

Mario Damiano

Ph.D. in Astrophysics

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Professional experience

- 2018 - present** **JPL Postdoctoral Fellow**, Jet Propulsion Laboratory – California Institute of Technology, CA, United States.
- 2015 - present** **Research Associate**, National Institute for Astrophysics – Observatory of Palermo (INAF–OAPa), Palermo, Italy.

Education

2019

Ph.D. in Astrophysics, *University College London (UCL), London, England, UK*,
Advisors: Prof. Giovanna Tinetti, Dr. Giuseppina Micela, and Dr. Ingo Waldmann.
Thesis title: *Data analysis of space and ground observations of exoplanetary atmosphere using Machine Learning algorithms*.

2015

MSc Physics (Astrophysics), *University of Palermo (UNIPA), Palermo, Italy.*,
Advisors: Prof. Giovanni Peres and Dr. Giuseppina Micela.
Thesis title: *Exoplanetary atmosphere: high-resolution spectrum with instruments iLocater and HIRES*.

2013

BSc Physics Science, *University of Palermo (UNIPA), Palermo, Italy.*,
Advisors: Prof. Giovanni Peres and Dr. Giuseppina Micela.
Thesis title: *Exoplanets and stellar activity on IR-band*.

Research interests

- Composition and dynamic of exoplanetary atmospheres;
- Spectroscopic data analysis of observations recorded by space and ground facilities;
- Spectral interpretation through information retrieval processes;
- Machine and deep learning algorithms for data analysis.

Awards, grants, and fellowships

- JPL Postdoctoral Fellowship, NASA/JPL, 2018
- Ph.D. studentship, European Research Council (ERC) and National Institute for Astrophysics (INAF), 2015

Languages

Italian Native

Mother tongue

English Proficient

Daily practice

IT Skills

Coding Python, C, Matlab

OS MacOS (preferred), Linux, Windows

Text editing L^AT_EX, Microsoft Office, Apple Softwares

Other information

- Online courses** Advanced Courses on Udemy platform on Machine Learning (ML) and Deep Learning (DL) for Python.
- Tutoring activity** Co-advised UNIPA master student for an internship about data analysis of high-resolution spectroscopic observations.
2017, Palermo, Italy.

Invited Seminars and Talks

- 2019** 'TWO LENSES FOR GLASSES: LOW- AND HIGH-RESOLUTION SPECTROSCOPIC OBSERVATIONS OF EXOPLANETARY ATMOSPHERES', Yuk luncheon seminar, California Institute of Technology, CA, US.
- 2019** 'TWO LENSES FOR GLASSES: LOW- AND HIGH-RESOLUTION SPECTROSCOPIC OBSERVATIONS OF EXOPLANETARY ATMOSPHERES', JPL luncheon seminar, Jet Propulsion Laboratory, CA, US.
- 2018** 'PLANETARY SIGNAL EXTRACTION VIA HIGH-RESOLUTION SPECTROSCOPY', Workshop for collaboration with Indian science community, University College London, London, England, UK.
- 2017** 'SPECTROSCOPIC OBSERVATIONS OF HOT-JUPITERS WITH THE HUBBLE WFC3 CAMERA', INAF-OAPa seminar series, INAF-Astronomical Observatory of Palermo (INAF-OAPa), Palermo, Italy.

Conference Presentations

- 2020** 'EXOPLANETARY CHARACTERIZATION THROUGH REFLECTION SPECTROSCOPY', 2nd Starshade Science Industry Partnership (SIP) forum, Boulder, CO, United States.
- 2020** 'EXOPLANETARY CHARACTERIZATION THROUGH REFLECTION SPECTROSCOPY', 235th American Astronomical Society (AAS) meeting, Honolulu, HI, United States.
- 2019** 'EXOPLANET REFLECTED LIGHT RETRIEVAL: WHAT CAN WE LEARN?', Division Planetary Science (DPS) 51 / European Planetary Science Congress (EPSC) 14, Geneva, Switzerland.
- 2018** 'PLANETARY SIGNAL EXTRACTION VIA HIGH-RESOLUTION SPECTROSCOPY', Centre for Planetary Science (CPS) meeting, Mullard Space Science Laboratory (MSSL), England, UK.
- 2017** 'NEAR-IR TRANSMISSION SPECTRUM OF HAT-P-32B USING WFC3 CAMERA ON BOARD HST', European Planetary Science Congress (EPSC) 12, Riga, Latvia.
- 2017** 'PLANETARY SIGNAL EXTRACTION VIA HIGH-RESOLUTION SPECTROSCOPY: WORK IN PROGRESS', 10th GAPS2.0 meeting, Palermo, Italy.
- 2016** 'SPECTROSCOPIC OBSERVATIONS OF HOT-JUPITERS WITH THE HUBBLE WFC3 CAMERA', Division for Planetary Sciences (DPS) 48 / European Planetary Science Congress (EPSC) 11, Pasadena, CA, US.

Publications

First Author

ExoReL[®]: A Bayesian Inverse Retrieval Framework For Exoplanetary Reflected Light Spectra

Damiano, M. & Hu, R., submitted to AJ.

Available at: http://web.gps.caltech.edu/~ryh/exorel_r.pdf

A Principal Component Analysis-based Method to Analyze High-resolution Spectroscopic Data on Exoplanets

Damiano, M., Micela, G., Tinetti, G., ApJ, 878, 153, June 2019.

DOI: 10.3847/1538-4357/ab22b2

Near-IR transmission spectrum of HAT-P-32 b using HST/WFC3.

Damiano, M., Morello, G., Tsiaras, A., Zingales, T., Tinetti, G., AJ, 154, 39, Jul 2017.

DOI: 10.3847/1538-3881/aa738b

Co-Author

A Population Study of Gaseous Exoplanets,

Tsiaras, A., Waldmann, I.P., Zingales, T., Rocchetto, M., Morello, G., **Damiano, M.**, Karpouzas, K., Tinetti, G., McKemmish, L.K., Tennyson, J., and Yurchenko, S.N., AJ, 155, 156, Mar 2018.

DOI: 10.3847/1538-3881/aaaf75

A New Approach to Analyzing HST Spatial Scans: The Transmission Spectrum of HD 209458 b,

Tsiaras, A., Waldmann, I.P., Rocchetto, M., Varley, R., Morello, G., **Damiano, M.**, Tinetti, G., ApJ, 832, 202, Dec 2016.

DOI: 10.3847/0004-637X/832/2/202

Detection of an Atmosphere Around the Super-Earth 55 Cancri e,

Tsiaras, A., Rocchetto, M., Waldmann, I.P., Venot, O., Varley, R., Morello, G., **Damiano, M.**, Tinetti, G., Barton, E.J., Yurchenko, S.N., Tennyson, J., ApJ, 820, 99, Apr 2016.

DOI: 10.3847/0004-637X/820/2/99

A chemical survey of exoplanets with ARIEL,

Tinetti, G., plus 242 co-authors, Exp Astron 46, 135, Sep 2018.

DOI: 10.1007/s10686-018-9598-x

The Transiting Exoplanet Community Early Release Science Program for JWST,

Bean, J.L., plus 96 co-authors, PASP 130k4402, Nov 2018.

DOI: 10.1088/1538-3873/aadbf3