

Dr Johanna M. Vos

Postdoctoral Fellow
American Museum of Natural History
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Professional Appointments	Postdoctoral Fellow Department of Astrophysics, American Museum of Natural History	2018–Present
	PhD Candidate & Principal’s Career Development Scholar Royal Observatory of Edinburgh, University of Edinburgh	2014–2018
Education	Institute for Astronomy, University of Edinburgh <i>PhD in Astronomy</i> Thesis: “Characterising Weather and Rotation on Substellar Worlds” Advisor: Prof. Beth A. Biller 2018 Winton Astronomy Thesis Prize	2014–2018
	Trinity College Dublin <i>BA (Mod) Physics with Astrophysics</i> Undergraduate Thesis: “Sunspots and Solar Flares: The Role of Flows” Advisor: Prof. Peter T. Gallagher Graduated with First Class Honours (I.I)	2010–2014
Grants & Awards	Research Support Summary: \$900,000 total, \$400,000 as PI	
	Hubble Space Telescope General Observer Grant, \$102,000, PI	2021
	NASA Keck Data Award, \$15,500, PI	2021
	TESS Cycle 3 Guest Investigator Small Program, \$50,000, Co-I	2020
	Hubble Space Telescope General Observer Grant, \$171,000, PI	2019
	TESS Cycle 2 Guest Investigator Small Program, \$50,000, Co-I	2019
	NASA Exoplanets Research Program (XRP), \$400,000, Co-I	2019
	Other Worlds Lab, UC Santa Cruz, <i>Heising-Simons Foundation</i> , \$1,000	2019
	Cool Stars 20 Conference Grant, <i>Boston University</i> , \$500	2018
	Winton Thesis Prize, <i>University of Edinburgh</i> , \$1,400	2018
	Principal’s Go Abroad Fund, <i>University of Edinburgh</i> , \$1,000	2018
	Exoclipse Conference Grant, <i>Boise State University</i> , \$2,000	2017
	Principal’s Career Development Scholarship, <i>U of Edinburgh</i> , \$100,000	2014
Teaching Experience	First Class Book Prize, <i>Trinity College Dublin</i>	2011, 2012, 2013
	Entrance Exhibition Scholarship, <i>Trinity College Dublin</i>	2010
	Guest Lecturer , <i>Stanford University</i>	2021
	Peering into Darkness: Research Practices in Contemporary Art & Astrophysics	
	Instructor , <i>American Museum of Natural History</i>	2019–2020
	Designed and delivered “Stars” course for After School Program	
	Head Teaching Assistant , <i>University of Edinburgh</i>	2016–2018
	Courses: Physics Experimental Lab, Computational Observational Astronomy Lab	
	Teaching Assistant , <i>University of Edinburgh</i>	2014–2018
	Courses: Maths for Physics, Introductory Astrophysics, Discovering Astronomy	

Research Advising

11 Undergraduate/Master's Students

Everett MacArthur, *Columbia University*
 Mohammad Refat, *Baruch College, CUNY*
 Jose Adorno, *Queens College, CUNY* → *University of Miami*
 Allison McCarthy, *University of Alabama* → *Boston University*
 + 7 students as co-mentor

12 High-School Students, Science Research Mentoring Program, AMNH

BL Cadet, <i>Uncommon Prep Charter School</i>	2021–2022
Amelia Lobo-Jost, <i>Humanities Preparatory Academy High School</i>	2021–2022
Omar Piron, <i>Washington Heights Expeditionary Learning School</i>	2021–2022
Azul Ruiz Diaz, <i>Brooklyn Technical High School</i>	2020–2021
Jai Glazer, <i>The Dalton School</i>	2020–2021
Sophia Ameneyro, <i>University Neighborhood High School</i>	2020–2021
Izzy Lapidus, <i>Fiorello H. LaGuardia High School of Performing Arts</i>	2019–2020
Otis McCallum, <i>The Beacon School</i>	2019–2020
William McCartney, <i>New Explorations Into Science and Technology + Math</i>	2019–2020
Elko Gerville-Reache, <i>School of the Future</i>	2018–2019
Raunak Amanna, <i>Brooklyn Technical High School</i>	2018–2019
Nima Brivanlou, <i>Lycée Français de New York</i>	2018–2019

Selected Telescope Time	South African Large Telescope, 35 hrs, PI	2022
	Gemini/IGRINS Fast Turnaround Program, 4.4 hrs, PI	2022
	NASA Keck/NIRSPEC, 0.5 nights, PI	2022
	Hubble Space Telescope (6 orbits), PI	2021
	James Webb Space Telescope Cycle 1, (24.6 hr), Co-I	2021
	Gemini-S/IGRINS, (21 hr), PI	2021
	Gemini-N/GNIRS & Gemini-S/IGRINS (13 hr), PI	2020
	Gemini-S/IGRINS, 31 hr, PI	2020
	Hubble Space Telescope (16 orbits) & Very Large Array (27.6 hr), PI	2019
	Spitzer Space Telescope Director's Discretionary Time, 33.1 hr, PI	2019
	Spitzer Space Telescope Medium Program, 70 hr, PI	2018
	James Webb Space Telescope Early Release Science, 39 hr, Collaborator	2017
	Spitzer Space Telescope (30.8 hr) & Very Large Array (33 hr), Co-I	2016–2018
	Hubble Space Telescope (5 orbits) & Spitzer Space Telescope (17.6 hr), Co-I	2016
	ESO New Technology Telescope, 29 nights, PI	2014–2017

Service	Scientific Organizing Committee, Cloud Two Con, Ringberg Castle, Germany	2023
	Telescope TAC Panelist, <i>NASA Keck</i> , <i>TESS</i>	2019–Present
	Journal Referee, <i>ApJ</i> , <i>ApJL</i> , <i>AJ</i> , <i>JURP</i>	2018–Present
	Scientific Organizing Committee, Cloud Nine Con , Virtual	2021
	External reviewer for Swiss National Science Foundation	2020
	American Astronomical Society Chambliss Poster Judge	2020, 2021
	Astrophysics Seminar Organizer, American Museum of Natural History	2018–2020
	Astronomy Representative, Postgraduate Forum, University of Edinburgh	2017–2018
	Astronomy Postgraduate Committee Member, University of Edinburgh	2015–2016

Selected Talks & Seminars

★ indicates invited or plenary talks

Contributed Talk, Exoplanets in the Era of JWST Splinter Session, Exoplanets IV	2022
★ Colloquium, Carnegie Earth and Planets Laboratory	2022
★ Colloquium, Queens College, City University of New York	2022
Contributed Talk, CHAMPS Exoplanet Early Career Highlight Seminar	2022
Contributed Talk, AAS Meeting 239 (cancelled due to Covid-19)	2022
Contributed Talk, Gotham Fest 2021, New York, NY	2021
★ Colloquium, University of California, Santa Cruz	2021
★ Colloquium, University of Texas at Austin	2021
★ Colloquium, Center for Space and Habitability, University of Bern	2021
★ Colloquium, Trinity College Dublin	2021
Contributed Talk, American Astronomical Society Meeting 237	2021
★ Colloquium, Center for Computational Astrophysics, Flatiron Institute	2020
Contributed Talk, Exo-Webb Seminar Series	2020
★ Colloquium, NASA Goddard Space Flight Center	2020
Contributed Talk, American Astronomical Society Meeting 235, Honolulu, HI	2020
Contributed Talk, Gotham Fest 2019, New York, NY	2019
★ Colloquium, Dublin Institute for Advanced Studies	2019
Contributed Talk, Other Worlds Laboratory, UC Santa Cruz, CA	2019
★ Review Talk, BDEXOCON, University of Delaware	2019
★ Colloquium, American Museum of Natural History	2019
Dissertation Talk, American Astronomical Society Meeting 233, Seattle, WA	2019
★ Plenary Talk, Cool Stars 20, Boston, MA	2018
Contributed Talk, Scottish Exoplanet and Brown Dwarf Meeting	2017
★ Colloquium, Royal Observatory of Edinburgh	2017
★ Seminar, European Southern Observatories, Santiago, Chile	2017
Contributed Talk, Exoclipe, Boise, ID	2017
Contributed Talk, Scottish Exoplanet and Brown Dwarf Meeting	2015
★ Seminar, Max Planck Institute for Solar System Research	2014

Diversity & Outreach Efforts

Subject Matter Expert , NASA Community College Network <i>Partnership with community college instructors and their students</i>	2022–Present
Mentor , AstroCom NYC, City University of New York	2019–Present
Mentor , Science Research Mentoring Program, AMNH <i>Mentoring program for NYC high-school students</i>	2018–Present
Regular Speaker for educational programs at AMNH <i>Examples: School visits, internship programs, after-school classes</i>	2018–Present
Regular Speaker for public events in Ireland, UK & US <i>Examples: Pint of Science, Royal Observatory Winter Talks, Westport Astro Society</i>	2016–Present
Podcast Guest <i>Examples: The Planetary Society Podcast, The LIUniverse Podcast</i>	2022–Present
Scientific Advisor & Speaker , About Us Festival UK 2022	2021–2022
Featured Scientist , 100DIGITS Campaign	2022
Featured Scientist , Million STEM	2020
STEM Ambassador , StemEast, UK & Ireland <i>Visited schools around Scotland and Ireland speaking about science research.</i>	2015–2018
Contributor , University of Edinburgh Science Magazine, Women are Boring	2018
Workshop Leader , Kickstart Program, University of Edinburgh <i>A week-long immersive university experience for secondary school students</i>	2015, 2016

Mentor, TYPE Program, Trinity College Dublin 2012
Transition Year Physics Experience for secondary school students

Recent Media/Press

The LIUniverse Podcast	2022
Planetary Radio Podcast, The Planetary Society	2022
California Academy of Sciences Universe Update	2022
NASA Jet Propulsion Laboratory Press Release	2022
AAS 239 Winter Meeting Press Conference	2022
Irish Times Research Lives Interview	2020
NRAO's 2020 Astronomy Highlights with Phil Plait	2020
Space.com Science & Astronomy Interview	2020
NASA Jet Propulsion Laboratory Press Release	2020

First Author Publications ★ indicates equal author contribution

1. [Let The Great World Spin: Revealing the Turbulent, Stormy Nature of Giant Planet Analogs with the Spitzer Space Telescope](#)
Vos, J. M.; Faherty, J. K.; Gagné J.; Marley, M.; Metchev, S.; Gizis, J.; Rice, E., L.; Cruz, K. *The Astrophysical Journal*, 924, 68, 2022.
2. [A measurement of the wind speed on a brown dwarf](#)
★Allers, K. N.; ★**Vos, J. M.**; ★Biller, B. A.; ★Williams, P. K.G. *Science*, 368, 6487, 169–172, 2020.
3. [Spitzer Variability Properties of Young Giant Planet Analogs](#)
Vos, J. M.; Biller, B. A.; Allers, K. N.; Faherty, J. K.; Liu, Michael C.; Eriksson, S.; Best, W. M. J.; Metchev, S.; Radigan, J.; Allers, K. N.; Janson, M.; Buenzli, E.; Dupuy, T. J.; Bonnefoy, M.; Manjavacas, E.; Brandner, W.; Crossfield, I.; Deacon, N.; Henning, T.; Homeier, D.; Schlieder, J., *The Astronomical Journal*, 160(1):38, 2020.
4. [A search for variability in exoplanet analogues and low-gravity brown dwarfs](#)
Vos, J. M.; Biller, B. A.; Bonavita, M.; Eriksson, S.; Liu, Michael C.; Best, W. M. J.; Metchev, S.; Radigan, J.; Allers, K. N.; Janson, M.; Buenzli, E.; Dupuy, T. J.; Bonnefoy, M.; Manjavacas, E.; Brandner, W.; Crossfield, I.; Deacon, N.; Henning, T.; Homeier, D.; Kopytova, T. Schlieder, J., *Monthly Notices of the Royal Astronomical Society*, 483:480–502, 2019.
5. [Variability of the lowest mass objects in the AB Doradus moving group.](#)
Vos, J. M.; Allers, K. N.; Biller, B. A.; Liu, M. C.; Dupuy, T. J.; Gallimore, J. F.; Adenuga, I. J.; Best, W. M. J., *Monthly Notices of the Royal Astronomical Society*, 474(1):1041–1053, 2018.
6. [The Viewing Geometry of Brown Dwarfs Influences Their Observed Colors and Variability Amplitudes](#)
Vos, J. M.; Allers, K. N.; Biller, B. A., *The Astrophysical Journal*, 842(2):78, 2017.

- Second Author Publications**
7. [On The Detection of Exomoons Transiting Isolated Planetary-Mass Objects](#)
Limbach, M. A.; **Vos, J. M.**; Winn, J. N.; Heller, R.; Mason, J.; Schneider, A.; Dai, F., *The Astrophysical Journal Letters*, 918, L25, 2021.
 8. [Simultaneous Multiwavelength Variability Characterization of the Free-floating Planetary-mass Object PSO J318.5—22.](#)
Biller, B. A.; **Vos, J. M.**; Buenzli, E.; Allers, K.; Bonnefoy, M.; Charnay, B.; Bézar, B.; Allard, F.; Homeier, D.; Bonavita, M.; Brandner, W.; Crossfield, I.; Dupuy, T.; Henning, T.; Kopytova, T.; Liu, M. C.; Manjavacas, E.; Schlieder, J., *The Astronomical Journal*, 155(2):95, 2018.

**Co–Author
Publications**

9. [Variability in a Young, L/T Transition Planetary–Mass Object](#)
Biller, B. A.; **Vos, J. M.**; Bonavita, M.; Buenzli, E.; Baxter, C.; Crossfield, I. J. M.; Allers, K.; Liu, M. C.; Bonnefoy, M.; Deacon, N.; Brandner, W.; Schlieder, J. E.; Dupuy, T.; Kopytova, T.; Manjavacas, E.; Allard, F.; Homeier, D.; Henning, T., *The Astrophysical Journal Letters*, 813(2):1–6, 2015.
10. [Binaries or Variables? Disentangling the Signatures of L/T Transition Blended-Light Atmospheres](#)
† Ashraf, A.; Bardalez Gagliuffi, D.; Manjavacas, E.; **Vos, J. M.**; Faherty, J. K., accepted for publication in *The Astrophysical Journal*
11. [Tracing the Top-of-the-atmosphere and Vertical Cloud Structure of a fast-rotating late T-dwarf](#)
Manjavacas, E.; Karalidi, T.; Tan, X.; **Vos, J. M.**; Lew, B. W. P.; Biller, B. A.; Oliveros-Gómez, N. L, accepted for publication in *The Astronomical Journal*
12. [The Perkins INfrared Exosatellite Survey \(PINES\) I. Survey Overview, Reduction Pipeline, and Early Results](#)
Tamburo, P.; Muirhead, P. S.; McCarthy, A.; Hart, M.; Gracia, D.; **Vos, J. M.**; Radigan, J.; Bardalez Gagliuffi, D.; Faherty, J. K.; Theissen, C.; Agol, E.; Skinner, J.; Sagar, S., *The Astrophysical Journal*, 168 (6), 253, 2022.
13. [A Wide Planetary Mass Companion Discovered Through the Citizen Science Project Backyard Worlds: Planet 9](#)
Faherty, J. K.; Gagné, J.; Popinchalk, M.; **Vos, J. M.**; Burgasser, A. J.; Schümann, J.; Schneider, A. C.; Davy Kirkpatrick, J.; Meisner, A. M.; Kuchner, M. J.; Bardalez Gagliuffi, D. C.; Marocco, F.; Caselden, D.; Gonzales, E.; Rothermich, A.; Casewell, S.; Debes, J. H.; Aganze, C.; Ayala, A.; Hsu, C.; Cooper, W.; Smart, R. L.; Gerasimov, R.; Theissen, C. and The Backyard Worlds Collaboration, *The Astrophysical Journal*, 923 (1), 48, 2021.
14. [Revealing the Vertical Cloud Structure of an AB Pictoris b Analog through Keck I/MOSFIRE spectro–photometric variability](#)
Manjavacas, E.; Karalidi, T.; **Vos, J. M.**; Biller, B. A.; Lew, B. W. P, *The Astronomical Journal*, 162 (5), 179, 2021.
15. [Longitudinally Resolved Spectral Retrieval \(ReSpect\) of WASP–43b](#)
Cubillos, P. E.; Keating, D.; Cowan, N. B.; **Vos, J. M.**; Burningham, B.; Ygouf, M.; Karalidi, T.; Zhou, Y.; Gonzales, E. C., *The Astrophysical Journal*, 915, 45, 2021.
16. [A High–Contrast Search for Variability in HR 8799bc with VLT–SPHERE](#)
Biller, B. A.; Apai, D.; Bonnefoy, M.; Desidera, S.; Gratton, R.; Kasper, M.; Kenworthy, M.; Lagrange, A.; Lazzoni, C.; Mesa, D.; Vigan, A.; **Vos, J. M.**; Wagner, K.; Zurlo, A., *Monthly Notices of the Royal Astronomical Society*, 503(1):743–767, 2021.

**Selected White
Papers &
Research Notes**

17. [The L/T Transition](#)
Vos, J. M. et al., White Paper for Decadal Survey on Astronomy and Astrophysics 2020 by the National Academy of Science, Engineering and Medicine, *Bulletins of the American Astronomical Society*, 2019.
18. [A Tool and Workflow for Radio Astronomical “Peeling” in CASA](#)
Williams, P. K. G.; Allers, K. N.; Biller, B. A.; **Vos, J. M.**, *Research Notes of the American Astronomical Society*, 3, 110, 2019.
19. [Mapping Ultracool Atmospheres: Time–domain Observations of Brown Dwarfs and Exoplanets](#)
Apai, D. et al., incl **Vos, J. M.**, White Paper for Decadal Survey on Astronomy and

Astrophysics 2020 by the National Academy of Science, Engineering and Medicine, *Bulletins of the American Astronomical Society*, 2019.

20. [Brown Dwarfs and Directly Imaged Exoplanets in Young Associations](#)
Faherty, J. et al., incl. **Vos, J. M.**, White Paper for Decadal Survey on Astronomy and Astrophysics 2020 by the National Academy of Science, Engineering and Medicine, *Bulletins of the American Astronomical Society*, 2019.
21. [High-Resolution Spectroscopic Surveys of Ultracool Dwarf Stars & Brown Dwarfs](#)
Burgasser, A. et al., incl. **Vos, J. M.**, White Paper for Decadal Survey on Astronomy and Astrophysics 2020 by the National Academy of Science, Engineering and Medicine, *Bulletins of the American Astronomical Society*, 2019.
22. [Fundamental Physics with Brown Dwarfs: The Mass-Radius Relation](#)
Burgasser, A. et al., incl. **Vos, J. M.**, White Paper for Decadal Survey on Astronomy and Astrophysics 2020 by the National Academy of Science, Engineering and Medicine, *Bulletins of the American Astronomical Society*, 2019.
23. [IDEAS: Immersive Dome Experiences for Accelerating Science](#)
Faherty, J. et al., incl. **Vos, J. M.**, White Paper for Decadal Survey on Astronomy and Astrophysics 2020 by the National Academy of Science, Engineering and Medicine, *Bulletins of the American Astronomical Society*, 2019.