

# Alex Teachey

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Education	<b>Columbia University</b>	2015 - 2020
	ON THE DETECTION AND CHARACTERIZATION OF EXOMOONS THROUGH SURVEY AND TARGETED OBSERVATIONS	
	– Doctor of Philosophy, Astronomy	2020
	– Master of Philosophy, Astronomy	2018
	– Master of Arts, Astronomy	2017
	<b>CUNY Hunter College</b>	2012 - 2015
	– Bachelor of Arts, Physics – <i>summa cum laude</i>	
	<b>New York University</b>	2003 - 2006
	– Bachelor of Fine Arts, Theatre – <i>magna cum laude</i>	
Affiliations	<b>Academia Sinica Institute of Astronomy &amp; Astrophysics</b>	
	<i>Distinguished Postdoctoral Fellow</i>	2020 - Present
	<b>Columbia University Department of Astronomy</b>	
	<i>National Science Foundation Graduate Research Fellow</i>	2015 - 2020
	<b>The American Museum of Natural History Department of Astrophysics</b>	
	<i>Undergraduate Researcher</i>	2013 - 2015
	<b>The National Radio Astronomy Observatory</b> (Socorro, NM)	
	<i>National Science Foundation REU</i>	Summer 2014
Awards	Postdoctoral Fellow Academic Research Award - MOST (Taiwan) (NT \$100,000)	2022
	Hubble Space Telescope observation GO-15149 (PI) (US \$52,683)	2017
	Graduate Research Fellowship - National Science Foundation (US \$144,000)	2015 - 2020
	JWST observation Cycle 3 observation (6491) (Co-I)	2024
	Keck (NOIRLab, 0.5 nights) (Co-I)	2021
	Phi Beta Kappa honor society	July 2015
	Undergraduate Research Fellowship - Hunter College (US \$ 2000)	2014 and 2015
	Raab Presidential Fellowship - Hunter College (US \$4100)	2013
Publications & Products	<b><i>Book chapter:</i></b>	
	<b>Teachey, A.</b> “Detecting and Characterizing Exomoons and Exorings.” Review chapter of the <i>Handbook of Exoplanets</i> , 2nd edition. January 2024. <a href="#">arXiv:2401.13293</a> .	
	<b><i>Refereed papers:</i></b>	
	<b>Teachey, A.</b> & Agarwal, G. “On the Impact and Utility of Single-Moon Modeling of Multiple Exomoon Systems”. Monthly Notices of the Royal Astronomical Society, February 2024. <a href="#">arXiv:2402.17324</a>	
	<b>Teachey, A.</b> & Kipping, D.M.. “Identifying Potential Exomoon Signals with Convolutional Neural Networks”. Monthly Notices of the Royal Astronomical Society, September 2021. Citations: 3. <a href="#">arXiv:2109.10503</a>	
	<b>Teachey, A.</b> “The Exomoon Corridor for Multiple Moon Systems”. Monthly Notices of the Royal Astronomical Society, July 2021. Citations: 7. <a href="#">arXiv:2106.13421</a>	
	<b>Teachey, A.</b> , Kipping, D.M., Burke, C.J., Angus, R., and Howard, A.W.. “Loose Ends for the Exomoon Candidate Host Kepler-1625b”. April 2019. The Astronomical Journal, February 2020. Citations: 27. <a href="#">arXiv:1904.11896</a>	

**Teachey, A.** & Kipping, D.M. “Evidence for a Large Exomoon Orbiting Kepler-1625b”. *Science Advances*, October 2018. Citations: 125. [arXiv:1810.02362](#)

**Teachey, A.**, Kipping, D.M., and Schmitt, A.R.. “HEK VI: On the Dearth of Galilean Analogs in *Kepler*, and the Exomoon Candidate Kepler-1625b I”. *The Astronomical Journal*, January 2018. Citations: 89. [arXiv:1707.08563](#)

Kipping, D.M., and **Teachey, A.** “Impossible moons – Transit timing effects that cannot be due to an exomoon”. *The Monthly Notices of the Royal Astronomical Society under review*. May 2020. Citations: 13. [arXiv:2004.04230](#)

Kipping, D.M. & **Teachey, A.** “A Cloaking Device for Transiting Planets”. *Monthly Notices of the Royal Astronomical Society*, June 2016. Citations: 33. [arXiv:1603.08928](#).

Abrahams, R.D., **Teachey, A.**, Paglione, T.A.D.. “Calibrating Column Density Tracers with Gamma-Ray Observations of the  $\rho$  Ophiuchi Molecular Cloud”. *The Astrophysical Journal*, January 2017. Citations: 4. [arXiv:1611.02265](#).

Dalba, P., Kane, St., Isaacson, H., [...] **Teachey, A.**, & Villanueva, S.. “Giant Outer Transiting Exoplanet Mass (GOT EM) Survey. IV. Long-term Doppler Spectroscopy for 11 Stars Thought to Host Cool Giant Exoplanets.” *The Astrophysical Journal Supplement Series*, March 2024. [arXiv:2401.03021](#)

Kipping, D.M., Bryson, St., Burke, C., [...] & **Teachey, A.** “An Exomoon Survey of 70 Cool Giant Exoplanets and the New Candidate Kepler-1708 b-i.” *Nature Astronomy*, January 2022. Citations: 39. [arXiv:2201.04643](#)

Kipping, D.M., Torres, G., Henze, C., **Teachey, A.**, *et al.* “A Transiting Jupiter Analog”. *The Astrophysical Journal*, April 2016. [arXiv:1603.00042](#). Citations: 41.

Kipping, D.M., Nesvorný, D., Hartman, J., [...], and **Teachey, A.** “A resonant pair of warm giant planets revealed by TESS”. *Monthly Notices of the Royal Astronomical Society*, April 2019. Citations: 28. [arXiv:1902.03900](#).

#### **Under review:**

Kipping, D., **Teachey, A.**, Yahalomi, D., *et al.* “A Reply to: Large Exomoons unlikely around Kepler-1625 b and Kepler-1708 b”. submitted to *Nature Astronomy*. [arXiv:2401.10333](#).

#### **In prep:**

**Teachey, A.** & Chawla, C. “Identification of Planet and Eclipsing Binary Candidates in Full-Frame Images from the TESS Continuous Viewing Zone”.

**Teachey, A.** “On the prediction of microlensing by known exoplanets for mass determination and exomoon detection”.

#### **Software:**

MoonPy light curve tools. [github.com/alexteachey/moonpy](https://github.com/alexteachey/moonpy) 2019 - Present

## **Teaching & Mentoring**

**ASIAA Summer Student Program** 2021 - Present

#### **Students:**

Garvit Agarwal (IISER Pune) & Al Emran (University of Arkansas) Summer 2022

Chetan Chawla (ZS Associates) & Charity Chien-Chu Wei (UC Santa Cruz) Summer 2021

**Graduate Teaching Fellow** Fall 2016 - Fall 2017

Taught three semesters of introductory astronomy labs. Designed the curriculum and developed several new labs, incorporating technology resources.

**Lecture Teaching Assistant** Fall 2015 - Spring 2016

In-class assistant for “Life in the Universe” and “Stars & Atoms”.

<b>Administrative Experience &amp; Service</b>	ASIAA Postdoc Representative	2022 - Present
	ASIAA Summer Research Committee	2022 - Present
	Magellan & MMT Time Allocation Committee (internal ASIAA review)	2021
	Admissions Committee (Columbia Dept of Astronomy)	2019
	Referee, <i>Astronomy &amp; Astrophysics</i>	2022
	Referee, <i>The Astrophysical Journal</i> (4×)	2018 - Present
	Referee, <i>Monthly Notices of the Royal Astronomical Society</i> (2×)	2021, 2022
	Graduate Student Representative (Columbia Dept of Astronomy)	2017 - 2018
	Building Committee (Columbia Dept of Astronomy)	2017
	Undergraduate Administrative Aide (NYU Dept of French)	2007 - 2012
<b>Professional Presentations</b>	Contributed talk, <a href="#">20th annual Asia Oceania Geosciences Society meeting (Singapore)</a>	August 2023
	Poster presentation, <a href="#">Protostars and Planets VII (Kyoto)</a>	April 2023
	Contributed talk, <a href="#">Stars, Planets, and Formosa conference</a>	August 2022
	Invited colloquium, Universidad Nacional Autónoma de México	March 2022
	Invited colloquium, National Tsing Hua University (Taiwan)	February 2022
	Contributed talk, <a href="#">Taiwan Physical Society annual meeting 2022</a>	January 2022
	Invited colloquium, <a href="#">National Taiwan Normal University</a>	November 2021
	Invited talk, <a href="#">Circumplanetary Disk and Satellite Formation II Conference</a>	March 2021
	Invited colloquium, <a href="#">National Central University (Taiwan)</a>	March 2021
	Invited seminar, <a href="#">University of Cambridge</a>	May 2020
	Invited colloquium, <a href="#">Academia Sinica Institute of Astronomy &amp; Astrophysics</a>	February 2020
	Invited seminar, Yale University	January 2020
	AAS 235 in Honolulu, HI (dissertation talk)	January 2020
	Extreme Solar Systems IV in Reykjavík, Iceland (poster)	August 2019
	ERES V conference at Cornell University (talk)	June 2019
	Seminar, <a href="#">University of Oxford</a>	February 2019
	Seminar, University College London	February 2019
	AAS 233 in Seattle, WA (talk)	January 2019
	Exoplanets II conference at the University of Cambridge (poster)	July 2018
	ERES IV conference at Pennsylvania State University (talk)	June 2018
	<i>Diversis Mundi</i> conference in Santiago, Chile (talk)	March 2018
	AAS 231 in Washington, DC (talk and poster)	January 2018
	AAS 229 in Grapevine, TX (talk)	January 2017
	AAS 225 in Seattle, WA (poster)	January 2015
<b>Outreach</b>	<b><i>Regular contributions:</i></b>	
	Co-Host, <a href="#">Astronomy on Tap Taipei</a> (monthly)	Fall 2020 - Present
	Co-Host, <a href="#">Weekly Space Hangout</a> (monthly)	February 2020 - May 2022
	Co-Host, <a href="#">Astronomy on Tap New York City</a> (monthly)	Fall 2018 - Spring 2020
	Co-Host, <a href="#">Out In Space</a> (LGBTQIA+ in astro podcast)	Fall 2019 - Fall 2020
	<b><i>Guest contributions:</i></b>	
	ASIAA Open House “ <a href="#">Ask The Astronomers</a> ”	November 2021
	<a href="#">Cool Worlds Lab YouTube channel</a> (contributor)	2016 - 2020
	<a href="#">Skype A Scientist</a> volunteer	Fall 2019
	Amateur Astronomers Association of New York (public lecture)	December 2019
	Intrepid Museum GOALS for Girls (keynote lecture)	November 2019
	The Bluffs Community Center (public lecture)	December 2018
	Westchester Amateur Astronomers (public lecture)	June 2018
	Westport Astronomical Society ( <a href="#">public lecture</a> )	February 2018
	Columbia University Public Outreach Night (lecture)	October 2017
	Rider University “Science Fridays” ( <a href="#">public lecture</a> )	October 2017
	Congressional District Office Meeting (Sen. Chuck Schumer)	August 2017
	Entertaining Science at Cornelia Street Cafe (public lecture)	June 2017
	Arts and Astro at Columbia University (public talk)	March 2017

	South Bronx Classical Charter School II (classroom visit)	May 2016
	Astronomy on Tap NYC guest presenter (various topics)	2016 - 2018
	Columbia University Public Outreach Night volunteer	2015 - Present
	<i>Sagan's Brain</i> (science outreach blog)	2009 - 2016
<b>Select Media</b>	<a href="#">The Astro Show</a> (Wyoming Stargazing)	September 2022
	<a href="#">“Living and Working in Taiwan”</a> (ASIAA)	September 2022
	<a href="#">The Fraser Cain YouTube Channel</a> (Universe Today)	November 2021
	<i>The Download</i> (Parts <a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> , <a href="#">5</a> ) (Radio Taiwan International)	October 2021
	<a href="#">AAASky</a> (Amateur Astronomers Association of New York)	April 2021
	<a href="#">ASIAA astronomy podcast</a>	March 2021
	<i>Science Friday</i> (WNYC)	October 2018
	<i>Quirks &amp; Quarks</i> (CBC radio)	October 2018
	Guest columnist, <i>Scientific American</i>	July 2017
	<i>The Roe Conn Show</i> (WGN radio)	April 2016
	<i>The Takeaway</i> (WNYC)	March 2014
<b>Graduate Coursework</b>	Radiative Processes	J. Halpern
	Stellar Structure & Evolution	G. Bryan
	Galactic Dynamics	J. van Gorkom & K. Johnston
	Fluid Dynamics	G. Bryan
	Instabilities	L. Sironi
	Physics of the ISM & IGM	F. Paerels
	Astrophysics II (Black Holes and AGN)	A. Beloborodov
	Cosmology	L. Hui
<b>Skills</b>	Python, machine learning, Bayesian analysis, transit modeling, HST observation planning and data reduction, time-domain photometry analysis, <i>N</i> -body simulations, German (intermediate), Mandarin Chinese (intermediate), administration, public outreach	
<b>Advisors</b>	David M. Kipping (Columbia)	Fall 2015 - Summer 2020
	Marcel A. Agüeros (Columbia)	Fall 2016 - Spring 2017
	Timothy A.D. Paglione (CUNY / AMNH)	Spring 2013 - Summer 2015
	Elisabeth A.C. Mills (NRAO)	Summer 2014
<b>References</b>	David M. Kipping (Columbia), Caleb Scharf (Columbia), Min-Kai Lin (ASIAA)	