A. SYLVIA BISCOVEANU

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EDUCATION

Massachusetts Institute of Technology, *Cambridge, MA* 2018–2023
Ph.D. in Physics, June 2023
From black holes to the Big Bang: astrophysics and cosmology with gravitational waves and their electromagnetic counterparts, advisor Salvatore Vitale

The Pennsylvania State University, *State College, PA* 2013–2017
B.S. in Physics and B.A. in Spanish, May 2017 GPA: 4.0
Schreyer Honors Scholar and Paterno Fellow
Minors in Mathematics and Music Performance (violin and viola)
Determining the Mass Composition of Ultra High Energy Cosmic Rays Using the Principle of Shower Universality and Data from the Pierre Auger Observatory, advisor Miguel Mostafá

RESEARCH INTERESTS

Gravitational-wave data analysis, black holes, neutron stars, multimessenger astronomy, compact-object binaries, stochastic gravitational-wave backgrounds, next-generation gravitational-wave detectors

EXPERIENCE

NASA Einstein Fellow Sept. 2023-present
CIERA, Northwestern University *Evanston, IL*

Research Specialist May 2023-July 2023
Graduate Research Fellow Sept. 2018–May 2023
LIGO Laboratory, Massachusetts Institute of Technology *Cambridge, MA*

Fulbright Postgraduate Fellow Sept. 2017–June 2018
Monash University *Clayton, VIC*
OzGrav: The ARC Centre of Excellence for Gravitational-Wave Discovery

FELLOWSHIPS AND HONORS

NASA Hubble Fellowship Program - Einstein Fellowship 2023-2026
NSF Astronomy and Astrophysics Postdoctoral Fellowship (declined) 2023

Charlotte Mateer Obert Named PEO Scholar Award 2022
MIT Physics Department Alan H. Barrett Prize 2021
NSF Graduate Research Fellowship 2018–2023
Paul And Daisy Soros Fellowship for New Americans 2018–2020
Monash University Faculty of Science Young Leader Award 2018
Fulbright Postgraduate Scholarship – Australia 2017–2018

Student Marshal – Penn State Eberly College of Science 2017
Student Marshal – Penn State Department of Spanish, Italian, and Portuguese 2017
Penn State Schreyer Honors College Channa and Usharani Reddy Mission Award 2017
Barry Goldwater Scholarship Award 2016
Astronaut Scholarship Foundation Award 2016

Caltech Summer Undergraduate Research Fellowship	2016
NSF International REU - University of Florida & Monash University	2015
Penn State University and Physics Department Honors	2013-2017
NASA Space Grant for Women in Science and Engineering Research	2013-2014

SELECT PUBLICATIONS

1. **A.S. Biscoveanu**, E. Burns, P. Landry, and S. Vitale, *An observational upper limit on the rate of gamma-ray bursts with neutron star-black hole merger progenitors*, RNAAS 7 136 (2023), arXiv:2306.14974
2. A. Renzini et al., *pygwb: A Python-based Library for Gravitational-wave Background Searches*, ApJ 952 25 (2023), arXiv:2303.15696
3. S. Vitale, **A.S. Biscoveanu**, and C. Talbot, *Spin it as you like: the (lack of a) measurement of the spin tilt distribution with LIGO-Virgo-KAGRA binary black holes*, A&A 668 L2 (2022), arXiv:2209.06978
4. **A.S. Biscoveanu**, P. Landry, S. Vitale, *Population properties and multimessenger prospects of neutron star-black hole mergers following GWTC-3*, MNRAS 518, 5298 (2022), arXiv:2207.01568
5. **A.S. Biscoveanu**, K. Kremer, E. Thrane, *Probing the efficiency of tidal synchronization in outspiralling double white dwarf binaries with LISA*, ApJ 949, 95 (2023), arXiv:2206.15390
6. **A.S. Biscoveanu**, T.A. Callister, C.-J. Haster, K.K.Y. Ng, S. Vitale, W.M. Farr, *The binary black hole spin distribution likely broadens with redshift*, ApJL 932 L19 (2022), arXiv:2204.01578
7. S. Vitale, **A.S. Biscoveanu**, and C. Talbot, *The orientations of the binary black holes in GWTC-3*, submitted to Phys. Rev. D (2022), arXiv:2204.00968
8. V. Varma, **A.S. Biscoveanu**, T. Islam, F.H. Shaik, C.-J. Haster, M. Isi, W.M. Farr, S.E. Field, S. Vitale, *Evidence of large recoil velocity from a black hole merger signal*, Phys. Rev. Lett. 128, 191102 (2022), arXiv:2201.01302
9. **A.S. Biscoveanu**, C. Talbot, S. Vitale, *The effect of spin mismodeling on gravitational-wave measurements of the binary neutron star mass distribution*, MNRAS 511, 4350 (2022), arXiv:2111.13619
10. R. Abbott et al., *The population of merging compact binaries inferred using gravitational waves through GWTC-3*, accepted in Phys. Rev. X (2021), arXiv:2111.03634
11. D. Frostig, **A.S. Biscoveanu** et al., *An Infrared Search for Kilonovae with the WINTER Telescope. I. Binary Neutron Star Mergers*, ApJ 926, 152 (2022), arXiv:2110.01622
12. M. Evans et al., *A Horizon Study for Cosmic Explorer: Science, Observatories, and Community*, (2021), arXiv:2109.09882
13. V. Varma, **A.S. Biscoveanu**, M. Isi, W.M. Farr, S. Vitale, *Hints of spin-orbit resonances in the binary black hole population*, Phys. Rev. Lett. 128, 031101 (2022), arXiv:2107.09693
14. V. Varma, M. Isi, **A.S. Biscoveanu**, W.M. Farr, S. Vitale, *Measuring binary black hole orbital-plane spin orientations*, Phys. Rev. D 105, 024045 (2022), arXiv:2107.09692
15. **A.S. Biscoveanu**, *Characterizing gravitational-wave sources with likelihood reweighting*, Nat. Rev. Phys. 4, 5 (2022), DOI: 10.1038/s42254-021-00404-4
16. C. Talbot, E. Thrane, **A.S. Biscoveanu**, R. Smith, *Inference with finite time series: Observing the gravitational Universe through windows*, Phys. Rev. Research 3, 043049 (2021), arXiv:2106.13785
17. **A.S. Biscoveanu**, M. Isi, V. Varma, S. Vitale, *Measuring the spins of heavy binary black holes*, Phys. Rev. D 104, 103018 (2021), arXiv:2106.06492
18. **A.S. Biscoveanu**, C. Talbot, E. Thrane, R. Smith, *Measuring the primordial gravitational-wave background in the presence of astrophysical foregrounds*, Phys. Rev. Lett. 125, 241101 (2020), arXiv:2009.04418
19. **A.S. Biscoveanu**, M. Isi, S. Vitale, V. Varma, *New spin on LIGO-Virgo binary black holes*, Phys. Rev. Lett. 126, 171103 (2021), arXiv:2007.09156
20. Y. Huang et al., *Statistical and systematic uncertainties in extracting the source properties of neutron star - black hole binaries with gravitational waves*, Phys. Rev. D 103, 083001 (2021), arXiv:2005.11850

21. I. Romero-Shaw, C. Talbot, **A.S. Biscoveanu** et al., *Bayesian inference for compact binary coalescences with BILBY: Validation and application to the first LIGO–Virgo gravitational-wave transient catalogue*, MNRAS 499, 3 (2020), arXiv:2006.00714
22. M. Safarzadeh, **A.S. Biscoveanu**, A. Loeb, *Constraining the delay time distribution of compact binary objects from the stochastic gravitational wave background searches*, ApJ 901, 2 (2020), arXiv:2004.12999
23. **A.S. Biscoveanu**, C.-J. Haster, S. Vitale, J. Davies, *Quantifying the Effect of Power Spectral Density Uncertainty on Gravitational-Wave Parameter Estimation for Compact Binary Sources*, Phys. Rev. D 102, 023008 (2020), arXiv:2004.05149
24. V. Varma, M. Isi, **A.S. Biscoveanu**, *Extracting the Gravitational Recoil from Black Hole Merger Signals*, Phys. Rev. Lett. 124, 101104 (2020), arXiv:2002.00296
25. **A.S. Biscoveanu**, E. Thrane, S. Vitale, *Constraining short gamma-ray burst jet properties with gravitational waves and gamma rays*, ApJ 893, 38 (2020), arXiv:1911.01379
26. **A.S. Biscoveanu**, S. Vitale, C.-J. Haster, *The reliability of the low-latency estimation of binary neutron star chirp mass*, ApJL 884, L32 (2019), arXiv:1908.03592
27. G. Ashton et al., *Bilby: A user-friendly Bayesian inference library for gravitational-wave astronomy*, ApJS 241, 27 (2019), arXiv:1811.02042
28. B. P. Abbott et al., *Search for Tensor, Vector, and Scalar Polarizations in the Stochastic Gravitational-Wave Background*, Phys. Rev. Lett. 120, 201102 (2018), arXiv:1802.10194
29. T.A. Callister, **A.S. Biscoveanu** et al., *Polarization-based Tests of Gravity with the Stochastic Gravitational-Wave Background*, Phys. Rev. X 7, 041058 (2017), arXiv:1704.08373
30. B. P. Abbott et al., *Upper Limits on the Stochastic Gravitational-Wave Background from Advanced LIGO's First Observing Run*, Phys. Rev. Lett., 118, 121101 (2017), arXiv:1612.02029
31. B. P. Abbott et al., *Directional limits on persistent gravitational waves from Advanced LIGO's first observing run*, Phys. Rev. Lett., 118, 121102 (2017) arXiv:1612.02030

INVITED PRESENTATIONS

1.	Princeton Gravity Initiative Seminar, *Princeton, NJ*	Nov. 2022
2.	Johns Hopkins Particle Theory Seminar, *Baltimore, MD*	Nov. 2022
3.	Perimeter Institute Strong Gravity Seminar, *Waterloo, Canada*	Oct. 2022
4.	Caltech TAPIR Seminar, *Pasadena, CA*	Oct. 2022
5.	UC Berkeley Explosive Astro Seminar, *Berkeley, CA*	Oct. 2022
6.	Northwestern CIERA Theory Seminar, *Evanston, IL*	Oct. 2022
7.	UChicago KICP Seminar, *Chicago, IL*	Oct. 2022
8.	AEI Astrophysical and Cosmological Relativity Seminar, *Potsdam, Germany*	Sept. 2022
9.	Physics and Astrophysics at the eXtreme (PAX-VIII) Panelist, *Cambridge, MA*	Aug. 2022
10.	Harvard LPPC Seminar, *Cambridge, MA*	May 2022
11.	UWM CGCA Seminar, *virtual*	March 2022
12.	IPAM Workshop: Mathematical and Computational Challenges in the Era of GW Astronomy	
	Workshop III, *Los Angeles, CA*	Nov. 2021
	Tutorial Workshop, *virtual*	Sept. 2021
13.	Perimeter Institute Strong Gravity Seminar, *virtual*	Nov. 2021
14.	Gravitational Wave Astronomy Northwest Student Workshop, *virtual*	June 2021
15.	MIT Kavli Institute Brown Bag Lunch Seminar, *virtual*	March 2021
16.	Brown University ICERM Workshop, *virtual*	Nov. 2020
	Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects	
17.	Harvard Black Hole Initiative Colloquium, *virtual*	Nov. 2020
18.	Gravitational-Wave Open Data Workshop #3, *virtual*	May 2020
19.	TEDxFulbrightCanberra, *Canberra, ACT*	May 2018
	"The Cosmic Gravitational-Wave Symphony"	
20.	Penn State Primordial Universe and Gravity Seminar, *State College, PA*	April 2017
21.	University of Melbourne Astrophysics Colloquium, *Melbourne, VIC*	July 2015

CONTRIBUTED PRESENTATIONS

1. **American Physical Society April Meeting,** *Minneapolis, MN* April 2023
   Population properties and multimessenger prospects of neutron star-black hole mergers following GWTC-3
2. **241st Meeting of the American Astronomical Society,** *Seattle, WA* Jan. 2023
   From black holes to the Big Bang: astrophysics and cosmology with gravitational waves and their electromagnetic counterparts
3. **Gravitational Wave Physics and Astronomy Workshop,** *Melbourne, AU* Dec. 2022
   Population properties and multimessenger prospects of neutron star-black hole mergers following GWTC-3
4. **International Workshop on AM CVn binaries 4.5,** *virtual* Aug. 2022
   Probing the effect of tides in outspiraling double white dwarf binaries with LISA
5. **American Physical Society April Meeting,** *New York, NY* April 2022
   Sources of systematic error in gravitational-wave measurements of the binary neutron star mass distribution
6. **14th Edoardo Amaldi Conference on Gravitational Waves,** *virtual* July 2021
   Measuring the spins of heavy binary black holes
7. **European Astronomical Society Meeting,** *virtual* July 2021
   The Multimessenger Discovery Potential of the Wide-Field Infrared Transient Explorer
8. **American Physical Society April Meeting,** *virtual* April 2021
   Simultaneous Measurement of a Cosmological Stochastic Background and an Astrophysical Foreground
9. **237th Meeting of the American Astronomical Society,** *virtual* Jan. 2021
   A new spin on LIGO-Virgo binary black holes
10. **235th Meeting of the American Astronomical Society,** *Honolulu, HI* Jan. 2020
    The Reliability of the Low-Latency Estimation of Binary Neutron Star Chirp Mass
11. **American Physical Society April Meeting,** Denver, CO April 2019
    Constraining Short Gamma-Ray Burst Jet Properties Using Coincident Gravitational-Wave and Electromagnetic Detections
12. **American Physical Society New England Section Meeting,** *Dartmouth, MA* Nov. 2018
    Constraining the Jet Properties of GRBs with Multimessenger Astronomy
13. **9th ACGRG,** *Gingin, WA* Nov. 2017
    Constraining GRB Jet Properties Using Coincident GW/EM Detections
14. **LIGO-Virgo Collaboration Meeting,** *Pasadena, CA* March 2017
    Stochastic Search for Non-GR Polarizations
    Best Data Analysis Poster
15. **American Physical Society April Meeting,** *Salt Lake City, UT* April 2016
    Determining the Mass Composition of Cosmic Rays Using Shower Universality
16. **Pierre Auger Collaboration Meeting,** *Malargüe, Argentina* March 2016
    Elongation Rate Using the El Universal Reconstruction
17. **American Physical Society April Meeting,** *Baltimore, MD* April 2015
    Extending the Measurement of Shower Maximum to the Highest Energies Using Universality and Data from the Surface Detector of the Pierre Auger Observatory
18. **American Physical Society Mid-Atlantic Section Meeting,** *State College, PA* Oct. 2014
    Determining the Particle Identity of Ultra-High Energy Cosmic Rays

TEACHING AND MENTORSHIP

Graduate Teaching Assistant Jan. 2022
Department of Physics, Massachusetts Institute of Technology *Cambridge, MA*
Introduction to Special Relativity

Learning Assistant Jan. 2014-Dec. 2016
The Pennsylvania State University *State College, PA*
Introductory Mechanics (Spring 2014)
Introduction to Quantum Mechanics I (Fall 2016)

Undergraduate Research Mentor, MIT LIGO Lab
Nadia Qutob, Georgia Tech Summer 2022
Claire Williams, Carleton College Summer and Fall 2020
Kaylee de Soto, MIT Summer 2020
Jonathan Davies, Imperial College London Summer 2019

Mentor, Gravitational-Wave Open Data Workshop May 2020, 2021
Develop and lead a series of tutorials introducing gravitational-wave data analysis techniques using open data

Graduate Mentor, MIT Women in Physics Mentorship Program Sept. 2018- June 2019
Provide advice and support to a female undergraduate physics student at MIT

SERVICE AND OUTREACH

Student Representative, LIGO Academic Advisory Committee Sept. 2021–present
Advocate for early career scientists in the LIGO Collaboration through career development and social programming

Referee, ApJ, ApJL, Phys. Rev. Lett., Phys. Rev. D 2020–present

Research Project Leader, Warrior-Scholar Project July 2020, 2021, 2022
Design and lead a gravitational-wave research project for veterans transitioning from active service to an academic setting

Student organizer, MIT Kavli Institute Journal Club Sept. 2019–May 2021
Arrange and introduce weekly speakers to present on new papers and preprints to the MIT Kavli community