

Dr. Abigail L. Stevens

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Current

NSF Astronomy & Astrophysics Postdoctoral Fellow, Mich. State U. (J. Strader) and U. Mich. (J.M. Miller) MI, USA
Managing and executing research projects pertaining to black holes and neutron stars 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

[Stingray software](#), Release manager Remote, 2022 – present
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, Faculty Annandale-on-Hudson, NY
Science literacy, data analysis and modeling in R, environmental contamination, data ethics 2022
IAA School on Astrostatistics, Instructor Granada, Spain
[Time series analysis in Python](#), [bootstrap and jackknife techniques](#), data visualization 2021
MSU Center for Integrative Studies in General Science, Astronomy instructor East Lansing, MI
Intro astronomy and cosmology for non-STEM majors; fully virtual 2021
LSST Data Science Fellowship Program, Instructor Pittsburgh, PA
[Time-domain analysis](#), periodic and quasi-periodic signals, noise processes 2019
U. Amsterdam Anton Pannekoek Institute, Teaching Assistant Amsterdam, Netherlands
Open Problems in Modern Astrophysics (MSc level), Observatory practicum (BSc level) 2013 – 2015

U. Alberta Department of Physics, Teaching Assistant	Edmonton, AB
Observatory (3rd & 6th grade, and general public), Intro physics lab, High school physics experiments	2011 – 2013
Johns Hopkins Center for Talented Youth, Teaching Assistant	Palo Alto, CA
Science and Engineering (5th & 6th grade)	2011
Bard College Learning Commons, Tutor	Annandale-on-Hudson, NY
Light and Color, Acoustics, Calculus 1, Intro to Mathematical Modelling, Math study room	2009 – 2011

Mentoring

Megan Davis, Post-baccalaureate research assistant	East Lansing, MI
Year-long research project on phase-resolved spectroscopy of black holes and neutron stars with <i>NICER</i> data	2019–2020
Swapnil Sharma, Google Summer of Code student	Remote
Stingray library development under the Open Astronomy organization	2018

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)

Outreach

Public talks and panels:

- Keynote presenter for the *Royal Astronomical Society of Canada - Calgary centre* (2022)
- JWST Day planner and lead at the *Abrams Planetarium* (2021)
- Panel on social media in science communication with [FORCE11](#) (2021)
- 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)
- Panelist for “[Adler After Dark: Out in Space](#)” at the Adler Planetarium in Chicago (2019)
- Speaker at [Astronomy On Tap Lansing](#) (2018, 2019, 2020)
- 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)

Professional Service

Steering committee [STROBE-X](#) (proposed NASA X-ray space telescope)

Time allocation committee *NuSTAR*, *Swift*, *Chandra*, 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 The Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Nature Astronomy, SciPy Conference

Co-organizer EWASS 2017 session on research software and hack day, AAS 229 Hack Together Day

Selected Grants

Co-Investigator , <i>Hubble</i> Cycle 29 General Observer Program	2021
<i>Disk, wind, and jet coupling in a black hole X-ray transient in outburst with HST and JWST</i>	
Co-Investigator , <i>JWST</i> Cycle 1 General Observer Program	2021
<i>Black Hole Jet Launching Physics with MIRI</i>	
Co-Investigator , <i>JWST</i> Cycle 1 General Observer Program	2021
<i>Validating JWST's In-orbit Clock Accuracy</i>	
Principal Investigator , <i>NICER</i> Cycle 1/ <i>NuSTAR</i> Cycle 5 Guest Observer Facilities	2019
<i>Comparing emission mechanisms of low-frequency QPOs in black holes and neutron stars</i>	\$60k/1yr
Principal Investigator , NSF Astronomy & Astrophysics Postdoctoral Fellowship	2018 – present
<i>Mapping Matter in Strong Gravity: Spectral-Timing of Black Holes and Neutron Stars</i>	\$350k/3.5yr
Recipient , Travel grants (5 over 5 years)	2012–2017
<i>LKBF (Leids Kerkhoven-Bosscha Fonds), U. Alberta</i>	~\$10k total

Selected Invited Talks

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

Princeton Institute for Advanced Study astrophysics seminar	Princeton, NJ, 2021
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

Interests

- Programming languages: Python (advanced), \LaTeX markup (advanced), HTML/CSS (intermediate), C (beginner), R (beginner), Java (beginner), Fortran77 (beginner)
- git version control via [GitHub](#)
- Command-line interface (CLI) and bash scripting
- Building a Linux Ubuntu server and Raspberry Pi computer
- Data visualization and graphical representation of information
- Hobbies: singing, knitting, theater, gardening (with a focus on native and pollinator-friendly species)