Lionel Garcia

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Education

PhD, Astronomy – University of Liège, Belgium (2023)

Msc, Computer Science – University of Bordeaux, France (2017)

Msc, Optical Engineering – Institut d'Optique, France (2017)

Bs, Physics – University of Paris-Sud, France (2014)

Positions

Research Fellow – CCA, Flatiron Institute, New York, USA (2023 - now)

Teaching Assistant – University of Liège, Belgium (2019 - 2021)

Young Graduate Trainee – European Space Agency, Netherlands (2017 - 2018)

Technical Student – CERN, Switzerland (2016 - 2017)

Teaching at University of Liège

Classical Mechanics – Undergraduate

Mathematical Modeling for the Environment – Graduate

Astronomical Observations – Graduate

Grants & Proposals

2024 – (PI) JWST General Observer program 5799, 22 hours, 205,000 USD

2024 – (co-I) JWST Archival Research program 5370, PI Benjamin Rackham, 1,300,000 USD

2023 – Flatiron Research Fellowship, Simons Foundation, 210,000 USD

2023 – (co-I) HST Archival Legacy program 17551, PI Benjamin Rackham, 530,000 USD

2021 – FRIA Doctoral scholarship, FRS–FNRS, 65,000 EURO

Talks & Workshops

Dec. 2024 – Workshop Instructor of PySnacks 7, IAA-CSIC, Granada, Spain

Jul. 2024 – Talk at TESS Science Conference III, Cambridge, USA

Jun. 2024 – Seminar at University of Oxford, UK

Oct. 2023 – Seminar at TESS Team Meeting, Cambridge, USA

Oct. 2023 – Seminar at EAPS/MIT, Cambridge, USA

May 2023 – Seminar at IRAP, Toulouse, France

May 2023 – Seminar at Observatoire de la Côte d'Azur, Nice, France

May 2023 – Seminar at European Space Agency, Noordwijk, Netherlands

May 2023 – Seminar at ETH, Zurich, Switzerland

Mar. 2023 – Seminar for VAST, online

Mar. 2023 – Talk at EMAC Workshop (NASA), online

Dec. 2022 – Talk at ESO Belgian Day, Brussels, Belgium

Jul. 2022 – Talk at NAM 2020, Warwick, UK

May 2022 – Talk at Exoplanet IV, Las Vegas, USA

May 2020 – Talk at SAG21 symposium (NASA), online

Jun. 2019 – Poster at TRAPPIST-1 conference, Liège, Belgium

Software

spotter: Approximate fluxes and spectra of non-uniform stars

jaxoplanet: Analytical models of stellar light curves

nuance: Efficient detection of planets transiting active stars

prose: Modular image processing pipelines for Astronomy

twirl: Local astrometric plate solving in Python

Publications

First author

5. 2024 – Garcia, L. J., Hattori, S., Foreman-Mackey, D., jaxoplanet: Hardware-Accelerated Orbits and Stellar Light Curves, In prep.

4. 2024 – Garcia, L. J., Foreman-Mackey, D., Murray, C. A., et al., nuance: Efficient Detection of Planets Transiting Active Stars, AJ, 167, 284

3. 2022 – Garcia L. J., Moran, S. E., Rackham, B. V., et al., HST/WFC3 transmission spectroscopy of the cold rocky planet TRAPPIST-1h, A&A, 665, A19

2. 2022 – Garcia L. J., Timmermans, Mathilde, Pozuelos, Francisco J. et al., prose: a Python framework for modular astronomical images processing, MNRAS 509 4817-4828

1. 2018 – Garcia L., Prod'homme T., Lucsanyi D. et al., Validation of a CCD cosmic ray event simulator against Gaia in-orbit data, Proc. SPIE 10709

Co-author

30. 2024 – Pedersen, P. P., Queloz, D., Garcia, L., et al., Infrared photometry with InGaAs detectors: First light with SPECULOOS, arXiv e-prints, arXiv:2410.22140

29. 2024 – Barkaoui, K., Pozuelos, F. J., Hellier, C., et al., An extended low-density atmosphere around the Jupiter-sized planet WASP-193 b, Nature Astronomy, 8, 909

28. 2024 – TRAPPIST-1 JWST Community Initiative, de Wit, J., Doyon, R., et al., A roadmap for the atmospheric characterization of terrestrial exoplanets with JWST, Nature Astronomy, 8, 810

27. 2024 – Fortier, A., Simon, A. E., Broeg, C., et al., CHEOPS in-flight performance. A comprehensive look at the first 3.5 yr of operations, A&A, 687, A302

26. 2024 – Timmermans, M., Dransfield, G., Gillon, M., et al., TOI-4336 A b: A temperate sub-Neptune ripe for atmospheric characterization in a nearby triple M-dwarf system, A&A, 687, A48

25. 2024 – Pinçon, C., Petitdemange, L., Raynaud, R., et al., Coriolis darkening in late-type stars. II. Effect of self-sustained magnetic fields in stratified convective envelopes, A&A, 685, A129

24. 2024 – Dransfield, G., Timmermans, M., Triaud, A. H. M. J., et al., A 1.55 $R_\oplus$ habitable-zone planet hosted by TOI-715, an M4 star near the ecliptic South Pole, MNRAS, 527, 35

23. 2023 – Triaud, A. H. M. J., Dransfield, G., Kagetani, T., et al., An M dwarf accompanied by a close-in giant orbiter with SPECULOOS, MNRAS, 525, L98

22. 2023 – Barkaoui, K., Timmermans, M., Soubkiou, A., et al., TOI-2084 b and TOI-4184 b: Two new sub-Neptunes around M dwarf stars, A&A, 677, A38

21. 2023 – Ghachoui, M., Soubkiou, A., Wells, R. D., et al., TESS discovery of a super-Earth orbiting the M-dwarf star TOI-1680, A&A, 677, A31

20. 2024 – Barkaoui, K., Pozuelos, F. J., Hellier, C., et al., An extended low-density atmosphere around the Jupiter-sized planet WASP-193 b, Nature Astronomy, 8, 909

19. 2023 – Morello, G., Parviainen, H., Murgas, F., et al., TOI-1442 b and TOI-2445 b: Two potentially rocky ultra-short period planets around M dwarfs, A&A, 673, A32

18. 2023 – Pozuelos, F. J., Timmermans, M., Rackham, B. V., et al., A super-Earth and a mini-Neptune near the 2:1 MMR straddling the radius valley around the nearby mid-M dwarf TOI-2096, A&A, 672, A70

17. 2023 – Pedersen, P. P., Murray, C. A., Queloz, D., et al., Precise near-infrared photometry, accounting for precipitable water vapour at SPECULOOS Southern Observatory, MNRAS, 518, 2661

16. 2022 – Delrez, L., Murray, C. A., Pozuelos, F. J., et al., Two temperate super-Earths transiting a nearby late-type M dwarf, A&A, 667, A59

15. 2022 – Burdanov, A. Y., de Wit, J., Gillon, M., et al., SPECULOOS Northern Observatory: Searching for Red Worlds in the Northern Skies, PASP, 134, 105001

14. 2022 – Gan, T., Soubkiou, A., Wang, S. X., et al., TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136, MNRAS, 514, 4120

13. 2022 – Dransfield, G., Mékarnia, D., Triaud, A. H. M. J., et al., Observation scheduling and automatic data reduction for the Antarctic Telescope, ASTEP+, Proc. SPIE, 12186, 121861F

12. 2022 – Murray, C. A., Queloz, D., Gillon, M., et al., A study of flares in the ultra-cool regime from SPECULOOS-South, MNRAS, 513, 2615

11. 2022 – Günther, M. N., Berardo, D. A., Ducrot, E., et al., Complex Modulation of Rapidly Rotating Young M Dwarfs: Adding Pieces to the Puzzle, AJ, 163, 144

10. 2023 – Morello, G., Parviainen, H., Murgas, F., et al., TOI-1442 b and TOI-2445 b: Two potentially rocky ultra-short period planets around M dwarfs, A&A, 673, A32

9. 2022 – Schanche, N., Pozuelos, F. J., Günther, M. N., et al., TOI-2257 b: A highly eccentric long-period sub-Neptune transiting a nearby M dwarf, A&A, 657, A45

8. 2021 – Wells, R. D., Rackham, B. V., Schanche, N., et al., A large sub-Neptune transiting the thick-disk M4 V TOI-2406, A&A, 653, A97

7. 2021 – Leleu, A., Alibert, Y., Hara, N. C., et al., Six transiting planets and a chain of Laplace resonances in TOI-178, A&A, 649, A26

6. 2021 – Sebastian, D., Gillon, M., Ducrot, E., et al., SPECULOOS: Ultracool dwarf transit survey. Target list and strategy, A&A, 645, A100

5. 2020 – Sebastian, D., Pedersen, P. P., Murray, C. A., et al., Development of the SPECULOOS exoplanet search project, Proc. SPIE, 11445, 1144521

4. 2020 – Niraula, P., Wit, J. de ., Rackham, B. V., et al., π Earth: A 3.14 day Earth-sized Planet from K2's Kitchen Served Warm by the SPECULOOS Team, AJ, 160, 172

3. 2020 – Demory, B.-O., Pozuelos, F. J., Gómez Maqueo Chew, Y., et al., A super-Earth and a sub-Neptune orbiting the bright, quiet M3 dwarf TOI-1266, A&A, 642, A49

2. 2020 – Pozuelos, F. J., Suárez, J. C., de Elía, G. C., et al., GJ 273: on the formation, dynamical evolution, and habitability of a planetary system hosted by an M dwarf at 3.75 parsec, A&A, 641, A23

1. 2020 – Murray, C. A., Delrez, L., Pedersen, P. P., et al., Photometry and performance of SPECULOOS-South, MNRAS, 495, 2446