

## Dr Johanna M. Vos

---

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

<b>Professional Appointments</b>	<b>Postdoctoral Fellow</b> Department of Astrophysics, American Museum of Natural History Advisor: Dr Jacqueline K. Faherty	2018–Present
<b>Education</b>	<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 Winner	2014–2018
	<b>Trinity College Dublin</b> <i>BA (Mod) Physics with Astrophysics</i> Thesis Advisor: Prof. Peter T. Gallagher Graduated with First Class Honours	2010–2014
<b>Grants &amp; Awards</b>	Hubble Space Telescope General Observer Grant, <b>PI</b> TESS Cycle 3 Guest Investigator Small Program, Co-I Hubble Space Telescope General Observer Grant, <b>PI</b> TESS Cycle 2 Guest Investigator Small Program, Co-I NASA Exoplanets Research Program (XRP), Co-I Other Worlds Lab, UC Santa Cruz, <i>Heising-Simons Foundation</i> Cool Stars 20 Conference Grant, <i>Boston University</i> Winton Thesis Prize, <i>University of Edinburgh</i> Principal’s Go Abroad Fund, <i>University of Edinburgh</i> Exoclipse Conference Grant, <i>Boise State University</i> Principal’s Career Development Scholarship, <i>University of Edinburgh</i>	2021 2020 2019 2019 2019 2019 2018 2018 2018 2017 2014
<b>Invited Talks and Seminars</b>	Invited Colloquium, Center for Space and Habitability, University of Bern Invited Colloquium, Trinity College Dublin Invited Colloquium, University of Texas at Austin Invited Colloquium, Center for Computational Astrophysics, Flatiron Institute Invited Colloquium, NASA/Goddard Space Flight Center Invited Talk, Brown Dwarf to Exoplanet Connection, University of Delaware Invited Colloquium, Dublin Institute for Advanced Studies Invited Colloquium, American Museum of Natural History Invited Colloquium, Royal Observatory of Edinburgh Invited Talk, European Southern Observatories, Santiago, Chile	2021 2021 2021 2020 2020 2019 2019 2019 2017 2017
<b>Conference Talks</b>	Contributed Talk, American Astronomical Society Meeting 237 Contributed Talk, Exo-Webb Seminar Series Contributed talk, American Astronomical Society Meeting 235, Honolulu, HI Contributed Talk, Other Worlds Laboratory, UC Santa Cruz, CA Dissertation Talk, American Astronomical Society Meeting 233, Seattle, WA Plenary Talk, Cool Stars 20, Boston, MA	2021 2020 2020 2019 2019 2018

	Contributed Talk, Exoclipe, Boise, ID	2017
	Contributed Talk, Scottish Exoplanet and Brown Dwarf Meeting	2017
<b>Workshops Attended</b>	Tackling the Complexities of Substellar Objects, <i>Lorentz Centre, Leiden</i>	2020
	Other Worlds Laboratory, <i>University of California Santa Cruz</i>	2019
	Multi-Dimensional Characterization of Distant Worlds, <i>U of Michigan</i>	2019
<b>Selected Telescope Time</b>	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
	Hubble Space Telescope (16 orbits) & Very Large Array (27.6 hr), <b>PI</b>	2019
	Gemini-S/IGRINS, 31 hr, <b>PI</b>	2020
	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>Teaching Experience</b>	<b>Research Advisor</b>	2018–Present
	Science Research Mentoring Program (SRMP), <i>American Museum of Natural History</i>	
	Research Experience for Undergraduates (REU), <i>National Science Foundation</i>	
	AstroCom Program, <i>City University of New York</i>	
	<b>Guest Lecturer</b>	2021
	Peering into Darkness – Stanford University	
	<b>Instructor</b>	2019–2020
	Designed and delivered “Stars” course for After School Program, AMNH	
	<b>Head Teaching Assistant</b>	2016–2018
	Physics 1B Experimental Lab, University of Edinburgh	
	Observational Astronomy Lab, University of Edinburgh	
	<b>Teaching Assistant</b>	2014–2018
	Maths for Physics 1, University of Edinburgh	
	Introductory Astrophysics, University of Edinburgh	
<b>Research Mentoring</b>	<b>Undergraduate Students</b>	
	Mohammad Refat (CUNY Baruch College)	2021
	Jose Adorno (CUNY Queens College, now at University of Miami)	2020
	Allison McCarthy (University of Alabama, now at Boston University)	2019
	+8 additional students as co-mentor	2019–Present
	<b>High-school students</b>	
	Azul Ruiz Diaz (Brooklyn Technical High School)	2020
	Jai Glazer (The Dalton School)	2020
	Sophia Amenyro (University Neighborhood High School)	2020
	Izzy Lapidus (Fiorello H. LaGuardia High School)	2019
	Otis McCallum (The Beacon School)	2019
	William McCartney (New Explorations Into Science and Technology + Math)	2019
	Elko Gerville-Reache (School of The Future)	2018
	Raunak Amanna (Brooklyn Technical High School)	2018
	Nima Brivanlou (Lycée Français de New York)	2018

<b>Service</b>	External reviewer for Swiss National Science Foundation	2020–Present
	Telescope Time Allocation Committee member	2019–Present
	Journal Referee, <i>ApJ</i> , <i>ApJL</i> , <i>AJ</i>	2018–Present
	Scientific Organizing Committee, Cloud Nine Con, U of Heidelberg	2021
	Astrophysics Seminar Organizer, American Museum of Natural History	2018–2020
	Astronomy Representative, Postgraduate Forum, U of Edinburgh	2017–2018
<b>Selected Outreach Activities</b>	Scientific Advisor, “You Are Here”, FestivalUK 2022	2021–Present
	Question Moderator, AMNH Astronomy Online Programs	2020–Present
	Speaker, STEM to SHTeM 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 Open Day	2016
	Workshop leader, University of Edinburgh Kickstart Program	2015–2016
	Speaker, Women in Physics Event, 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
<b>Selected Media/Press</b>	<a href="#">Irish Times Research Lives Interview</a>	2020
	<a href="#">NRAO’s 2020 Astronomy Highlights with Phil Plait</a>	2020
	<a href="#">Space.com Science &amp; Astronomy Interview</a>	2020
	<a href="#">NASA/JPL Press Release</a>	2020
	<a href="#">New Scientist Space Research Highlights</a>	2015
	<a href="#">Science Magazine Research Spotlight</a>	2015
<b>First Author Publications</b>	* denotes equal author contribution	
	1. Let The Great World Spin: Revealing the Turbulent, Stormy Nature of Giant Planet Analogs with the Spitzer Space Telescope <b>Vos, J. M.</b> ; Faherty, J. K.; Gagné J.; Marley, M.; Metchev, S.; Gizis, J.; Rice, E., L.; Cruz, K. submitted to <i>The Astrophysical Journal</i>	
	2. <a href="#">A measurement of the wind speed on a brown dwarf</a> Allers*, K. N.; <b>Vos*</b> , J. M.; Biller*, B. A.; Williams*, P. K.G. <i>Science</i> , 368, 6487, 169–172, 2020.	
	3. <a href="#">Spitzer Variability Properties of Young Giant Planet Analogs</a> <b>Vos, J. M.</b> ; 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., <i>The Astronomical Journal</i> , 160(1):38, 2020.	
	4. <a href="#">A search for variability in exoplanet analogues and low-gravity brown dwarfs</a> <b>Vos, J. M.</b> ; 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.;	

**Co–Author  
Publications**

- 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.
  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., accepted for publication in *The Astrophysical Journal Letters*
  8. 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, accepted for publication in *The Astrophysical Journal*
  9. [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, accepted for publication in *The Astronomical Journal*
  10. [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.
  11. [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.
  12. [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.; Bézard, 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.
  13. [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.

**Selected White  
Papers &  
Research Notes**

14. [The L/T Transition](#)  
**Vos, J. M.**; Allers, K.; Apai, D.; Biller, B.; Burgasser, A. J.; Faherty, J.; Gagne, J.; Helling, C.; Morley, C.; Radigan, J.; Showman, A.; Tan, .; Tremblin, P., 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.
15. [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.
16. [Mapping Ultracool Atmospheres: Time-domain Observations of Brown Dwarfs and Exoplanets](#)  
Apai, D.; Biller, B.; Burgasser, A.; Girard, J. H.; Gizis, J. E.; Karalidi, T.; Kraus, Ad. L.; Lew, B. W. P.; Manjavacas, E.; Marley, M.; Miles-Paez, P. A.; Morley, C. V.; Radigan, J.; **Vos, J. M.**; Zhou, Y., 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. [Brown Dwarfs and Directly Imaged Exoplanets in Young Associations](#)  
Faherty, J.; Allers, Katelyn; Bardalez Gagliuffi, D.; Burgasser, A. J.; Gagne, J.; Gizis, J.; Kirkpatrick, J. D.; Riedel, A.; Schneider, A.; **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.
18. [High-Resolution Spectroscopic Surveys of Ultracool Dwarf Stars & Brown Dwarfs](#)  
Burgasser, A.; Apai, D.; Bardalez-Gagliuffi, D.; Blake, C.; Gagne, J.; Konopacky, Q.; Martin, E.; Metchev, S.; Plavchan, P.; Reiners, A.; Schlawin, E.; Sousa-Silva, C.; **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. [Fundamental Physics with Brown Dwarfs: The Mass-Radius Relation](#)  
Burgasser, A.; Baraffe, I.; Browning, M.; Burrows, A.; Chabrier, G.; Creech-Eakman, M.; Demory, B.; Dieterich, S.; Faherty, J.; Huber, D.; Lodieu, N.; Plavchan, P.; Michael Rich, R.; Saumon, D.; Stassun, K.; Triaud, A.; van Belle, G.; van Grootel, V.; **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.