Andrea Derdzinski
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Positions

Postdoctoral Fellow Feb 2020 - present
Center for Theoretical Astrophysics and Cosmology
Institute for Computational Science, University of Zurich, Switzerland
National Science Foundation Graduate Research Fellow Aug 2015 - Dec 2020
Astronomy Department, Columbia University, New York, U.S.A.

Education

Columbia University in the City of New York
Ph.D, Astronomy May 2020
Dissertation: *Signatures of accretion disks around coalescing BH binaries*
Advisor: Prof. Zoltán Haiman
Master of Arts, Master of Philosophy Oct 2016, May 2017
University of California, Santa Cruz
Bachelor of Science, Astrophysics June 2014

Awards and Honors

Tomalla Foundation for Gravity Research Fellowship Feb 2020 - Dec 2021
National Science Foundation Graduate Research Fellowship Aug 2015 - Dec 2019
Columbia University Lead Teaching Fellowship 2016 - 2017
Dean's Fellowship, Columbia University 2014 - 2019
Outstanding Poster Presentation, Undergraduate Women in Physics, UC Berkeley Jan 2014
LAMAT REU Fellowship, University of California, Santa Cruz 2013
NASA California Space Grant Consortium Fellowship 2013

Professional Contributions, Collaborative Work, and Mentorship

Referee, MNRAS, ApJ, Nature Astronomy
Organizer, Gravitational Waves Seminars, University of Zurich (UZH) 2021 - present
Organizer, Student Seminars, ICS Ph.D. Program, UZH 2021 - present
· I organize talks by students on topics beyond their research, providing guidance and feedback as part of their professional development.
Organizer, Theoretical Astrophysics and Cosmology Seminars, UZH 2020 - present
Visiting Scientist, International Space Science Institute May 2023
· Team 551: *Future Missions to Uranus and Neptune: Prospects for Non-Planetary Science* (PIs: Dan D'Orazio & Prasenjit Saha).
Co-Supervisor, Masters student thesis research projects 2021
· M. Pijnenburg, *Tidal disruption events in dwarf galaxies*, now a PhD student at University of Geneva

· N. Kubli, *Instabilities in self-gravitating, magnetized accretion disks*, now a PhD student at ICS

Member of LISA Science Group and Astrophysics Working Group 2020 - present

· I am a coordinator of one of the first (ongoing) collaborative Astro Working Group projects and a contributor to the Red Book which outlines the mission requirements.

· I coordinated and contributed sections to the Astrophysics White Paper in Living Reviews in Relativity (arXiv:2203.06016). This work summarizes the capabilities of the future mission and recommends critical next steps to achieve the proposed goals.

Organizer and Mentor, Columbia Astronomy Mentorship Program 2015 - 2019

· I coordinated one-on-one mentorship pairing, organized presentations on useful skills for undergraduate and graduate mentors/mentees, and advocated for department funding to facilitate monthly lunch meetings (press:"Astronomy grads support undergrad students in new program").

Co-Organizer, Conference for Undergraduate Women in Physics in NYC Jan 2019

Panel Organizer and Moderator, *Women in Physics-Driven Careers*, NYC Jan 2019

Organizer, weekly astro-ph discussions, Columbia Astronomy 2018

Co-Organizer, LSST Detection of Optical Counterparts to GWs, Columbia May 2017

Co-Organizer, Astrofest Conference, Columbia University Sep 2016

Professional Development and Teaching

Lead Teaching Fellow, Columbia University Center for Teaching & Learning 2016 - 2017

· As a Fellow, I attended several pedagogical seminars and received financial support to organize pedagogical workshops in the Astronomy department.

Computational Plasma Astrophysics Summer Program, IAS, Princeton July 2016

Participant & Team Leader, Institute for Science & Engineering Educators 2014 - 2016

· ISEE is a Professional Development Program that trains scientists in Inquiry-based teaching methods. As a participant, I attended 2 pedagogical meetings each year and organized workshops at Columbia for undergraduates that incorporate scientific research methods. The second year I returned as a Design Team Leader to guide a team with the implementation of a workshop on data analysis and coding practices.

Teaching Assistant, Columbia University, *Earth, Moon, and Planets* Spring 2015

Teaching Assistant, Columbia University, *Life in the Universe* Fall 2014

Tutor, UC Santa Cruz, Introduction to Scientific Computing & IDL Fall 2014

Community Involvement

in addition to public talks (see below)

Volunteer, 3 years of 'Meet the Scientist' Sessions, Intrepid Museum in NYC 2015 - 2018

· I ran a public information booth on 'Meet the Astrophysicists' as part of Kid's Week.

Volunteer, Columbia Astronomy Outreach Program 2014 - 2018

· I helped organize free public lectures and rooftop stargazing.

Scientific Presentations and Science Communication

I have given **30+** talks at various institutions, international conferences, workshops, and public events.

Seminar (remote), Lunar Gravitational Wave Antenna (LGWA) group meeting May 2023

Colloquium, GRAPPA, University of Amsterdam — Nov 2022
GRavitation Astroparticle Physics Amsterdam

Invited Talk, Center for Relativistic Astrophysics, Georgia Tech — Oct 2022
CRA Seminar

Invited Talk, Cahill Center for Astronomy & Astrophysics, Caltech — Sep 2022
Theoretical AstroPhysics Including Relativity and Cosmology Seminar

Talk (remote), Sun Yat-sen University, Guangzhou, China — Aug 2022
TianQin Astronomy Workshop

Invited Talk, Max Planck Institute for Gravitational Physics, Potsdam — July 2022
Seminar at the Albert Einstein Institute

Talk, Institute for Gravitational Wave Astronomy, University of Birmingham, U.K. — June 2022
LISA Astrophysics Working Group meeting

Invited Review Talk, Sapienza University of Rome, Italy — June 2022
EuCAPT Workshop on GW Probes of BH Environments

Talk, Neils Bohr Institutet, Denmark — Sep 2021
Young Astronomers on Galactic Nuclei Conference

Talk (remote), hosted by University of Zurich, Switzerland — June 2021
LISA Astrophysics Working Group Meeting

Talk (remote), hosted by Neils Bohr Institutet, Denmark — Oct 2020
Young Astronomers on Galactic Nuclei Conference

Invited Talk (remote), Center for Computational Astrophysics, Flatiron Institute — Oct 2020
AGN disks: Where the Wild Things Are Workshop

Invited Talk (remote), Center for Computational Astrophysics, Flatiron Institute — May 2020
Compact Objects Group Meeting

Talk, Radboud University, Netherlands — Mar 2020
LISA Astrophysics Working Group Meeting

Invited Talk, Institute for Computational Science, University of Zurich — Jan 2020
Theoretical Astrophysics & Computational Science Seminar

Competition Talk, Columbia University — Dec 2019
Finalist for the Three-minute Thesis Competition

Talk, Astronomy Department, Columbia University — 2015 - 2019
Yearly Astrofest Conference

Invited Talk, Private residence, New York City — April 2019
Astronomy Council Fundraising Meeting

Talk, Institute d'Astrophysique de Paris — Dec 2018
LISA Astrophysics Working Group Meeting

Invited Review Talk, NSCA, University of Illinois Urbana-Champaign — Oct 2018
Deep Learning for Multi-messenger Astrophysics conference

Invited Review Talk, UAB Barcelona, Spain — Sep 2018
Astro-GR / Tal Alexander Meeting

Talk, Chicago, Illinois U.S.A. — July 2018
AAS 12th International LISA Symposium

Public Talk, Columbia Astronomy Outreach Program — April 2018
Waves from Space

Public Talk, Astronomy on Tap NYC — April 2018

Imaging the Milky Way's supermassive black hole

Invited Talk, UC Berkeley Mar 2018
Theoretical Astrophysics Center Seminar

Invited Talk, Caltech Sep 2017
The Dynamic Infrared Sky Conference

Talk, University of Cambridge, U.K. May 2017
The Disc Migration Issue Meeting

Invited Talk, Columbia University Jan 2017
Common Envelope Workshop

Public Talk, 100% Outer Space Party at Littlefield, Brooklyn, NY Aug 2016
Black holes don't suck

Poster, Columbia University June 2016
Conference on Shocks in Novae and Supernovae

Poster, Harvard University May 2016
Sackler Conference on Transient Astronomy

Public Talk, Astronomy on Tap NYC May 2015
*The Rosetta Mission (We landed on a %$&*ing comet!)*

Public Talk, Columbia University Outreach Program Jan 2015
Observing Comet Lovejoy

Poster, Conference for Undergraduate Women in Physics, UC Berkeley Jan 2014
Modeling the External Environments of White Dwarf Binary Systems

Publication List

Alternatively, see the NASA ADS search.
4 first-author (3 refereed, 1 under review), 2 second-author and 2 *n*th-author (refereed)
total citations: 290+

Papers accepted or submitted to peer-reviewed scientific journals: *denotes advised students

8. M. Garg*, **A. Derdzinski**, L. Zwick*, P. R. Capelo, L. Mayer, *The imprint of gas on gravitational waves from LISA intermediate-mass black hole binaries*, MNRAS, 517, Issue 1, pp.1339-1354 (2022)

7. **A. Derdzinski** & Lucio Mayer, *In-situ extreme mass ratio inspirals via sub-parsec formation and migration of stars in thin, gravitationally unstable AGN discs*, MNRAS, 521, Issue 3, pp.4522-4543 (2023)

6. L. Zwick*, **A. Derdzinski**, M. Garg*, P. R. Capelo, L. Mayer, *Dirty waveforms: Multiband harmonic content of gas-embedded gravitational wave sources*, MNRAS, 511, 4, 6143-6159 (2022)

5. P. Amaro-Seoane, [33 authors], **A. Derdzinski**, [120 authors], *Astrophysics with the Laser Interferometer Space Antenna*, Living Reviews in Relativity, Volume 26, Issue 1, article id.2 (2023) arXiv:2203.06016

4. **A. Derdzinski**, D. D'Orazio, P. Duffell, Z. Haiman, A. Macfadyen, *Evolution of gas disc embedded intermediate mass ratio inspirals in the LISA band*, MNRAS, 501, Issue 3, pp.3540-3557 (2021)

3. P. Duffell, D. D'Orazio, **A. Derdzinski**, Z. Haiman, A. Macfadyen, *Circumbinary Disks: Accretion and Torque as a Function of Mass Ratio and Disk Viscosity*, ApJ, 901, Issue 1, id.25 (2020)

2. **A. Derdzinski**, D. D'Orazio, P. Duffell, Z. Haiman, A. Macfadyen, *Probing gas disc physics with LISA: simulations of an intermediate mass ratio inspiral in an accretion disc*, MNRAS 486, pp.2754-2765 (2019)

1. **A. Derdzinski**, B. Metzger, D. Lazzati, *Radiative Shocks Create Environments for Dust Formation in Classical Novae*, MNRAS 469, pp.1314-1329 (2017)

White Papers:

2. J. Baker, [7 authors], **A. Derdzinski**, [26 authors] *Multimessenger science opportunities with mHz gravitational waves*, Astro2020: Decadal Survey on Astronomy and Astrophysics, 51, Issue 3, id. 123 (2019)

1. L. Chomiuk, E. Aydi, A. Babul, **A. Derdzinski**, [9 authors], *A Shocking Shift in Paradigm for Classical Novae*, Astro2020 Science White Paper, (2019)