

Dr. Abigail L. Stevens

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Current

Astronomy instructor, MSU Center for Integrative Studies in General Science East Lansing, MI
“Visions of the Universe” (intro astronomy and cosmology; fully virtual) Fall 2021

NSF Astronomy & Astrophysics Postdoctoral Fellow, Mich. State U. (J. Strader) and U. Mich. (J.M. Miller) MI, USA
[Fellowship is paused while teaching] 2018–present

Education

Ph.D. in Astronomy, Universiteit van Amsterdam (Advisor: P. Uttley) Amsterdam, Netherlands
Thesis: “[New techniques for understanding rapid X-ray variability from compact objects](#)” 2013 – 2018

M.Sc. in Physics, University of Alberta (Advisor: S. Morsink) Edmonton, AB, Canada
Thesis: “[Understanding parameter degeneracies in neutron star X-ray light curves](#)” 2011 – 2013

B.A. in Physics, Bard College (Advisor: P. Skiff) Annandale-on-Hudson, NY, USA
Thesis: “[A mathematical exploration of low-dimensional black holes](#)” 2007 – 2011

Leadership

MSU Dept. of Physics & Astronomy, Astro seminar committee East Lansing, MI, 2020 – 2021

Anton Pannekoek Institute PhD and PD Council, Founding member and chairperson Amsterdam, 2015 – 2016

Nerd Nite Amsterdam, Boss of communications and public relations Amsterdam, 2014 – 2016

Journal club, Organizer Amsterdam, 2014 – 2015

“**Timing Club**” X-ray group meeting, Founder and organizer Amsterdam, 2014 – 2015

Canadian Astronomical Society Graduate Student Committee, Interim Education and Public Outreach Officer Edmonton, AB, 2013

Canadian Astronomical Society Graduate Student Committee, U. Alberta representative Edmonton, AB, 2013

U. Alberta Observatory, Teaching Assistant/Manager Edmonton, AB, 2012 – 2013

Assiniboia Community Housing Co-operative, House representative and house treasurer Edmonton, AB, 2012 – 2013

U. Alberta Graduate Physics Student Association, Astrophysics representative Edmonton, AB, 2012 – 2013

Bard College Office of Residence Life, Peer Counselor Annandale-on-Hudson, NY, 2009 – 2011

Teaching

Bard College Citizen Science program, Instructor (*upcoming*) Annandale-on-Hudson, NY, 2022
Science literacy, data analysis and modeling, ethics of data science

IAA School on Astrostatistics, Invited instructor (*upcoming*) Granada, Spain, 2021
Data modeling, time series analysis, bootstrap and jackknife techniques, ethics of data science

LSST Data Science Fellowship Program, Invited instructor Pittsburgh, PA, 2019
[Time-domain analysis](#), periodic and quasi-periodic signals, noise processes

Anton Pannekoek Institute, U. Amsterdam, Teaching Assistant Amsterdam, Netherlands, 2013 – 2015
Open Problems in Modern Astrophysics (MSc level), Observatory practicum (BSc level)

Department of Physics, U. Alberta, Teaching Assistant
Edmonton, AB, 2011 – 2013
Observatory (3rd & 6th grade, and general public), Intro physics lab, High school physics experiments

Johns Hopkins Center for Talented Youth, Teaching Assistant
Palo Alto, CA, 2011
Science and Engineering (5th & 6th grade)

Bard College Learning Commons, Tutor
Annandale-on-Hudson, NY, 2009 – 2011
Light and Color, Acoustics, Calculus 1, Intro to Mathematical Modelling, Math study room

Mentoring

Megan Davis, Post-baccalaureate research assistant
East Lansing, MI, 2019-2020
Year-long research project on phase-resolved spectroscopy of black holes and neutron stars with *NICER* data

Swapnil Sharma, Google Summer of Code student
Remote, 2018
[Stingray](#) library development under the [Open Astronomy organization](#)

Outreach

Public talks and panels:

- Podcast guest on [Abstract: The Future of Science](#) with Jeremy Ullman (2021)
- Lecturer on “How Can We ‘See’ Black Holes?” for the Great Lakes Lectures series (2021)
- Astronomer for the Skype A Scientist “May The Fourth” Star Wars panel (2021)
- Finalist in the Skype A Scientist “No Time Like The Presentation!” competition (2021)
- Virtual talks for families for the [Abrams Planetarium](#) and MSU Science Festival in East Lansing (2020–present)
- Invited panelist for “Adler After Dark: Out in Space” at the Adler Planetarium in Chicago (2019)
- Invited speaker at [Astronomy On Tap Lansing](#) (2018, 2019, 2020)
- Invited speaker at *LogiCON* in Edmonton, AB (2013)
- Presenter at [Nerd Nite Edmonton](#) (2012)

Art + science:

- Writer and presenter, [REO Town Reading Series](#) in Lansing, MI (2021)
- Science consultant, [Inquiry Arts](#) virtual residency (2021)
- Presenter, [Schrodinger’s Cat Is In Town II](#), MSU Broad Museum Art Lab (2020)
- Invited presenter at [Science-Art Slam](#) in Amsterdam (2017)

Science Day events:

- Activity leader for Make Your Own Pulsar! for multiple school groups at *MSU Science Festival* school program day (2020)
- Activity leader for Make Your Own Pulsar! for ~300 kids grades K-8 over 6 hours at *MSU Science Festival* Expo Day (2019)
- Volunteer at *Science Park Open Day* in Dutch and English at U. Amsterdam (2013, 2014, 2015)
- Activity leader for 6th grade girls at the *Women in Scholarship, Engineering, Science, and Technology (WISEST) Choices Conference* at U. Alberta (2012, 2013)
- Presenter and activity leader for grades 2-7 at *Science FUNday* at U. Alberta (2012, 2013)
- Science fair judge at Belgravia Elementary School in Edmonton, AB (2013)
- Volunteer at the Department of Physics Open House at U. Alberta (2012)
- Assistant presenter at *Young Science Day* in Rhinebeck, NY (2010)

Public observatory nights:

- Volunteer at the *MSU Observatory* (2018–2019)
- Volunteer at the *Anton Pannekoek Observatory* in Amsterdam (2014)
- Volunteer at the *U. Alberta Observatory* (2011–2012)

Classroom lessons:

- 20+ with *Skype A Scientist* discussing astronomy and space science for all grades, virtual (2020–present)
- 15+ with *MSU Science Festival* discussing black holes and gravity for grades 6-8 in East Lansing, MI (2019–present)
- *Introduction to the Solar System* for grades 3-6 in Dutch and English in Amsterdam (2017)
- 20+ of *From sunspots to the aurora borealis* with solar observing for grades 3 and 6 in Edmonton, AB (2012–2013)

Social media management:

- Social media manager for proposed Probe-class mission *STROBE-X* (2017–2019)
- Guest writer at the *AstroBetter* blog on [MScs](#) and [PhDs](#) outside the US and [Twitter at conferences](#) (2016, 2018)
- [Astrotweeps](#) host (2017)
- Twitter co-manager for the *71st Netherlands Astronomy Conference* (2016)

Mental Wellbeing in Academia

- [Seminar and discussion](#) at the *MSU Astronomy group* all-hands meeting (2020)
- Invited speaker at the *MSU JINA Science Cafe* (2019)
- Invited [panelist](#) at the *Women in Physics Canada* conference (2019)
- Lunch discussion at the *LSST Data Science Fellowship program* (2019)
- Invited [workshop](#) co-leader at the *Conference for Undergraduate Women in Physics* at MSU (2019)
- Soft-skills astronomy and physics [seminar](#) at MSU (2018)

Professional Service

Steering committee	STROBE-X (proposed NASA Probe for Astro2020 Decadal)
Time allocation committee	<i>NuSTAR</i> , <i>Swift</i> , <i>Chandra</i> , NASA Astrophysics Data Analysis Program
Scientific organizing committee	Chandra Data Science 2021 workshop , The Future of X-ray Timing , Python in Astronomy 2019 , Python in Astronomy 2017
Referee	Nature Astronomy, MNRAS, SciPy Conference
Co-organizer	EWASS 2017 session on research software and hack day, AAS 229 Hack Together Day

Selected Invited Talks

27 invited department colloquia, seminars, and conference talks in 2015-2021. Another 16 contributed conference talks in 2015-2019.

Western U. Institute for Earth and Space Exploration colloquium	London, ON, Canada, 2021
U. Washington Department of Astronomy colloquium	Seattle, WA, 2020
U. Rochester Department of Physics & Astronomy colloquium	Rochester, NY, 2020
Bard College Physics colloquium	Annandale-on-Hudson, NY, 2019
Howard U. Department of Physics and Astronomy colloquium	Washington, DC, USA, 2019
Women in Physics Canada 2019 conference	Montreal, QC, Canada, 2019
AAS 17th High Energy Astrophysics Division meeting (3 invited talks)	Monterey, CA, USA, 2019
Wayne State U. Undergraduate Research Fair keynote	Detroit, MI, USA, 2018
MIT X-ray group seminar	Cambridge, MA, USA, 2017
Harvard/CfA guest seminar	Cambridge, MA, USA, 2017
NASA Goddard X-ray astrophysics group seminar	Greenbelt, MD, USA, 2015

Selected Publications

[Full publication list on ADS](#) | ORCID: [0000-0002-5041-3079](#)

- J. Homan, J. Bright, S.E. Motta, et al. (13 more co-authors including **A.L. Stevens**) 2020. *A Rapid Change in X-ray Variability and a Jet Ejection in the Black Hole Transient MAXI J1820+070*, ApJL, 891, L29
- D. Huppenkothen, M. Bachetti, **A.L. Stevens**, et al. 2019. *Stingray: A Modern Python Library For Spectral Timing*, ApJ, 881, 39
- E. Kara, J.F. Steiner, A.C. Fabian, et al. (13 more co-authors including **A.L. Stevens**) 2019. *The corona contracts in a new black hole transient*, Nature, 565, 198 (cover, News & Views)
- **A.L. Stevens**, P. Uttley, D. Altamirano, et al. 2018. *A NICER Discovery of a Low-Frequency Quasi-Periodic Oscillation in the Soft-Intermediate State of MAXI J1535–571*, ApJL, 865, L15
- **A.L. Stevens** and P. Uttley 2016. *Phase-Resolved Spectroscopy of Type B QPOs in GX 339–4*, MNRAS, 460, 2796

Selected Grants

Co-I , Hubble Cycle 29 General Observer Program (PI: R. Hynes) <i>Disk, wind, and jet coupling in a black hole X-ray transient in outburst with HST and JWST</i>	2021
Co-I , JWST Cycle 1 General Observer Program (PI: P. Gandhi, Co-PIs: T. Maccarone, A. Shaw) <i>Black Hole Jet Launching Physics with MIRI</i>	2021
Co-I , JWST Cycle 1 General Observer Program (PI: P. Gandhi, Co-PIs: T. Maccarone, A. Shaw) <i>Validating JWST's In-orbit Clock Accuracy</i>	2021
PI , NICER Cycle 1 joint with NuSTAR Cycle 5 Guest Observer Facilities <i>Comparing emission mechanisms of low-frequency QPOs in black holes and neutron stars</i>	2019 \$60k/1yr
PI , NSF Astronomy & Astrophysics Postdoctoral Fellowship <i>Mapping Matter in Strong Gravity: Spectral-Timing of Black Holes and Neutron Stars</i>	2018 – present \$350k/3.5yr
Awardee , Travel grants (5 over 5 years) <i>LKBF (Leids Kerkhoven-Bosscha Fonds), U. Alberta</i>	2012–2017 ~\$10k total