course; ref. Dr. Karla Peña Ramírez.
- **Molecfit Lecture (2021)** ESO Atmos2021 on telluric correction of high resolution spectra; Youtube
- **Transmission Spectroscopy Lecture (2021)** ESO Atmos2021 spectrophotometric transmission spectroscopy; Youtube
- **Lecture (2024)** ESO Friday lecture series on modeling correlated noise with GPs, Bayesian analysis and MCMC methods. Link
- **Lecture (2019)** Univerisdad Andrés Bello on spectrographs and spectroscopy; ref. Prof. Dante Minniti.
- **Lectures (2017-2021)** ESO python coffee series.

Science activities at ESO Vitacura

- **Fellow selection committee (2024-2025)**
- **TMT (2024)** Challenging planet formation theories from RM measurements using ESPRESSO
- **Visiting scientist selection committee (2023-2024)**
- **ESO-ALMA colloquia (2023-2024)** Chair of the organizing team
- **TMT (2023)** Orbital alignment of an eccentric war-Jupiter
- **TMT (2021)** Deciphering exoplanetary atmospheres with ESPRESSO high dispersion spectroscopy
- **Python coffee (2017-2020)** organizing team
- **TMT (2019)** Exoplanetary atmospheres from the ground
- **TMT (2017)** Metalic skies of an alien world
- **ESO-ALMA colloquia (2018-2020)** Member of the organization team

Conferences, Talks & Posters

- **Invited conference talk (2024)**: Between the Lines Stellar Spectroscopy Workshop, ESO, Chile
- **Contributed conference talk (2024)**: Exoplanets 5, Leiden, The Netherlands
- **Invited conference talk (2024)**: PLATOspec science workshop II, Santiago de Chile, Chile
- **Invited institute talk (2024)**: Pontificia Universidad Catolica, Santiago de Chile, Chile
- **Conference (2023)**: XVII Latin American Regional IAU Meeting, Montevideo, Uruguay
- **Contributed conference talk (2023)**: 4° Advanced School on Exoplanetary Science, Vietri sul Mare, Italy
- **Invited institute talk (2023)**: Universidad Diego Portales, Santiago de Chile, Chile
- **Contributed conference talk (2022)**: Thinkshop 2022: High-resolution spectroscopy for exoplanet atmospheres and biomarkers, Potsdam, Germany
- **Conference (2022)**: PFE-SPP1992 joint meeting, (Exo)planet diversity, formation and evolution, Berlin, Germany
- **Invited conference talk (2021)**: CARMENES science meeting, Online
- **Invited institute talk (2021)**: Polish Academy of Sciences, Toruń, Poland
- **Contributed conference talk (2020)**: CARMENES science meeting, Online
- **Invited institute talk (2020)**: Universidad Católica del Norte, Antofagasta, Chile
- **Conference poster (2019)**: Extreme Solar Systems, Reykjavik, Iceland
- **Invited institute talk (2019)**: Universidad Santiago de Chile
- **Contributed conference talk (2018)**: Diversis Mundi: The Solar System in an Exoplanetary context, Santiago, Chile
- **Conference poster (2018)**: Exoplanets II, Cambridge University
- **Conference (2017)**: Astrobiology, Coyhaique, Chile
- **Contributed conference talk (2017)**: European Week of Astronomy and Space Science (EWASS), Prague, Czech Republic
- **Invited institute talk (2017)**: Centro de Astrofísica, Universidade do Porto
- **Conference (2017)**: 2° Advanced School on Exoplanetary Science, Vietri sul Mare, Italy
- **Contributed conference talk (2016)**: Astrophysics of planetary habitability, Vienna, Austria
- **Contributed conference talk (2015)**: 1° Advanced School on Exoplanetary Science, Vietri sul Mare, Italy
- **Conference poster (2015)**: Pathways towards habitable planets, Bern, Switzerland
- **Contributed conference talk (2014)**: Astrobiology and Planetary Atmospheres, Santiago, Chile

Conference & Workshop Organization

- **ExoLatam-22 (2022)** JWST workshop, Santiago, Chile
- **Atmospheres, Atmospheres! Do I look like I care about atmospheres? (2021)** Exoplanet atmospheres from the ground, ESO online (ESO - Atmo2021) – main organizer
- **Chilean exoplanet meeting (2019)** – main organizer
- **Astrobiology and planetary atmospheres (2015)** ESO Santiago, Chile

Selection Committees, Refereeing & Advisory Boards

- **ESO Chile Fellow selection committee (2024-2025)**
- **ESO Scientific Visitor Programme (2023-2024)** Member of the selection board
- **Scientific Support Discretionary Fund (SSDF) (2023)** Project evaluation and selection board
- **ESO board for selection of deputy head of Office for Science, Chile (2023)**
- **Concurso Nacional, Comité Mixto ESO-Gobierno de Chile (2023)** Project grant referee
- **FONDECYT (2022)** Large project grant referee
- **Chilean National Telescope Allocation Committee (CNTAC) (2018-2020)**. Served for 2 years (4 cycles) on the galactic panel
- **HST TAC (2019-2021)** Exoplanet Atmospheres panel member for 4 semesters including mid-cycle reviews
- **Reviewer for Nature, APJ, MNRAS, A&A, AJ & MDPI** >20 papers refereed. orcid.org/0000-0002-7444-5315

Telescope proposals

- **6** successful ESO proposals as **PI** all of which have been published, or are in the process of being published, in the last 5 years.
- Many more successful proposals as **Co-I** for a variety of instruments.

Observing experience

- **>400 nights** as support astronomer at the VLT, Cerro Paranal Observatory (UT1, UT2 & UT3).
- **>40 nights** as visiting astronomer on HARPS/3.6m, CARMENES/3.5m, EFOSC/NTT, FEROS/MPG2.2m, 2m/TLS Tautenburg.

Outreach at ESO

- Science highlights to MSE **(2024)**
- TV appearances (La RED Mentiras verdaderas, National Geographic, Czech Republic national TV documentary, DAS ERSTE German TV channel documentary) Link
- Radio studio guest appearance, Radio 13, discussing solar eclipse **(2019)**
- Newspaper interviews for Solar eclipse **(2019)**
- Receiving multiple VIP visits to Paranal **(2017-2024)**

Paranal Science Operations

Paranal Science Operations

- **IOP Short Term Scheduling**: simulations testing the performance of ML seeing predictions, on operations efficiency, a major Integrated Operations Programme (IOP) project at Paranal Observatory with latest results presented at SPIE in Anderson et al. (2024) (GitLab repository)
- **IOP Automation of Observation Processes**: working on a project, writing code to automate the acquisition of the target and sending of the telescope presets.
- **FORS2 QC**: Automated code performing in-situ quality assessment for all modes of the FORS2 instrument, written in python.
- **LHATPRO** software to obtain line of sight atmospheric profile measurements for *in-situ* telluric correction of spectra taken at Paranal, effort leading to 30% increase in time efficiency.
- **ESPRESSO & KMOS QC**: I successfully lead two student projects at Paranal (Yared Reinarz, UA, and Cristobal Moya, PUC) for automated codes analyzing in-situ observation quality. Both based on my FORS2 QC code.
- **FORS Absolute Photometry**: I wrote the code to determine sky transparency from FORS2 photometric standards zeropoints, which is currently in use at Paranal.
- **Astronomer training**: Daytime and nighttime.
- **FORS-UP project**: preparation for the upcoming new instrument, while decommissioning the MMU machine due to incompatibility with ELT software.
- **Commissioning new FORS2 observing mode**: Circular IPOL at arbitrary angles, CCB.
- **ANDES Paranal contact point**: monthly ELT meetings.

Personal

Extracurricular interests and activities

- **Spoken Languages**: English [native], Spanish [fluent], German [advanced], Persian [native].
- My main interest in life is astronomy. I also enjoy free-style skiing and surfing, as well as reading and traveling.

Publications

Main author Peer-Reviewed (>400 citations)

1. Maguire C., **Sedaghati E.**, Gibson N. P., Smette A. **(2024)**. *Optimising the removal of telluric contamination from (optical) high-resolution exoplanetary transmission spectra* **A&A**, *Submitted.* [0 citations]
   Contribution: Results of an SSDF internship, where I proposed the idea for the project and played the supervisory role to the main author, as well as performing some part of the data analysis.

2. Prinoth B., **Sedaghati E.**, Seidel J. V., Hoeijmakers H. J., Brahm R., Thorsbro B., Jordán A. **(2024)**. *High-resolution transmission spectroscopy of warm Jupiters: An ESPRESSO sample with predictions for ANDES* **AJ**, *Accepted.* [0 citations]
   Contribution: Acted as the main supervisor of the first author who is doing an ESO studentship under my direct supervision.

3. Zak J., Boffin H. M. J., **Sedaghati E.**, Bocchieri A., Kabath P. **(2024)**. *Stellar obliquity measurements of gas giants: II. Towards completing the stellar-obliquity census* **A&A**, *Submitted.* [0 citations]
   Contribution: Provided the analysis code and acted as one of the primary supervisors to the main author.

4. Ramirez Reyes R., Jenkins J. S., **Sedaghati E.**, Seidel J. V., Pavlenko Y., Palle E., López Morales M., Alves D., Vines J., Peña P., Díaz M., Rojo P. **(2024)**. *A Closer Look at LTT 9779b: ESPRESSO's Endeavor to Pierce the Atmospheric Veil* **A&A**, *Submitted.* [0 citations]
   Contribution: Acted as the main initial scientific adviser to the first author who is a PhD student at Universidad de Chile.

5. Zak J., Boffin H. M. J., **Sedaghati E.**, et. al. **(2024)**. *HD 110067 c has an aligned orbit: Measuring the Rossiter-McLaughlin effect inside a resonant multiplanetary system with ESPRESSO* **A&A**, *687, L2, 8.* [0 citations]
   Contribution: Performed full analysis chain in parallel to the first author, as well as providing him with the analysis code. Also had a supervisory role for the first author.

6. Zak J., Bocchieri A., **Sedaghati E.**, Boffin H. M. J., Prudil Z., Skarka M., Changeat Q., Pascale E., Itrich D., Ivanov V. D., Vitkova M., Kabath P., Roth M., Hatzes A. **(2024)**. *Stellar obliquity measurements of six gas giants* **A&A**, 686, A147, 19. [1 citations]
   Contribution: Acted as the main supervisor of the first author for this paper, whom I having helping to supervise during his ESO studentship in Garching. The analysis code used was written by me.

7. **Sedaghati E.**, Jordán A., Brahm R., Muñoz D., Petrovich C., Hobson M. **(2023)**. *Orbital alignment of eccentric warm Jupiter TOI-677 b* **AJ**, 163, 3, 130, 12. [12 citations]

8. **Sedaghati E.**, Sánchez-López A., Czesla S., López-Puertas M., Amado P., Palle E., et al. **(2022)**. *Moderately misaligned orbit of the warm sub-Saturn HD 332231 b* **A&A**, 659, A44 [9 citations]

9. **Sedaghati E.**, MacDonald R. J., Casasayas-Barris N., Hoeijmakers H. J., Boffin H. M. J., Rodler F., Brahm R., et al. **(2021)**. *A Spectral Survey of WASP-19b with ESPRESSO.* **MNRAS**, 505, 1, 435-458 [38 citations]

10. Mallonn M., Juvan-Beaulieu I., **Sedaghati E.**, Ohlert J. M., von Essen C., Lendl M., Oshagh M., Poppenhaeger K. **(2019)** *Twenty-four New Transit Timings of the Mini-Neptune GJ1214 B* **RNAAS**, 3, 9, 123. [4 citations]
    Contribution: Data analysis and fitting transit light curves.

11. **Sedaghati E.**, Boffin, H. M. J., MacDonald, R. J., Gandhi, S., Madhusadhan, N., Gibson, N. P., Oshagh, M., Claret, A. & Rauer, H. **(2017)**. *Detection of titanium oxide in the atmosphere of a hot Jupiter.* **Nature**, 549, 238-241 [196 citations]

12. **Sedaghati E.**, Boffin, H. M. J., Delrez, L., Gillon, M., Csizmadia, Sz., Smith, A. M., & Rauer, H. **(2017)**. *Probing the atmosphere of a sub-Jovian planet orbiting a cool dwarf.* **MNRAS**, 468, 3123-3134 [26 citations]

13. **Sedaghati E.**, Boffin H. M. J., Jeřabková T., Muñoz A. G., Grenfell J. L., Smette, A., ... & Rauer, H. **(2016)**. *Potassium detection in the clear atmosphere of a hot-Jupiter: WASP-17b transmission spectroscopy.* **A&A**, 596, A47 [64 citations]

14. **Sedaghati E.**, Boffin H. M. J., Csizmadia S., Gibson N., Kabath P., Mallonn M., & Van den Ancker M. E. **(2015)**. *Regaining the FORS: optical ground-based transmission spectroscopy of the exoplanet WASP-19b with VLT+ FORS2.* **A&A**, 576, L11 [51 citations]

- *1st author contributions: For the publications where I am the first author, I wrote the manuscript and performed the bulk of the analysis, with valuable contributions from co-authors.*

Other Peer-Reviewed

15. Seidel J. V., Prinoth B., Pino L., dos Santos L. A., Chakraborty H., **Sedaghati E.**, Jentink C. F., Zapatero Osorio M. R., Allart R., Lendl M., Ehrenreich D., et al. **(2024)**. *Evolving jet stream observed in WASP-121 b* **Nature**, *Submitted*. [0 citations]
Contribution: reduced all data sets used for the analysis and performed the telluric correction of the spectra.

16. Bryant E. M., Jordán A., Hartman J. D., Bayliss D., **Sedaghati E.**, Barkaoui K., Chouqar J., Pozuelos F. J., Thorngren D. P., Timmermans M. ... 36 more co-authors **(2024)**. *A giant planet transiting a very-low mass host star* **Nature**, *Submitted*. [0 citations]
Contribution: performed the ESPRESSO data reduction and analysis, CCF calculation and determination of stellar parameters.

17. Espinoza-Retamal J. I., Jordán A., Brahm R., **Sedaghati E.**, Stefánsson G., Petrovich C., Hobson M. J., Tala Pinto M., Muñoz D. J., Boyle G., Leiva R. and Suc V. **(2024)**. *The spin-orbit alignment of seven warm Jupiter systems* **ApJ**, *In prep*.
Contribution: Leading role in the collaboration, where I reduced all the ESPRESSO data and modeled the RM effect.

18. Petit dit de la Roche D. J. M., Chakraborty H., Lendl M., Kitzmann D., Pietrow A. G. M., Akinsanmi B., Deline A., Ehrenreich D. ... **Sedaghati E. (2024)**. *Detection of faculae in the transit and transmission spectrum of WASP-69b* **A&A**, *Submitted*. [0 citations]
Contribution: performed the ESPRESSO data reduction and analysis, CCF calculation and determination of stellar parameters.

19. Hartman J. D., Bayliss D., Brahm R., Bryant E. M., Jordán A., Bakos G. A., Hobson M. J., **Sedaghati E.**, Bonfils X., Cointepas M., ... et al. **(2024)**. *TOI-762 A b and TIC-46432937 b: Two giant planets transiting M dwarf stars* **ApJ**, *Accepted*. [0 citations]
Contribution: ESPRESSO data reduction and calculation of radial velocities and cross-correlation functions.

20. Bryant E. M., Bayliss D., Hartman J. D., **Sedaghati E.**, Hobson M. J., Jordán A., Brahm R., Bakos G., Almenara J. ... 25 more co-authors **(2024)**. *TOI-2379 b & TOI-2384 b: Two super-Jupiter mass planets transiting low-mass host stars* **MNRAS**, *Accepted*. [0 citations]
Contribution: ESPRESSO data reduction, CCF analysis and calculation of RVs.

21. Espinoza-Retamal J. I., Stefánsson G., Petrovich C., Brahm R., Jordán A., **Sedaghati E.**, Lucero J. P., Tala M., Muñoz D. J., Boyle G., Leiva R., Suc V. **(2024)**. *HATS-38b and WASP-139b join a growing group of eccentric hot Neptunes on polar orbits* **ApJ**, *Accepted*. [0 citations]
Contribution: ESPRESSO data reduction and provided theoretical and analysis support to the author in a limited advisory role.

22. Prinoth B., Hoeijmakers H. J., Morris B. M., Lam M., Kitzmann D., **Sedaghati E.**, Seidel J. V., Lee E. K. H., Thorsbro B., Borsato N. W., Damasceno Y. C., Pelletier S., Seifahrt A. **(2024)**. *An atlas of resolved spectral features in the transmission spectrum of WASP-189 b with MAROON-X* **A&A**, 685, A60, 33. [2 citations]
Contribution: Acted as a partial supervisor of the first author who is doing an ESO studentship under my direct supervision, towards the completion of the work.

23. Almenara J. M., Bonfils X., Bryant E. M., Jordán A., Hébrard G., ... **Sedaghati E.**, et al. **(2024)**. *TOI-4860 b, a short-period giant planet transiting an M3.5 dwarf* **A&A**, 683, A166, 16. [3 citations]
Contribution: Performed the ESPRESSO data reduction and calculation of radial velocities.

24. Espinoza-Retamal J. I., Brahm R., Petrovich C., Jordán A., Stefánsson G., **Sedaghati E.**, Hobson M. J., Muñoz D. J., Boyle G., Leiva R., Suc V. **(2023)**. *The Aligned Orbit of the Eccentric Proto Hot Jupiter TOI-3362b* **ApJL**, 958, 2, L20, 10. [2 citations]
Contribution: Performed the ESPRESSO data reduction, calculation of radial velocities for the RM effect, as well as independent modeling of the data.

25. Spyratos P., Nikolov N. K., Constantinou S., Southworth J., Madhusudhan N., **Sedaghati E.**, Ehrenreich D., Mancini L. **(2023)**. *A precise blue-optical transmission spectrum from the ground: evidence for haze in the atmosphere of WASP-74b* **MNRAS**, 521, 2, 2163-2180. [4 citations]
Contribution: Performed the observations leading to the publication with EFOSC2.

26. Grandjean A., Lagrange A. M., Meunier N., Chauvin G., Borgniet S., Desidera S., Galland F., Kiefer F., Messina S., Iglesias D., Nicholson B., Pantoja B., Rubini P., **Sedaghati E.**, Sterzik M., Zicher N. **(2023)**. *HARPS radial velocity search for planets in the Scorpius-Centaurus association. A combination with the HARPS and SOPHIE young nearby stars (YNS) surveys* **A&A**, 669, A12, 23. [4 citations]
Contribution: Performed the observations leading to the publication with HARPS.

27. Orell-Miquel J., Murgas F., Pallé E., Lampón M., López-Puertas M., Sanz-Forcada J., Nagel E., Kaminski A., Casasayas-Barris N., ... **Sedaghati E.**, et. al. **(2022)**. *A tentative detection of He I in the atmosphere of GJ 1214 b* **A&A**, 659, A55, 12. [38 citations]
Contribution: Telluric correction of the spectra as part of the CARMENES consortium.

28. Yan F., Reiners A., Pallé E., Shulyak D., Stangret M., Molaverdikhani K., Nortmann L., Mollière P., Henning Th., Casasayas-Barris N., ... **Sedaghati E.**, et. al. **(2022)**. *Detection of iron emission lines and a temperature inversion on the dayside of the ultra-hot Jupiter KELT-20b* **A&A**, 659, A7, 12. [20 citations]
Contribution: CARMENES consortium contribution to the data analysis using cross-correlation technique.

29. Cont D., Yan F., Reiners A., Nortmann L., Molaverdikhani K., Pallé E., Stangret M., Henning Th., Ribas I., Quirrenbach A., Caballero J. A., ... **Sedaghati E.**, et. al. **(2022)**. *Silicon in the dayside atmospheres of two ultra-hot Jupiters* **A&A**, 657, L2, 12. [18 citations]
Contribution: CARMENES consortium contribution to the data analysis using cross-correlation technique.

30. Casasayas-Barris N., Orell-Miquel J., Stangret M., Nortmann L., Yan F., Oshagh M., Palle E., Sanz-Forcada J., López-Puertas M., Nagel E., Luque R., ... **Sedaghati E.**, et. al. **(2021)**. *CARMENES detection of the Ca II infrared triplet and possible evidence of He I in the atmosphere of WASP-76b* **A&A**, 654, A163, 20. [37 citations]
Contribution: CARMENES consortium contribution to the data analysis using cross-correlation technique.

31. Estrela R., Swain M. R., Roudier G. M., West R., **Sedaghati E.**, Valio A. **(2021)**. *Detection of Aerosols at Microbar Pressures in an Exoplanet Atmosphere* **AJ**, 162, 3, 91, 13. [11 citations]
Contribution: Advisory role to the first author, analysis of stellar activity and modeling the transmission spectrum.

32. Boldt S., Oshagh M., Dreizler S., Mallonn M., Santos N. C., Claret A., Reiners A., **Sedaghati E. (2020)**. *Stellar activity consequence on the retrieved transmission spectra through chromatic Rossiter-McLaughlin observations* **A&A**, 635, A123, 7. [10 citations]
Contribution: Provided advice with the direction of analysis.

33. Jones M. I., Brahm R., Espinoza N., Wang S., Shporer A., Henning Th., Jordán A., Sarkis P., ... **Sedaghati E.**, et. al. **(2019)**. *HD 2685 b: a hot Jupiter orbiting an early F-type star detected by TESS* **A&A**, 625, A16, 9. [38 citations]
Contribution: Wrote the section in the manuscript about application to exoplanet atmospheres.

34. Dehghan Firoozabadi A., Diaz A., Rojo P., Soto I., Mahu R., Becerra Yoma N., **Sedaghati E. (2017)**. *Unsupervised Method for Correlated Noise Removal for Multi-wavelength Exo-planet Transit Observations* **PASP**, 129, 977. [1 citation]
Contribution: Provided the dataset for the algorithm development.

35. Mahu, R., Rojo P., Dehghan Firoozabadi A., Soto I., **Sedaghati E.**, Becerra Yoma N. **(2017)**. *Estimation of exoplanetary planet-to-star radius ratio with homomorphic processing* **A&C**, 20, 160-167. [1 citation]
Contribution: Provided the dataset for the algorithm development and analysis of correlated noise.

Non-Peer-Reviewed

36. Anderson J. P., **Sedaghati E.**, Cikota A., Behara N., Bian F., Otarola A., Mieske S. **(2024)** *The optimisation of short-term scheduling of science observations at Paranal observatory (VLT and ELT)* **SPIE**, 13098-6. [0 citations]
Contribution: Wrote and maintain the simulator. Produced all plots for the paper.

37. De Rosa R. J., Otarola A., Szeifert T., Smoker J., Selman F., Mehner A., Bian F., **Sedaghati E.**, Seidel J. V., Smette A., de Wit W. -J. **(2023)** *Effects of the Hunga Tonga–Hunga Ha'apai Volcanic Eruption on Observations at Paranal Observatory* **The Messenger**, vol. 190, p. 58-61. [0 citations]
Contribution: Processing of FORS2 photometric data.

38. Boffin H. M. J., Alei E., Casasayas Barris N., Chasiotis-Klingner S. -M., Danielski C., Fisher, C., Gandhi, S., MacDonald R., Rickman, E., **Sedaghati E.**, Zak J. **(2022)** *Report on the ESO Workshop "Atmospheres, Atmospheres! Do I look like I care about atmospheres?"* **The Messenger**, vol. 186, p. 32-36. [0 citations]
Contribution: Main organizer of the conference.

39. Houllé M., **Sedaghati E.**, Figueira P., Vigan A. **(2021)**. *A high-resolution search for the Ha emission line of the accreting companion GQ Lup b with ESPRESSO* **EPSC**, id. EPSC2021-833, p. 13-24. [0 citations]
Contribution: Acted as the main supervisor to the student for the project and performed part of data analysis.

40. Leibundgut B., Anderson R., Berg T., Cristiani S., Figueira P., Lo Curto G., Mehner A., **Sedaghati E.**, Pritchard J., Wittkowski M. **(2020)**. *ESPRESSO Science Verification* **The Messenger**, vol. 181, p. 3-6. [0 citations]
Contribution: Took part in evaluating science verification proposals.

41. Milli J., Gonzalez R., Fluxa P. R., Chacon, A., Navarette J., Sarazin M., Pena E., Carrasco-Davis R., Solarz A., Smoker J., Martayan C., Melo C., **Sedaghati E.**, Mieske S., Hainaut O., Tacconi-Garman L. **(2019)**. *Nowcasting the turbulence at the Paranal Observatory* **AO4ELT**, conference proceeding. [0 citations]
Contribution: Initial development of ML models.

42. Estrela R., **Sedaghati E. (2018)**. *Modeling instrumental systematics in transmission spectra from FORS2 using Gaussian Processes* **COSPAR**, id. B0.1-5-18, conference proceeding. [0 citations]
Contribution: Results of scientific visitor program under my supervision.

43. Csizmadia Sz., **Sedaghati E.**, Boffin H. M. J. **(2016)**. *Reports on New Discoveries* **IBVS**, 6200 t22-t23. [0 citations]
Contribution: Discovered the variable source.

44. Boffin H. M. J., **Sedaghati E.**, Blanchard G., Gonzalez, O., Moehler S., Gibson N., van den Ancker M., Smoker J., Anderson J., Hummel C., Dobrzycka D., Smette A., Rupprecht G. **(2016)**. *Regaining the FORS: making optical ground-based transmission spectroscopy of exoplanets with VLT+FORS2 possible again* **SPIE** vol. 9908, id. 99082B, 10pp. [3 citations]
Contribution: Performed the bulk of the analysis.

45. **Sedaghati E.**, Boffin H. M. J. **(2015)**. *Report on the "Chilean Exoplanet Meeting"* **The Messenger**, vol. 161, p. 49-51. [0 citations]
Contribution: Main organizer of the workshop and wrote the report.

46. Boffin H. M. J., Blanchard G., Gonzalez O., Moehler S., **Sedaghati E.**, Gibson N., van den Ancker M., Smoker J., Anderson J., Hummel C., Dobrzycka D., Smette A., Rupprecht G. **(2015)**. *Making FORS2 Fit for Exoplanet Observations (again)* **The Messenger**, vol. 159, p. 6-9. [12 citations]
Contribution: Performed the initial data analysis, evaluating the improvements.

- **Full list of publications at: ui.adsabs.harvard.edu (peer-reviewed) – ui.adsabs.harvard.edu (all)**

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