

Carl Rodriguez | Curriculum Vitae

Department of Physics and Astronomy – University of North Carolina, Chapel Hill

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Education and Employment

University of North Carolina Chapel Hill, NC Assistant Professor of Physics and Astronomy	Professor Jan. 2023
Carnegie Mellon University Pittsburgh, PA Assistant Professor of Physics	Professor 2020-2022
Harvard University Cambridge, MA ITC Postdoctoral Fellow	Postdoc 2019-2020
Massachusetts Institute of Technology Cambridge, MA Pappalardo Postdoctoral Fellow	Postdoc 2016-2019
Northwestern University Evanston, IL	Ph.D. Physics 2010-2016
Reed College Portland, OR	B.A. Physics 2006-2010

Honors, Awards, and Fellowships

○ Packard Foundation Fellowship	2022-2027
○ Alfred P. Sloan Foundation Fellowship	2022-2024
○ Kaufman Foundation New Investigator Award	2020-2022
○ ITC Fellowship, Harvard University	2019-2020
○ MIT Spot Award	2017
○ MIT Pappalardo Fellowship	2016-2019
○ NSF Graduate Research Fellowship	2011-2016
○ NSF GK12 Fellowship	2013-2014
○ Illinois Space Grant Consortium Fellowship	2010-2011, 2015-2016
○ NSF S-STEM Scholar	2008-2010

Grants

As of October 2022:

- \$2.3M Active Funding (\$2M to CMU/UNC)

David and Lucile Packard Foundation Fellowship PI: <i>C. L. Rodriguez</i> ; Packard Fellowships (\$875K)	Foundation 2023
Alfred P. Sloan Foundation Fellowship PI: <i>C. L. Rodriguez</i> ; Sloan Research Fellowships (\$75K)	Foundation 2022
Stellar Dynamics and Stellar Collisions in Star-by-Star Models of Nuclear Star Clusters PI: <i>C. L. Rodriguez</i> , co-I: <i>H. Trac, F. Rasio, G. Fragione</i> ; NASA Award 21-ATP21-0144 (\$746K; \$429K to CMU)	NASA ATP 2021
The Lives and Deaths of Star Clusters, and the Gravitational Waves They Leave Behind PI: <i>C. L. Rodriguez</i> ; Kaufman Foundation New Investigator Grant (\$150K)	Foundation 2020

WoU-MMA: The Evolution, Destruction, and Gravitational-wave Sources of Dense Star Clusters in Cosmological Simulations <i>PI: C. L. Rodriguez; NSF Award AST-2009916 (\$434K)</i>	NSF-AST 2020
Astrophysics and Cyberinfrastructure Initiatives for Decihertz Gravitational-Wave Missions <i>PI: A. Miguel Holgado, co-I: C. L. Rodriguez; McWilliams Seed Grant (\$10K)</i>	CMU Grant 2020
Modeling Dense Star Clusters and their Gravitational-wave Sources from Cosmological Simulations <i>PI: C. L. Rodriguez, Co-I: Astrid Lamberts, Mike Grudić; 1.1M CPU Hours (\$20K Value)</i>	XSEDE 2018

Publications (with links)

A complete list of publications can also be found at the NASA ADS service [here](#) or on Google Scholar (which includes LIGO Collaboration Papers) [here](#).

Publication Metrics (via ADS)

As of October 2022:

- o All Publications (excluding LIGO collaboration papers) – **5493 citations, h-index of 41**
- o Major Contributor/PI Publications – **3413 citations**

5 Most Cited Papers As Major Contributor (By Publication Year)

Post-Newtonian Dynamics in Dense Star Clusters: Highly-Eccentric, Highly-Spinning, and Repeated Binary Black Hole Mergers [212 Citations] <i>C. L. Rodriguez, P. Amaro-Seoane, S. Chatterjee, F. Rasio; Phys. Rev. Lett, 120, 151101</i> - Articles in <i>Boston Globe, MIT News</i> (Links),	PRL 2018
Illuminating Black Hole Binary Formation Channels with Spins in Advanced LIGO [209 Citations] <i>C. L. Rodriguez, M. Zevin, C. Pankow, V. Kalogera, F. Rasio; Astrophys. J. Lett., 832, L2</i>	ApJL 2016
Binary Black Hole Mergers from Globular Clusters: Masses, Merger Rates, and the Impact of Stellar Evolution [402 Citations] <i>C. L. Rodriguez, S. Chatterjee, F. Rasio; Phys. Rev. D, 93, 084029</i>	PRD 2016
Binary Black Hole Mergers from Globular Clusters: Implications for Advanced LIGO [294 Citations] <i>C. L. Rodriguez, M. Morscher, B. Pattabiraman, S. Chatterjee, C.J. Haster, and F. Rasio; Phys. Rev. Lett. 115, 051101</i> - Synopsis by APS in <i>Physics</i> (Link)	PRL 2015
The Dynamical Evolution of Stellar Black Holes in Globular Clusters [193 Citations] <i>M. Morscher, B. Pattabiraman, C. L. Rodriguez, F. Rasio, S. Umbreit; Astrophys. J., 800, 1, 21</i>	ApJ 2015

Papers as Major Contributor or Primary Advisor

Great Balls of FIRE II: The evolution and destruction of star clusters across cosmic time in a Milky Way-mass galaxy <i>C. L. Rodriguez, Z. Hafen, Grudić, A. Lamberts, K. Sharma, C.A. Faucher-Giguère, A. Wetzel; MNRAS (Submitted)</i>	2022
Great Balls of FIRE I: The formation of star clusters across cosmic time in a Milky Way-mass galaxy <i>M. Grudić, Z. Hafen, C. L. Rodriguez, D. Guszejnov, A. Lamberts, A. Wetzel, M. Boylan-Kolchin, C.A. Faucher-Giguère; MNRAS (Submitted)</i>	2022

Modeling Dense Star Clusters in the Milky Way and Beyond with the Cluster Monte Carlo Code	ApJS 2022
<i>C. L. Rodriguez, N. Weatherford, S. Coughlin, P. Amaro-Seoane, K. Breivik, S. Chatterjee, G. Fragione, F. Kiroğlu, K. Kremer, N. Rui, S. Ye, M. Zevin, F. Rasio; Astrophys. J. Supp. 258, 22</i>	
Compact Object Modeling in the Globular Cluster 47 Tucanae	ApJ 2022
<i>S. Ye, K. Kremer, C. L. Rodriguez, N. Rui, N. Weatherford, S. Chatterjee, G. Fragione, F. Rasio; Astrophys. J., 931, 2, 84</i>	
On the Mass Ratio Distribution of Black Hole Mergers in Triple Systems	2021
<i>M. Martinez, C. L. Rodriguez, G. Fragione; Astrophys. J. (submitted)</i>	
The Observed Rate of Binary Black Hole Mergers can be Entirely Explained by Globular Clusters	RNAAS 2021
<i>C. L. Rodriguez, K. Kremer, S. Chatterjee, G. Fragione, A. Loeb, F. Rasio, N. Weatherford, S. Ye; Research Notes AAS, 5, 19</i>	
Fast Multipole Methods for Simulating Collisional Star Systems	ApJ 2021
<i>D. Mukherjee, Q. Zhu, H. Trac, C. L. Rodriguez; Astrophys. J., 916, 9</i>	
Dynamical Formation Scenarios for GW190521 and Prospects for Decihertz Gravitational-Wave Astronomy with GW190521-Like Binaries	ApJL 2021
<i>A. M. Holgado, A. Ortega, C. L. Rodriguez; Astrophys. J. Lett, 909, L24</i>	
Relativistic Three-body Effects in Hierarchical Triples	PRD 2020
<i>H. Lim, C. L. Rodriguez; Phys. Rev. D 102, 064033</i>	
GW190412 as a Third-Generation Black Hole Merger from a Super Star Cluster	ApJL 2020
<i>C. L. Rodriguez, K. Kremer, M. Grudić, Z. Hafen, S. Chatterjee, G. Fragione, A. Lamberts, M. Martinez, F. Rasio, N. Weatherford, S. Ye; Astrophys. J. Lett., 896, L10</i>	
Black Holes: The Next Generation – Repeated Mergers in Dense Star Clusters and their Gravitational-Wave Properties	PRD 2019
<i>C. L. Rodriguez, M. Zevin, P. Amaro-Seoane, S. Chatterjee, K. Kremer, F. Rasio, S. Ye; Phys. Rev. D, 100, 043027</i>	
Post-Newtonian Dynamics in Dense Star Clusters: Binary Black Holes in the LISA Band	PRD 2019
<i>K. Kremer, C. L. Rodriguez, P. Amaro-Seoane, K. Breivik, S. Chatterjee, M. Katz, S. Larson, F. Rasio, J. Samsing, S. Ye, M. Zevin; Phys. Rev. D , 99, 063003</i>	
Eccentric Black Hole Mergers in Dense Star Clusters: The Role of Binary-Binary Encounters	ApJ 2018
<i>M. Zevin, J. Samsing, C. L. Rodriguez, C. Haster, E. Ramirez-Ruiz; Astrophys. J. , 871, 1</i>	
Post-Newtonian Dynamics in Dense Star Clusters: Formation, Masses, and Merger Rates of Highly-Eccentric Black Hole Mergers	PRD 2018
<i>C. L. Rodriguez, P. Amaro-Seoane, S. Chatterjee, K. Kremer, F. Rasio, J. Samsing, S. Ye, M. Zevin; Phys. Rev. D, 98, 123005</i>	
Redshift Evolution of the Black Hole Merger Rate From Globular Clusters	ApJL 2018
<i>C. L. Rodriguez, A. Loeb; Astrophys. J., 865, L5</i>	
A Triple Origin for the Heavy and Low-Spin Binary Black Holes Detected by LIGO/Virgo	ApJ 2018
<i>C. L. Rodriguez, F. Antonini; Astrophys. J., 963, 1, 7</i>	
Precessional Dynamics of Black Hole Triples: Binary Mergers with near-zero Effective Spin	MNRASL 2018
<i>F. Antonini, C. L. Rodriguez, C. Petrovich, C. Fischer; Mon. Not. R. Astron. Soc. Lett., 480, 1, L58</i>	
A New Hybrid Technique for Modeling Dense Star Clusters	CompAC 2018
<i>C. L. Rodriguez, B. Pattabiraman, S. Chatterjee, M. Morscher, F. Rasio, A. Choudhary, W-K. Liao; Computational Astrophysics and Cosmology, 5, 1</i>	
Binary Black Holes in Dense Star Clusters: Exploring the Theoretical Uncertainties	ApJ 2017
<i>S. Chatterjee, C. L. Rodriguez, F. Rasio; Astrophys. J., 834, 1, 68</i>	

Dynamical Formation of Low-mass Merging Black Hole Binaries like GW151226 **ApJL**
S. Chatterjee, C. L. Rodriguez, V. Kalogera, F. Rasio; ApJL, 836, L26 2017

Constraining Formation Models of Binary Black Hole Formation with Gravitational-Wave Observations **ApJ**
M. Zevin, C. Pankow, C. L. Rodriguez, L. Sampson, E. Chase, V. Kalogera, F. Rasio; Astrophys. J., 846, 82Z 2017

Black Hole Mergers and Blue Stragglers from Hierarchical Triples Formed in Globular Clusters **ApJ**
F. Antonini, S. Chatterjee, C. L. Rodriguez, M. Morscher, B. Pattabiraman, V. Kalogera, F. Rasio; Astrophys. J., 816, 2, 65 2016

Distinguishing Between Formation Channels for Binary Black Holes with LISA **ApJL**
K. Breivik, C. L. Rodriguez, S. Larson, V. Kalogera, F. Rasio; Astrophys. J. Lett., 830, L18 2016

Million-Body Star Cluster Simulations: Comparisons between Monte Carlo and Direct N -body **MNRAS**
C. L. Rodriguez, M. Morscher, L. Wang, S. Chatterjee, F. Rasio, R. Spurzem; Mon. Not. R. Astron. Soc. 463, 2109 2016

Basic Parameter Estimation of Binary Neutron Star Systems by the Advanced LIGO/Virgo Network **ApJ**
C. L. Rodriguez, B. Farr, V. Raymond, W. Farr, T. Littenberg, D. Fazi, V. Kalogera; Astrophys. J., 785, 2, 119 2014

Inadequacies of the Fisher Information Matrix in gravitational-wave parameter Estimation **PRD**
C. L. Rodriguez, B. Farr, W. Farr, I. Mandel; Phys. Rev. D, 88, 8, 084013 2013

Verifying the no-hair property of massive compact objects with intermediate-mass-ratio inspirals in advanced gravitational-wave detectors **PRD**
C. L. Rodriguez, I. Mandel, J. Gair; Phys. Rev. D, 85, 6, 062002 2012
 - Synopsis in *Astrobites* ([Link](#))

Contributing Author Papers.....

White Dwarf Subsystems in Core-Collapsed Globular Clusters **ApJ**
K. Kremer, N. Rui, N. Weatherford, S. Chatterjee, G. Fragione, F. Rasio, S. Ye, C. L. Rodriguez; Astrophys. J., 917, 28 2021

Matching Globular Cluster Models to Observations **ApJ**
N. Rui, K. Kremer, N. Weatherford, S. Chatterjee, F. Rasio, C. L. Rodriguez, S. Ye; Astrophys. J., 912, 2 2021

No Black Holes in NGC 6397 **RNAAS**
N. Rui, N. Weatherford, K. Kremer, S. Chatterjee, G. Fragione, F. Rasio, S. Ye, C. L. Rodriguez; Research Notes AAS, 5, 47 2021

Black Hole Mergers from Star Clusters with Top-heavy Initial Mass Functions **ApJL**
N. Weatherford, G. Fragione, K. Kremer, S. Chatterjee, S. Ye, C. L. Rodriguez, F. Rasio; Astrophys. J. Lett., 907, 25 2021

Probing Multiple Populations of Compact binaries with Third-generation Gravitational-wave Detectors **ApJL**
S. Vitale, W. Farr, K. Ng, C. L. Rodriguez; Astrophys. J. Lett., 913, L5 2021

One Channel to Rule Them All? Constraining the Origins of Binary Black Holes using Multiple Formation Pathways **ApJ**
M. Zevin, S. Bavera, C. Berry, V. Kalogera, T. Fragos, P. Marchant, C. L. Rodriguez, F. Antonini, D. Holz, C. Pankow; Astrophys. J., 910, 152 2021

Intermediate-mass Black Holes from High Massive-star Binary Fractions in Young Star Clusters ApJL
2021
E. González, K. Kremer, S. Chatterjee, G. Fragione, C. L. Rodriguez, N. Weatherford, S. Ye, F. Rasio; Astrophys. J. Lett, 908, 29

Black Hole Mergers from Hierarchical Triples in Dense Star Clusters ApJ
2020
M. Martinez, G. Fragione, K. Kremer, S. Chatterjee, C. L. Rodriguez, J. Samsing, S. Ye, N. Weatherford, M. Zevin, S. Naoz, F. Rasio; Astrophys. J., 903, 67

Modeling Dense Star Clusters in the Milky Way and Beyond with the CMC Cluster Catalog ApJS
2021
K. Kremer, S. Ye, N. Rui, N. Weatherford, S. Chatterjee, G. Fragione, C. L. Rodriguez, M. Spera, F. Rasio; Astrophys. J. Supp., 247, 48

Populating the Upper Black Hole Mass Gap through Stellar Collisions in Young Star Clusters ApJ
2020
K. Kremer, M. Spera, D. Becker, S. Chatterjee, U. N. Di Carlo, G. Fragione, C. L. Rodriguez, F. Rasio, N. Weatherford, S. Ye; Astrophys. J., 903, 45

Measuring the Star Formation Rate with Gravitational Waves from Binary Black Holes ApJL
2018
S. Vitale, W. Farr, K. Ng, C. L. Rodriguez; Astrophys. J. Lett., 886, 1

On the Rate of Neutron Star Binary Mergers from Globular Clusters ApJL
2020
C. Ye, W.-F. Fong, K. Kremer, C. L. Rodriguez, S. Chatterjee, G. Fragione, F. Rasio; Astrophys. J. Lett., 888, 10

Single-single gravitational-wave captures in globular clusters: Eccentric deci-Hertz sources observable by DECIGO and Tian-Qin PRD
2019
J. Samsing, D. D'Orazio, K. Kremer, C. L. Rodriguez, A. Askar; Phys. Rev. D 101, 123010

COSMIC Variance in Binary Population Synthesis ApJ
2019
K. Breivik, S. Coughlin, M. Zevin, C. L. Rodriguez, K. Kremer, C. Ye, J. Andrews, M. Kurkowski, M. Digman, S. Larson, F. Rasio; Astrophys. J. 898,71

Millisecond Pulsars and Black Holes in Globular Clusters ApJ
2019
C. Ye, K. Kremer, S. Chatterjee, C. L. Rodriguez, F. Rasio; Astrophys. J. , 877, 122

The fate of binaries in the Galactic Center: The Mundane and the Exotic ApJ
2019
S. Alexander, S. Naoz, A. Ghez, M. Morris, A. Ciurlo, T. Do, K. Breivik, S. Coughlin, C. L. Rodriguez; Astrophys. J. , 878, 58S

Predicting Stellar-mass Black Hole Populations in Globular Clusters ApJ
2018
N. Weatherford, S. Chatterjee, C. L. Rodriguez, F. Rasio; Astrophys. J. , 864, 13

How initial size governs core collapse in globular clusters ApJ
2018
K. Kremer, S. Chatterjee, C. Ye, C. L. Rodriguez, F. Rasio; Astrophys. J. , 871, 38

LISA Sources in Milky Way Globular Clusters PRL
2018
K. Kremer, S. Chatterjee, K. Breivik, C. L. Rodriguez, S. Larson, F. Rasio; PRL, 120, 19

How Black Holes Shape Globular Clusters: Modeling NGC 3201 ApJL
2018
K. Kremer, C. Ye, S. Chatterjee, C. L. Rodriguez, F. Rasio; Astrophys. J. Lett., 855, 15

Accreting Black Hole Binaries in Globular Clusters ApJ
2017
K. Kremer, S. Chatterjee, C. L. Rodriguez, F. Rasio; Astrophys. J., 852, 29

Parameter estimation for compact binaries with ground-based gravitational-wave observations using the LALInference software library PRD
2015
J. Veitch, V. Raymond, B. Farr, W. Farr, P. Graff, S. Vitale, B. Aylott, K. Blackburn, N. Christensen, M. Coughlin, W. Del Pozzo, F. Feroz, J. Gair, C.J. Haster, V. Kalogera, T. Littenberg, I. Mandel, R. O'Shaughnessy, M. Pitkin, C. L. Rodriguez, C. Röver, T. Sidery, R. Smith, M. Van Der Sluys, A. Vecchio, W. Voudsen, L. Wade; Phys. Rev. D, 91, 4, 042003

Comparison of Gravitational Wave Detector Network Sky Localization Approximations PRD
2014
K. Grover, S. Fairhurst, B. Farr, I. Mandel, C. L. Rodriguez, T. Sidery, A. Vecchio; Phys. Rev. D, 89, 4, 042004

Estimating Parameters of Coalescing Compact Binaries with proposed Advanced Detector Networks PRD
2012
J. Veitch, I. Mandel, B. Aylott, B. Farr, V. Raymond, C. L. Rodriguez, M. van der Sluys, V. Kalogera, A. Vecchio; Phys. Rev. D **85**, 104045

Mock data challenge for the Einstein Gravitational-Wave Telescope PRD
2012
T. Regimbau, T. Dent, W. Del Pozzo, S. Giampanis, T.G.F. Li, C. Robinson, C. Van Den Broeck, D. Meacher, C. L. Rodriguez, B.S. Sathyaprakash, K. Wójcik; Phys. Rev. D **86**, 122001

Collaboration Papers.....

Coauthor on 23 Collaboration Papers as Member of LIGO Scientific Collaboration 2011-2015
 Click ([Here](#)) for Full List of Citations

- o Characterization of the LIGO detectors during their sixth science run
- o Searching for stochastic gravitational waves using data from the two colocated LIGO Hanford detectors
- o Constraints on Cosmic Strings from the LIGO-Virgo Gravitational-Wave Detectors
- o Application of a Hough search for continuous gravitational waves on data from the fifth LIGO science run
- o Gravitational Waves from Known Pulsars: Results from the Initial Detector Era
- o First Searches for Optical Counterparts to Gravitational-wave Candidate Events
- o Search for long-lived gravitational-wave transients coincident with long gamma-ray bursts
- o Directed search for continuous gravitational waves from the Galactic center
- o Parameter estimation for compact binary coalescence signals with the first generation gravitational-wave detector network
- o A first search for coincident gravitational waves and high energy neutrinos using LIGO, Virgo and ANTARES data from 2007
- o Einstein@Home all-sky search for periodic gravitational waves in LIGO S5 data
- o Search for gravitational waves from binary black hole inspiral, merger, and ringdown in LIGO-Virgo data from 2009-2010
- o Swift Follow-up Observations of Candidate Gravitational-wave Transient Events
- o Search for Gravitational Waves Associated with Gamma-Ray Bursts during LIGO Science Run 6 and Virgo Science Runs 2 and 3
- o The characterization of Virgo data and its impact on gravitational-wave searches
- o All-sky search for gravitational-wave bursts in the second joint LIGO-Virgo run
- o Upper limits on a stochastic gravitational-wave background using LIGO and Virgo interferometers at 600-1000 Hz
- o Search for gravitational waves from intermediate mass binary black holes
- o First low-latency LIGO+Virgo search for binary inspirals and their electromagnetic counterparts
- o Search for gravitational waves from low mass compact binary coalescence in LIGO's sixth science run and Virgo's science runs 2 and 3
- o Implementation and testing of the first prompt search for gravitational wave transients with electromagnetic counterparts
- o All-sky search for periodic gravitational waves in the full S5 LIGO data
- o A gravitational wave observatory operating beyond the quantum shot-noise limit

Mentoring

Postdocs.....

- o Ugo di Carlo, Postdoc Associate, Carnegie Mellon 2021-Present
- o Poojan Agrawal, Postdoc Associate, Carnegie Mellon 2021-Present
- o Miguel Holgado, McWilliams Fellow, Carnegie Mellon 2020-2022

Graduate Students (* indicates primary advisor).....

- o Gina Chen, Carnegie Mellon *2021-Present
- o Kuldeep Sharma, Carnegie Mellon *2020-Present
- o Tomás Cabrera, Carnegie Mellon *2020-Present
- o Diptajyoti Mukherjee, Carnegie Mellon 2020-Present
- o Miguel Martinez, Northwestern University 2020-2022
- o Halston Lim, MIT 2018-2020

○ Michael Zevin, Northwestern University	2017-2018
Undergraduate Students	
○ David Sanchez, Carnegie Mellon	2022
○ Inés Rodríguez-Hsu, Carnegie Mellon	2022
○ Christoph Gauffud, Carnegie Mellon	2021-2022
○ Jason DiMasi, Carnegie Mellon	2022
○ Jason Weng, Carnegie Mellon	2021
○ Emily Sespico, Carnegie Mellon	2021
○ Kevin Quigley, Carnegie Mellon	2021
○ Sofi Martinez Fortis, University of Pittsburgh	2021
○ Alexis Ortega, Carnegie Mellon, now PhD Student in Physics at Brown University	2020-2021
○ Caitlin Fischer, MIT	2017-2018
○ Joshua Fuhrman, Northwestern University	2016

Teaching

33-121 Physics I for Science Students <i>Instructor of Record</i> ; Carnegie Mellon University, Pittsburgh, PA Intro Physics for Non-majors	Lecturer Spring 2022
33-331 Physical Mechanics <i>Instructor of Record</i> ; Carnegie Mellon University, Pittsburgh, PA Upper Divisional Classical Mechanics for Undergraduate Majors	Lecturer Fall 2020-2022
General Relativity <i>Guest Lecturer and TA</i> ; Northwestern University, Evanston, IL	Lecture/TA 2015
GK12 Fellowship <i>Reach for the Stars</i> ; Highland Park, IL Co-taught weekly in math department of Highland Park High School Developed mathematics lessons, visualizations, and applets for high-school students (Link)	High School 2013-2014
Einstein and the 20th Century <i>Guest Lecturer and TA</i> ; Northwestern University, Evanston, IL	Lecture/TA 2013

Colloquia, Invited Talks, and Seminars

○ University of North Carolina Physics Colloquium, Chapel Hill, NC	2022
○ Penn State Astrophysics Colloquium, State College, PA (Remote)	2022
○ AAS Division of Dynamical Astronomy, Invited Talk (Remote) “Dynamical Formation of LIGO’s Binary Black Hole Mergers”	2021
○ APS April Meeting, Invited Talk (Remote) “Merger Rates of Binary Black Holes across Cosmic Space and Time”	2021
○ California State University, Long Beach Physics Colloquium, Long Beach, CA (Remote)	2021
○ University of Texas, Dallas Physics Colloquium, Dallas, TX (Remote)	2021
○ Michigan State University Physics Colloquium, Lansing, MI (Remote)	2021
○ University of British Columbia Astrophysics Seminar, Vancouver, BC (Remote)	2021
○ University of Alberta Theory Seminar, Alberta, ON (Remote)	2021
○ University of Pennsylvania Astrophysics Seminar, Philadelphia, PA (Remote)	2021
○ Tel Aviv University Astronomy Seminar, Tel Aviv, Israel (Remote)	2020
○ University of Milwaukee Astronomy Seminar, Milwaukee, WI (Remote)	2020
○ Oregon State University Astronomy Colloquium, Corvallis, OR (Remote)	2020
○ Carnegie Observatories Astronomy Colloquium, Pasadena, CA (Remote)	2020
○ UC Berkeley Astronomy Colloquium, Berkeley, CA (Remote)	2020
○ ITC Colloquium, Center for Astrophysics Harvard and Smithsonian, Cambridge, MA (Remote)	2020
○ YITP Black Holes and Neutron Stars with Gravitational Waves, Invited Talk, Kyoto, Japan (Remote)	2019
○ Black Hole Initiative Colloquium, Harvard University, Cambridge, MA (Remote)	2019
○ KITP Merging Visions: Exploring Compact-Object Binaries with Gravity and Light, Invited Talk, Santa Barbara, CA	2019

- UCLA Astrophysics Colloquium, Los Angeles, CA 2019
- University of Colorado Astronomy and Planetary Science Colloquium, Boulder, CO 2019
- Vanderbilt University Colloquium, Nashville, TN 2019
- Syracuse Physics Colloquium, Syracuse, NY 2019
- Carnegie Mellon Physics Colloquium, Pittsburgh, PA 2019
- UIUC Gravitation Seminar, Urbana, IL 2019
- UIUC Astronomy Colloquium, Urbana, IL 2018
- Perimeter Institute Strong Gravity Seminar, Waterloo, ON 2018
- Stanford KIPAC Cosmology Seminar, Palo Alto, CA 2018
- University of Cambridge IoA Galaxy Discussion, Cambridge, UK 2018
- University of Surrey Astrophysics Seminar, Guildford, UK 2018
- Harvard-Smithsonian Center for Astrophysics Galaxy and Cosmology Seminar, Cambridge, MA 2018
- Caltech Astronomy Colloquium, Pasadena, CA 2018
- Harvard Particle Theory Seminar, Cambridge, MA 2018
- Columbia Astrophysics Colloquium, New York, NY 2017
- Invited Talk, Strong Gravity and Binary Dynamics with Gravitational Wave Observations Conference, Oxford, MS 2017
- Harvard ITC Lunch Seminar ([Link](#)), Cambridge, MA 2017
- UCSC Flash Seminar, Invited Talk, Santa Cruz, CA 2017
- APS April Meeting, Invited Talk, Washington, DC 2017
- JSI Fall Workshop: Astrophysics in the Era of Grav. Wave Observations, Invited Talk, Baltimore, MD 2016
- KITP Rapid Response Workshop on Gravitational Waves, Invited Talk, Santa Barbara, CA 2016
- KITP Rapid Response Workshop on Gravitational Waves, Invited Talk, Santa Barbara, CA 2016
- University of Chicago Compton Lecture Series Guest Seminar, Chicago, IL 2016
- Stellar N-body Conference, Invited Talk, Sexton, Italy 2014
- Georgia Tech Center for Relativistic Astrophysics, Invited Talk, Atlanta, GA 2011

Selected Contributed Talks/Posters

- Aspen Center for Physics: Dynamical Formation of Gravitational Wave Sources, Aspen, CO 2022
- APS April Meeting, Contributed Talk, New York, NY 2022
- Triple Evolution and Dynamics Trendy-2, Contributed Talk, Leiden, Netherlands 2018
- Aspen Center for Physics: Dawning Era of Gravitational-Wave Astrophysics, Aspen, CO 2017
- APS April Meeting, Contributed Talk, Salt Lake City, UT 2016
- APS April Meeting, Contributed Talk, Baltimore, MD 2015
- IAU Splinter Meeting, Contributed Talk, Beijing, China 2014
- AAS HEAD Meeting, Contributed Poster, Chicago, IL 2014
- LIGO Scientific Collaboration Meeting, Contributed Talk, Bethesda, MD 2013
- Gravitational-Wave Physics and Astronomy Workshop, Contributed Poster (3rd place award for best poster), Hannover, Germany 2012
- Gravitational-Wave Burst Workshop, Contributed Talk, Tobermory, Scotland 2012
- Gravitational-Wave Physics and Astronomy Workshop, Contributed Talk Milwaukee, WI 2012

Public Lectures/Outreach

- Carnegie Science Center** **Public Talk**
Conversations with Carnegie Mellon Physicists; Pittsburgh, PA 2021
- MIT Independent Activities Period** **Public Talk**
The era of Gravitational-wave Astronomy; Cambridge, MA 2017, 2018
- Compton Lecture Series** **Guest Seminar**
Dense Star Clusters as Binary Black Hole Factories ([Link](#)) 2016
Chicago, IL
- TEDxNorthwesternU** **TEDx Talk**
Listening to Einstein's Final Symphony ([Link](#)) 2016
Evanston, IL

Conversations with an Astronomer Series of Public Lectures at Adler Planetarium Chicago, IL	Lecture Series 2011–2016
Film Submission: Jackson Hole Science Media Festival <i>Black Holes and Globular Clusters</i> (Link)	Short Film 2014
Mentoring Telescope Interns Teaching High School Summer Interns at Adler Planetarium; Chicago, IL	Mentoring 2013
Science Club Mentor Weekly after-school science program at Boys and Girls Club; Chicago, IL	Mentoring 2012–2013
Visualization Creation Produced for Adler Planetarium Space Visualization Lab and; Chicago, IL Black Hole Dynamics in Core of Globular Cluster N-Body Simulation (Link) Binary Black Holes Emitting Gravitational Waves (Link)	Visualizations 2011-2016
Perseid Meteor Shower Illinois Science Council in coordination with Chicago Parks Department Chicago, IL	Public Talk 2013
Public Lecture at North Central Purdue University <i>Catching Gravitational Waves with LIGO</i> Westville, IN	Public talk 2011

Service Work

Dynamical Formation of Gravitational Wave Sources Proposed, organized, and chaired session at 19th AAS HEAD Meeting Pittsburgh, PA	Organizer 2022
2021 Multiband Gravitational-Wave Science Workshop Workshop on future and proposed gravitational-wave detectors Carnegie Mellon University, Pittsburgh, PA (remote)	Co-Organizer 2021
Black Holes, Neutron Stars, and Gravitational Waves: The New Era of Multi-Messenger Astronomy Proposed, chaired, and spoke at session at SACNAS (national conference for diversity in STEM) <i>Honolulu, HI</i>	Organizer 2019
Committee Work at Carnegie Mellon: - - McWilliams Postdoctoral Fellowship Committee · * Committee Chair - Colloquium Committee - Equity, Diversity, and Inclusion Committee · Organized APS Site Visit to CMU, March 2022	Committee Service 2019-2020, 2021-2022* 2020-2021, 2021-2022 2020-2021, 2021-2022
Peer Reviewer for: - Physical Review Letters - Physical Review D - Astrophysical Journal Letters - Astrophysical Journal - Monthly Notices of the Royal Astronomical Society - Nature - Nature Astronomy	Referee 2015-Present
Proposal Reviewer for: - NSF Astronomy and Astrophysics Research Grants - NASA Astrophysical Theory Program - US-Israel Binational Science Foundation	Reviewer 2021 2019 2018
IAP Co-Organizer MIT Independent Activities Period; Cambridge, MA	Organizer 2017

Astronomy On Tap – Boston
Public Outreach Event at Local Pubs
Cambridge, MA

Co-Organizer
2016-2018