

# Alex Teachey

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<b>Education</b>	<b>Columbia University in the City of New York</b> <i>On the Detection and Characterization of Exomoons Through Survey and Targeted Observations</i>	2015 - 2020
	– Doctor of Philosophy, Astronomy	2020
	– Master of Philosophy, Astronomy	2018
	– Master of Arts, Astronomy	2017
	<b>Hunter College (City University of New York)</b> – Bachelor of Arts, Physics – <i>summa cum laude</i>	2012 - 2015
	<b>New York University</b> – Bachelor of Fine Arts, Theatre – <i>magna cum laude</i>	2003 - 2006
<b>Affiliations</b>	<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 (Socorro, NM)</b> <i>National Science Foundation REU</i>	Summer 2014
<b>Awards</b>	National Science Foundation Graduate Research Fellowship (NSF GRFP)	2015 - 2020
	Hubble Space Telescope observation GO-15149 (principal investigator)	2017
	Phi Beta Kappa honor society	July 2015
	Undergraduate Research Fellowship (Hunter College)	2014 and 2015
	Raab Presidential Fellowship (Hunter College)	2013
<b>Publications &amp; Products</b>	<i>Refereed papers:</i>	
	<b>Teachey, A.</b> & Kipping, D.M.. “Identifying Potential Exomoon Signals with Convolutional Neural Networks”. Monthly Notices of the Royal Astronomical Society, September 2021. <a href="https://arxiv.org/abs/2109.10503">arXiv:2109.10503</a>	
	<b>Teachey, A.</b> “The Exomoon Corridor for Multiple Moon Systems”. Monthly Notices of the Royal Astronomical Society, July 2021. <a href="https://arxiv.org/abs/2106.13421">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. <a href="https://arxiv.org/abs/1904.11896">arXiv:1904.11896</a>	
	<b>Teachey, A.</b> & Kipping, D.M. “Evidence for a Large Exomoon Orbiting Kepler-1625b”. Science Advances, October 2018. <a href="https://arxiv.org/abs/1810.02362">arXiv:1810.02362</a>	
	<b>Teachey, A.</b> , Kipping, D.M., and Schmitt, A.R.. “HEK VI: On the Dearth of Galilean Analogs in <i>Kepler</i> , and the Exomoon Candidate Kepler-1625b I”. The Astronomical Journal, January 2018. <a href="https://arxiv.org/abs/1707.08563">arXiv:1707.08563</a>	
	Kipping, D.M., and <b>Teachey, A.</b> “Impossible moons – Transit timing effects that cannot be due to an exomoon”. The Monthly Notices of the Royal Astronomical Society <i>under review</i> . May 2020. <a href="https://arxiv.org/abs/2004.04230">arXiv:2004.04230</a>	
Kipping, D.M. & <b>Teachey, A.</b> “A Cloaking Device for Transiting Planets”. Monthly Notices of the Royal Astronomical Society, June 2016. <a href="https://arxiv.org/abs/1603.08928">arXiv:1603.08928</a> .		

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. [arXiv:1611.02265](https://arxiv.org/abs/1611.02265).

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. [arXiv:2201.04643](https://arxiv.org/abs/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](https://arxiv.org/abs/1603.00042).

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. [arXiv:1902.03900](https://arxiv.org/abs/1902.03900).

***In preparation:***

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

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

“A search for exocomets with TESS”. Marshall, J. & **Teachey, A.**, et. al.

***Software:***

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

2019

**Professional Presentations**

Invited colloquium, National Tsing Hua University (Taiwan) (forthcoming)	February 2022
Oral presentation, <a href="#">Taiwan Physical Society annual meeting 2022</a> (forthcoming)	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</a> (Taiwan)	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

**Teaching & Mentoring**

**ASIAA Summer Student Program 2021** Summer 2021  
Sole advisor for one student (Chetan Chawla) and co-advisor for another (Charity Chien-Chu Wei).

**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”.

**Outreach**

***Regular contributions:***

Co-Host, <a href="#">Astronomy on Tap Taipei</a> (monthly)	Fall 2020 - Present
Co-Host, <a href="#">Weekly Space Hangout</a> (monthly)	February 2020 - Present
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

**Guest contributions:**

ASIAA Open House “ <a href="#">Ask The Astronomers</a> ” (video)	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

**Select Media**

<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

**Administrative Experience & Service**

ASIAA Summer Research Committee	2022
Magellan & MMT Time Allocation Committee (internal ASIAA review)	2021
Admissions Committee (Columbia Dept of Astronomy)	2019
Referee, <i>The Astrophysical Journal</i> (2×)	2018, 2021
Referee, <i>Monthly Notices of the Royal Astronomical Society</i>	2021
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

**Graduate Coursework**

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

**Skills**

Python, machine learning, Bayesian analysis, transit modeling, HST observation planning and data reduction, time-domain photometry analysis, *N*-body simulations, German (intermediate), Mandarin Chinese (intermediate), administration, public outreach

**Advisors**

David M. Kipping (Columbia)  
Marcel A. Agüeros (Columbia)  
Timothy A.D. Paglione (CUNY / AMNH)  
Elisabeth A.C. Mills (NRAO)

Fall 2015 - Summer 2020  
Fall 2016 - Spring 2017  
Spring 2013 - Summer 2015  
Summer 2014

**References**

David M. Kipping (Columbia)  
Caleb Scharf (Columbia)  
Min-Kai Lin (ASIAA)