

## Dr Johanna M. Vos

---

Postdoctoral Fellow  
American Museum of Natural History  
[johannavos.github.io](https://johannavos.github.io)  
[jvos@amnh.org](mailto:jvos@amnh.org)

Professional Appointments	<b>Postdoctoral Fellow</b> Department of Astrophysics, American Museum of Natural History	2018–Present
	<b>PhD Candidate &amp; Principal’s Career Development Scholar</b> Royal Observatory of Edinburgh, University of Edinburgh	2014–2018
	<b>Teaching Assistant</b> School of Physics and Astronomy, University of Edinburgh	2014–2018
Education	<b>Institute for Astronomy, University of Edinburgh</b> <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
	<b>Trinity College Dublin</b> <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	<b>Research Support Summary:</b> \$900,000 total, \$400,000 as PI	
	Hubble Space Telescope General Observer Grant, \$102,000, <b>PI</b>	2021
	NASA Keck Data Award, \$15,500, <b>PI</b>	2021
	TESS Cycle 3 Guest Investigator Small Program, \$50,000, Co-I	2020
	Hubble Space Telescope General Observer Grant, \$171,000, <b>PI</b>	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
	<b>Subject Matter Expert</b> , <i>NASA Community College Network</i>	2022–2023
	<b>Guest Lecturer</b> , <i>Stanford University</i>	2021
	Peering into Darkness: Research Practices in Contemporary Art & Astrophysics	
	<b>Instructor</b> , <i>American Museum of Natural History</i>	2019–2020
	Designed and delivered “Stars” course for After School Program	
	<b>Head Teaching Assistant</b> , <i>University of Edinburgh</i>	2016–2018
	Physics 1B Experimental Lab	

	Observational Astronomy Lab	
	<b>Teaching Assistant</b> , <i>University of Edinburgh</i>	2014–2018
	Maths for Physics 1	
	Introductory Astrophysics	
	Discovering Astronomy	
<b>Research Advising</b>	<b>11 Undergraduate/Master’s Students</b>	
	Mohammad Refat, <i>Baruch College, CUNY</i>	
	Jose Adorno, <i>Queens College, CUNY</i> → <i>University of Miami</i>	
	Allison McCarthy, <i>University of Alabama</i> → <i>Boston University</i>	
	+ 8 students as co-mentor	
	<b>12 High–School Students</b> , 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
<b>Selected Telescope Time</b>	Gemini/IGRINS Fast Turnaround Program, 4.4 hrs, <b>PI</b>	2022
	NASA Keck/NIRSPEC, 0.5 nights, <b>PI</b>	2022
	Hubble Space Telescope (6 orbits), <b>PI</b>	2021
	James Webb Space Telescope Cycle 1, (24.6 hr), Co-I	2021
	Gemini-S/IGRINS, (21 hr), <b>PI</b>	2021
	Gemini-N/GNIRS & Gemini-S/IGRINS (13 hr), <b>PI</b>	2020
	Gemini-S/IGRINS, 31 hr, <b>PI</b>	2020
	Hubble Space Telescope (16 orbits) & Very Large Array (27.6 hr), <b>PI</b>	2019
	Spitzer Space Telescope Director’s Discretionary Time, 33.1 hr, <b>PI</b>	2019
	Spitzer Space Telescope Medium Program, 70 hr, <b>PI</b>	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, <b>PI</b>	2014–2017
<b>Service</b>	Telescope TAC Panelist, <i>NASA Keck</i> , <i>TESS</i>	2019–Present
	Journal Referee, <i>ApJ</i> , <i>ApJL</i> , <i>AJ</i>	2018–Present
	Scientific Organizing Committee, Cloud Nine Con, Heidelberg University	2020–2021
	External reviewer for Swiss National Science Foundation	2020
	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

★ Colloquium, Carnegie Earth and Planets Laboratory	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

## Selected Outreach

Speaker, <a href="#">About Us Festival UK 2022</a>	2021–2022
Speaker, Science Alliance, AMNH Youth Initiatives	2021
Question Moderator, AMNH Astronomy Online Programs	2020–2021
Speaker, STEM to SHTM Internship Program, Stanford University	2020
Featured Scientist, Million STEM	2020
Speaker, Harlem Academy High School	2020
Speaker, Westport Astronomical Society	2019
Speaker, BridgeUP: STEM Internship Program	2019
Speaker, Royal Observatory of Edinburgh Winter Talk Series	2018
Speaker, Pint of Science Festival, Edinburgh UK	2017
Contributor, Edinburgh University Sci Magazine & Women are Boring	2017–2018
Speaker, Loreto College Dublin	2016
Speaker, Royal Observatory of Edinburgh Doors Open Day	2015–2017
Workshop leader, University of Edinburgh Kickstart Program	2015–2016
Speaker, Preston Lodge High School, Edinburgh	2015
Event Assistant, Edinburgh International Science Festival	2015
STEM Ambassador, StemEast	2014–2018
Mentor, Transition Year Physics Experience Program, Trinity College Dublin	2012

## Recent Media/Press

<a href="#">Planetary Radio Podcast, The Planetary Society</a>	2022
<a href="#">California Academy of Sciences Universe Update</a>	2022
<a href="#">NASA Jet Propulsion Laboratory Press Release</a>	2022
<a href="#">AAS 239 Winter Meeting Press Conference</a>	2022
<a href="#">Irish Times Research Lives Interview</a>	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.
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.

**Co–Author  
Publications**

10. [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.; Seargey, S., submitted to *The Astrophysical Journal*, January 2022.
11. [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., submitted to *The Astrophysical Journal*, November 2021.
12. [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.
13. [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 Astrophysical Journal*, 162 (5), 179, 2021.
14. [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.
15. [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**

16. [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.
17. [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.
18. [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.
19. [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.
20. [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.

21. [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.
22. [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.