Geoffrey Lovelace

Department of Physics, California State University, Fullerton
800 North State College Blvd., Fullerton, CA 92834 (657) 278-7501
glovelace@fullerton.edu https://geoffrey-lovelace.com

Curriculum Vitae revised March 6, 2025

Personal Data, Education, and Appointments

Personal Data

Born April 1980, Huntingdon Valley, Pennsylvania
Married Elizabeth Wendel, August 2015; child William born April 2017

Education

Ph.D. in Physics — Oct. 2002 – Jun. 2007
California Institute of Technology

B.S. in Physics — Aug. 1998 – May 2002
University of Oklahoma

Employment

Professor of Physics — Aug. 2021 – present
Department of Physics
California State University, Fullerton

Associate Professor of Physics — Aug. 2017 – Aug. 2021
Department of Physics
California State University, Fullerton

Assistant Professor of Physics — Aug. 2012 – Aug. 2017
Department of Physics
California State University, Fullerton

Research Associate — Sep. 2007 – Aug. 2012
Department of Astronomy
Cornell University

Postdoctoral Scholar — Jul. 2007 – Aug. 2007
Department of Physics
California Institute of Technology

Visiting Appointments

Visitor in Theoretical Astrophysics — Aug. 2018 – present
Division of Physics, Mathematics, and Astronomy
California Institute of Technology

Visiting Associate in Physics — Aug. 2012 – July 2013
Department of Physics
California Institute of Technology

Research

Philanthropic Support

Nicholas and Lee Begovich's Bequest to Cal State Fullerton — 2020
$10,000,000 to CSUF, including $6,650,000 to the Nicholas and Lee Begovich Center for Gravitational-Wave Physics and Astronomy

Extramural Grants

12 extramural grants funded (9 as PI) for a total of $4,671,024 ($2,609,730 as PI) to Cal State Fullerton

1. Co-PI, National Science Foundation, EES — Centers for Research Excellence in Science and Technology (CREST), "CREST Phase I Preliminary Proposal: Center for Gravitational-Wave Physics and Astronomy" — 2023
   $0, invited to submit full proposal in 2024
2. Co-PI, National Science Foundation, EES — Centers for Research Excellence in Science and Technology (CREST), "Planning Proposal: CREST Center for Gravitational-Wave Physics and Astronomy" — 2023
   $200,000 over two years, funded 2023 – 2025
3. Key Personnel, W. M. Keck Foundation, Research Program Phase 1, "Revealing Signatures of Quantum Gravity in Gravitational Waves" — 2023
   $1,100,000 over three years, declined
4. Co-PI, National Science Foundation, PHY — LIGO Research Support, "Collaborative Research: Identifying and Evaluating Sites for Cosmic Explorer" — 2022
   $904,704 over three years, funded 2023 – 2026
5. PI, National Science Foundation, AST — Partnerships in Astronomy & Astrophysics Research and Education (PAARE), "The CSUF-led partnership for inclusion of underrepresented groups in gravitational-wave astronomy" — 2022
   $1,180,212 over five years, including sub-awards to Syracuse University, Northwestern University, and Washington State University, funded 2022–2027
6. PI, National Science Foundation, PHY — Gravitational Theory, "RUI: Next-generation numerical relativity for future gravitational-wave observatories" — 2021
   $225,832 over three years, funded 2022–2025

7. PI for CSUF, National Science Foundation, PHY — Gravitational Experiments, "Collaborative Research: The Next Generation of Gravitational Wave Detectors" 2018
   $211,283 to CSUF, funded 2018–2021

8. Co-PI for CSUF, National Science Foundation, PHY — Gravitational Experiments, "Collaborative Research: The Next Generation of Gravitational Wave Detectors" 2017
   $206,227 to CSUF, declined

9. PI for CSUF, National Science Foundation, PHY — LIGO Research Support, "Collaborative Research: LSC Center for Coatings Research" 2016
   $136,819 to CSUF, funded 2017–2020, collaborative proposal spanning 10 institutions, led by Stanford

10. PI, National Science Foundation, PHY — Integrative Activities in Physics, "CAREER: Computational gravitational-wave science and education in the era of first observations" 2016
    $400,070, funded 2017–2022

11. PI, National Science Foundation, PHY — Gravitational Theory, "RUI: Computational gravitational-wave research for the era of first observations" 2015
    $135,000 over three years, funded 2016–2019

12. Co-PI, National Science Foundation, AST — PAARE, "Catching a new wave: the CSUF-Syracuse partnership for inclusion of underrepresented groups in gravitational-wave astronomy" 2015
    $956,590 over five years, including sub-award to Syracuse University, funded 2016-2021

13. PI, National Science Foundation, PHY — Integrative Activities in Physics, "CAREER: Computational gravitational-wave science and education for the era of first observations" 2015
    $420,190 over five years, declined

14. PI, National Science Foundation, MRI, "MRI: Acquisition of a high-performance computer cluster for gravitational-wave astronomy with Advanced LIGO" 2014
    $119,791 over three years, funded 2014–2017

15. Co-PI, National Science Foundation, AST - PAARE, "Catching the new wave: the CSUF-Syracuse partnership for advancing minority participation in gravitational-wave astronomy 2013
    $977,931 over five years to CSUF, $1,476,553 total budget, declined

16. PI, Research Corporation for Science Advancement, Multi Investigator 2013 Cottrell College Science Award, "Developing a numerical injection analysis pipeline for gravitational waves from merging black holes and neutron stars" 2013
    $75,000 over two years, funded 2014–2017

17. PI, National Science Foundation, PHY - Gravitational Theory, 2012
"RUI: 2012 Numerical Simulations of Merging Black Holes and Neutron Stars"
$125,723 over three years, funded 2013–2016

Intramural Grants

PI, Course Redesign with Technology: Sustaining Success, "Early intervention in introductory mechanics" 2015
$8,824 ($1,960 + $6,864 teaching release), funded 2015–2016

PI, Junior/Senior Faculty Grant for Research, Scholarship, and Creative Activity, "Modeling thermal noise for gravitational-wave antennas" 2015
$6,312 teaching release, declined

PI, Junior/Senior Faculty Grant for Research, Scholarship, and Creative Activity, "Simulating merging black holes on a computer cluster" 2013
$1986 + $4747 for teaching release, funded 2013-2014

External Computer Time Grants

Co-PI, ACCESS Allocations Service, 2024
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
27 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, ACCESS Allocations Service, 2023
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
25 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, ACCESS Allocations Service, 2022
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
19 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Frontera Large-Scale Community Partnerships, 2021
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
42 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2021
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
8.2 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2020
"Gravitational Waves from Compact Binaries:
Computational Contributions to LIGO"
15.1 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Frontera Large-Scale Community Partnerships, 2020
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
56 million CPU-hours computer time awarded
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2019
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
14 *million CPU-hours computer time awarded*
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2018
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
7.1 million CPU-hours computer time awarded
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2018
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
Declined

Co-PI, Extreme Science and Engineering Discovery Environment, 2016
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
6.41 million CPU-hours computer time awarded
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2015
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
6.23 million CPU-hours computer time awarded
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2014
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
6.15 million CPU-hours computer time awarded
to the Simulating eXtreme Spacetimes Collaboration

Co-PI, Extreme Science and Engineering Discovery Environment, 2013 2013
"Gravitational Waves from Compact Binaries: Computational Contributions to LIGO"
3.2 million CPU-hours computer time awarded
to the Simulating eXtreme Spacetimes Collaboration

Selected Peer-Reviewed Publications

Publications selected from the complete list of publications below. Note: California State University, Fullerton Student Co-Authors in ***Bold-Italics*****.**

1. Kathryne J. Daniel, Joshua R. Smith, Stefan Ballmer, Warren Bristol, Jennifer C. Driggers, Anamaria Effler, Matthew Evans, Joseph Hoover, Kevin Kuns, Michael Landry, **Geoffrey Lovelace**, Chris Lukinbeal, Vuk Mandic, Kiet Pham, Jocelyn Read, Joshua B. Russell, Francois Schiettekatte, Robert M. S. Schofield, Christopher A. Scholz, David H. Shoemaker, Piper Sledge, and Amber Strunk. "Criteria for identifying and evaluating locations that could potentially host the Cosmic Explorer observatories." Rev. Sci. Instrum. **96**, 014502 (2025) https://doi.org/10.1063/5.0242016.

2. **Geoffrey Lovelace**, Kyle C. Nelli, Nils Deppe, Nils L. Vu, William Throwe, Marceline S. Bonilla, ***Alexander Carpenter***, Lawrence E. Kidder, ***Alexandra Macedo***, Mark A. Scheel, ***Azer Afram***, Michael Boyle, ***Andrea Ceja***, Matthew Giesler, Sarah Habib, ***Ken Z. Jones***, Prayush Kumar, Guillermo Lara, ***Denyz Melchor,*** Iago B. Mendes, Keefe Mitman, ***Marlo Morales***, Jordan Moxon, Eamonn O'Shea, ***Kyle Pannone***, Harald P. Pfeiffer, ***Teresita Ramirez-Aguilar***, ***Jennifer Sanchez***, ***Daniel Tellez***, Saul A. Teukolsky, and Nikolas A. Wittek. "Simulating binary black hole mergers using discontinuous Galerkin methods." Class Quantum Grav. **42**, 035001 (2025). https://doi.org/10.1088/1361-6382/ad9f19.

3. Guillermo Lara, Harald P. Pfeiffer, Nikolas A. Wittek, Nils L. Vu, Kyle C. Nelli, ***Alexander Carpenter***, **Geoffrey Lovelace**, Mark A. Scheel, and William Throwe. "Scalarization of isolated black holes in scalar Gauss-Bonnet theory in the fixing-the-equations approach." Phys. Rev. D **110**, 024033 (2024). https://doi.org/10.1103/PhysRevD.110.024033.

4. Marissa Walker, Vijay Varma, **Geoffrey Lovelace**, and Mark A. Scheel. "Numerical-relativity surrogate modeling with nearly extremal black-hole spins." Class. Quantum Grav. **40**, 055003 (2023). https://doi.org/10.1088/1361-6382/acb3a7.

5. Nils L. Fischer, ***Samuel Rodriguez***, Tom Wlodarczyk, **Geoffrey Lovelace**, Harald P. Pfeiffer, Gabriel S. Bonilla, Nils Deppe, François Hébert, Lawrence E. Kidder, Jordan Moxon, William Throwe. "High-accuracy numerical models of Brownian thermal noise in thin mirror coatings." Class. Quantum Grav. **40**, 025015 (2023). https://doi.org/10.1088/1361-6382/acad62.

6. Nils Deppe, François Hébert, Lawrence E. Kidder, William Throwe, Isha Anantpurkar, Cristóbal Armaza, Gabriel S. Bonilla, Michael Boyle, Himanshu Chaudhary, Matthew D. Duez, Nils L. Fischer, Francois Foucart, Matthew Giesler, Jason S. Guo, Yoonsoo Kim, Prayush Kumar, Isaac Legred, Dongjun Li, **Geoffrey Lovelace**, Sizheng Ma, Alexandra Macedo, ***Denyz Melchor***, ***Marlo Morales***, Jordan Moxon, Kyle C. Nelli, Eamonn O'Shea, Harald P. Pfeiffer, ***Teresita Ramirez***, Hannes R. Rüter, ***Jennifer Sanchez***, Mark A. Scheel, ***Sierra Thomas***, Daniel Vieira, Nikolas A. Wittek, Tom Wlodarczyk, Saul A. Teukolsky. "Simulating magnetized neutron stars with discontinuous Galerkin methods." Phys. Rev. D **105**, 123031 (2022). https://doi.org/10.1103/PhysRevD.105.123031.

7. Michael Boyle, Daniel Hemberger, Dante A.B. Iozzo, **Geoffrey Lovelace**, Serguei Ossokine, Harald P. Pfeiffer, Mark A. Scheel, Leo C. Stein, Charles J. Woodford, Aaron B. Zimmerman, ***Nousha Afshari,*** Kevin Barkett, Jonathan Blackman, Katerina Chatziioannou, Tony Chu, ***Nicholas Demos***, Nils Deppe, Scott E. Field, Nils L. Fischer, ***Evan Foley***, Heather Fong, ***Alyssa Garcia***, Matthew Giesler, Francois Hebert, Ian Hinder, ***Reza Katebi***, ***Haroon Khan***, Lawrence E. Kidder, Prayush Kumar, ***Kevin Kuper***, Halston Lim, Maria Okounkova, ***Teresita Ramirez***, ***Samuel Rodriguez***, Hannes R. Rüter, Patricia Schmidt, Bela Szilagyi, Saul A. Teukolsky, Vijay Varma, and Marissa Walker. "The SXS Collaboration catalog of binary black hole simulations." Class. Quantum Grav. **36**, 195006 (2019).

8. Katerina Chatziioannou, **Geoffrey Lovelace**, Michael Boyle, Matthew Giesler, Daniel A. Hemberger, ***Reza Katebi***, Lawrence E. Kidder, Harald P. Pfeiffer, Mark A. Scheel, and Béla Szilágyi. "Measuring the properties of nearly extremal black holes with gravitational waves." Phys. Rev. D **98**, 044028 (2018). https://doi.org/10.1103/PhysRevLett.121.231103

9. **Geoffrey Lovelace**, ***Nicholas Demos***, and ***Haroon Khan***. "Numerically modeling Brownian thermal noise in amorphous and crystalline thin coatings." Class. Quantum Grav. **35**, 025017 (2017).

10. **Geoffrey Lovelace**, Carlos O. Lousto, James Healy, Mark A. Scheel, ***Alyssa Garcia***, Richard O'Shaughnessy, Michael Boyle, Manuela Campanelli, Daniel A. Hemberger, Lawrence E. Kidder, Harald P. Pfeiffer, Béla Szilágyi, Saul A. Teukolsky, and Yosef Zlochower. "Modeling the source of GW150914 with targeted numerical-relativity simulations." Class. Quantum Grav. **33**, 244002 (2016).

11. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Observation of Gravitational Waves from a Binary Black Hole Merger." Phys. Rev. Lett. **116**, 061102 (2016).

12. Geoffrey Lovelace, Mark A. Scheel, Robert Owen, Matthew Giesler, ***Reza Katebi***, Béla Szilágyi, Tony Chu, ***Nicholas Demos***, Daniel A. Hemberger, Lawrence E. Kidder, Harald P. Pfeiffer, ***Nousha Afshari***. "Nearly extremal apparent horizons in simulations of merging black holes." Class. Quantum Grav. **32**, 065007 (2015). *IOPselect article. Selected for CQG+ Author Insight.*

13. Abdul H. Mroué, Mark A. Scheel, Béla Szilágyi, Harald P. Pfeiffer, Michael Boyle, Daniel A. Hemberger, Lawrence E. Kidder, Geoffrey Lovelace, Serguei Ossokine, Nicholas W. Taylor, Anıl Zenginoglu, Luisa T. Buchman, Tony Chu, ***Evan Foley***, ***Matthew Giesler***, Robert Owen, Saul A. Teukolsky. "A catalog of 174 high-quality binary black-hole simulations for gravitational-wave astronomy." Phys. Rev. Lett. **111**, 241104 (2013).

Undergraduate and Graduate Research Students Advised

1.	***Kyle Pannone***	M.S., 2024
2.	***Esther Lopez***	M.S., 2024
3.	***Daniel Tellez***	B.S., 2024

4. ***Andrea Ceja*** B.S., 2023
   Now pursuing a Ph.D. in physics at Northwestern University
5. ***Noora Ghadiri*** B.S., 2022
   Pursuing a Ph.D. in physics at University of Illinois Urbana Champaign
6. ***Marlo Morales*** B.S., 2022
   M.S. in physics from Washington State University, 2023
7. ***Samuel Rodriguez*** M.S., 2021
8. ***Teresita Ramirez Aguilar*** B.S., 2021
   Pursuing Ph.D. in astronomy at Northwestern University
   NSF Graduate Research Fellow
9. ***Sierra Thomas*** B.S., 2020
   Pursuing Ph.D. in physics at Syracuse University
10. ***Jennifer Sanchez*** B.S., 2020
    M.S. in physics at Northwestern University, 2024
11. ***Denyz Melchor*** B.S., 2020
    Pursuing Ph.D. in astrophysics at University of California, Los Angeles
    NSF Graduate Research Fellow
12. ***Nicholas Demos*** B.S., 2017
    Pursing Ph.D. in physics at Massachusetts Institute of Technology
13. ***John Derby*** M.S., 2017
14. ***Alyssa Garcia*** B.S., 2017
    Ph.D. in Physics, University of Michigan, 2023
    NSF Graduate Research Fellow
15. ***Haroon Khan*** B.S., 2017
    Now Electrical Engineer at NASA Ames
16. ***Nousha Afshari*** B.S., 2016
    Pursuing a graduate degree in medical physics at Louisiana State University
17. ***Kevin Kuper*** B.S., 2015
    Ph.D. in optics, University of Arizona, 2022
18. ***Evan Foley*** M.S., 2014
    Now Senior EMC Engineer at Rivian
19. ***Reza Katebi*** M.S., 2014
    Ph.D. in physics, Ohio University, 2019
    Now a Senior Staff AI Engineer at Tesla
20. ***Matthew Giesler*** B.S., 2013
    Ph.D. in physics, California Institute of Technology, 2020

Selected Invited Presentations

1. "Modeling binary black holes with numerical relativity for LISA" Sep. 2024
   Fundamental Physics Meets Waveforms with LISA, Max Planck Institute for Gravitational Physics, Golm, Germany
2. "Simulating merging binary black holes with SpECTRE" Jun. 2024
   NAHOMCon'24 and NENAD'24 mini-symposium 12: high-order methods for computational relativity, Dartmouth College, Hanover, New Hampshire
3. "Simulating binary black holes with nearly extremal spins" Mar. 2024
   Taking it to the extreme: symmetries and dynamics of extremal black holes, Princeton University, Princeton, New Jersey
4. "Modeling merging black holes with numerical relativity for current and future gravitational-wave observatories" Feb. 2023
   University of Arkansas Physics Colloquium, Fayetteville, Arkansas
5. "Numerical relativity for next-generation gravitational-wave observatories" Apr. 2022
   Kavli Institute for Theoretical Physics Conference: Storming the Gravitational-Wave Frontier, Santa Barbara, California
6. "Numerical relativity in the era of gravitational-wave observations" Jan. 2019
   High energy and Gravity Seminar, University of California, Santa Barbara Santa Barbara, California
7. "The first observations of gravitational waves from merging black holes" Mar. 2017
   Physics and Astronomy Colloquium, Swarthmore College, Swarthmore, Pennsylvania
8. "Simulations of binary-black-hole mergers" Jan. 2017
   American Physical Society April Meeting, Washington, D.C.
9. "The first observations of gravitational waves from merging black holes" Sep. 2016
   Physics and Astronomy Colloquium, University of Oklahoma, Norman, Oklahoma
10. "Simulating colliding black holes and mirror thermal noise for gravitational-wave astronomy" Sep. 2015
    Physics Colloquium, California State University, Northridge, California

Selected Contributed Presentations

1. "Simulating merging binary black holes with SpECTRE" Apr. 2024
   American Physical Society April Meeting Sacramento, California
2. "Using SpECTRE to simulate binary-black-hole inspirals" Apr. 2023
   American Physical Society April Meeting Minneapolis, Minnesota

3. "Status of binary-black-hole simulations with SpECTRE" Apr. 2022
   American Physical Society April Meeting
   New York, New York

4. "Progress toward simulating merging black holes with SpECTRE" Apr. 2021
   Virtual April APS Meeting

5. "Progress toward simulating merging black holes with SpECTRE" Apr. 2020
   Virtual April APS Meeting

6. "Can LIGO measure the spins of nearly extremal, merging binary black holes?" Apr. 2018
   American Physical Society April Meeting
   Columbus, Ohio

7. "Time series projections" Oct. 2017
   Interactive tutorial on projecting theoretical gravitational waveforms
   onto gravitational-wave detector data in the time domain
   LIGO-Virgo Waveform Research and Development Team
   Face-to-face Meeting, Berlin, Germany

8. "Numerically modeling Brownian thermal noise in amorphous and crystalline thin coatings" Jul. 2017
   12th Eduardo Amaldi Conference on Gravitational Waves
   Pasadena, California

9. "Simulations of binary-black-hole mergers" Feb. 2017
   The Dawning Era of Gravitational-Wave Astrophysics, Aspen Center for Physics
   Winter Conference, Aspen, Colorado

10. "The Discovery of Gravitational Waves from Merging Black Holes" Oct. 2016
    Outreach talks to science classes at Dock Mennonite Academy
    Grades 9-12 Campus, Lansdale, PA

11. "Modeling merging black holes with numerical relativity in the era of first gravitational-wave observations" Jul. 2016
    21st International Conference on General Relativity
    and Gravitation, Columbia University, New York, New York

12. "Modeling merging, rapidly rotating black holes with numerical relativity for the era of first gravitational-wave observations" Apr. 2016
    American Physical Society April Meeting, Salt Lake City, Utah

13. "Modeling crystalline Brownian coating noise with high performance computing" Jul. 2015
    LIGO monthly coatings teleconference

14. "Nearly extremal apparent horizons in simulations of merging black holes" Jun. 2015
    International Conference on Black Holes, Fields Institute, Toronto, Ontario

15. "Nearly extremal apparent horizons in simulations of merging black holes" — Apr. 2015
American Physical Society April Meeting, Baltimore, Maryland

16. "Collisions in Warped Space and Time" — Oct. 2014
Outreach talk to physics classes at Grand Terrace High School, Grand Terrace, California

17. "Results from numerical simulations of binaries containing nearly extremal black holes" — Sep. 2013
2013 Numerical Relativity and Data Analysis Meeting, Mallorca, Spain

18. "Nearly extremal black-hole spin in numerical simulations of compact binaries" — Jul. 2013
20th International Conference on General Relativity and Gravitation and 10th Amaldi Conference on Gravitational Waves, Warsaw, Poland

19. "The tidal disruption of a neutron star by a nearly extremal black hole" — Mar. 2013
29th Annual Pacific Coast Gravity Meeting, Davis, California

20. "Supercomputer simulations of colliding black holes and neutron stars" — Jun. 2012
Introductory talk to summer research undergraduates, University of Oklahoma, Norman, Oklahoma

Teaching

Supervision

Supervision of 20 undergraduate and master's students for research projects in computational gravitational-wave physics — Aug. 2012 – present
California State University, Fullerton

Co-supervision of 4 undergraduate students and 1 graduate student for computational relativity research projects — Jun. 2008 – Jul. 2012
Cornell University

Courses Taught

Spring 2025
ASTR 101: Introduction to Astronomy
PHYS 530A: Electromagnetic Theory I
PHYS 499: Independent Study
PHYS 599: Independent Graduate Research
PHYS 597: Master's Project

Fall 2024
ASTR 101: Introduction to Astronomy
PHYS 499: Independent Study
PHYS 599: Independent Graduate Research
PHYS 597: Master's Project

ASTR 444: Applications of Gravitation	Spring 2024
PHYS 330B: Electromagnetic Theory II	
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
ASTR 101: Introduction to Astronomy	Fall 2023
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
PHYS 320: Classical Mechanics	Spring 2023
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
ASTR 101: Introduction to Astronomy (2 sections)	Fall 2022
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
ASTR 101: Introduction to Astronomy	Spring 2022
ASTR 444: Applications of Gravitation	
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
CSNM 101: Think Like Einstein	Fall 2021
PHYS 520: Analytical Mechanics	
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
ASTR 101: Introduction to Astronomy	Spring 2021
PHYS 330B: Electromagnetic Theory II	
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	
ASTR 101: Introduction to Astronomy	Fall 2020
PHYS 330A: Electromagnetic Theory I	
PHYS 499: Independent Study	
PHYS 599: Independent Graduate Research	
PHYS 597: Master's Project	

ASTR 101: Introduction to Astronomy — Spring 2020
ASTR 444: Applications of Gravitation — *new course pilot*
PHYS 499: Independent Study
PHYS 599: Independent Graduate Research
PHYS 597: Master's Project

ASTR 101: Introduction to Astronomy — Fall 2019
PHYS 499: Independent Study

PHYS 225: Fundamental Physics: Mechanics — *flipped classroom redesign* — Spring 2018
ASTR 444: Applications of Gravitation — *new course pilot*
PHYS 499: Independent Study
PHYS 599: Independent Graduate Research

PHYS 520: Analytical Mechanics — Fall 2017
PHYS 499: Independent Study

PHYS 225: Fundamental Physics: Mechanics — *flipped classroom redesign* — Spring 2017
PHYS 300: Survey of Mathematical Physics
PHYS 499: Independent Study
PHYS 597: Master's Project
PHYS 599: Independent Graduate Research

PHYS 520: Analytical Mechanics — Fall 2016
PHYS 499: Independent Study
PHYS 597: Master's Project
PHYS 599: Independent Graduate Research

PHYS 225: Fundamental Physics: Mechanics — *flipped classroom redesign* — Spring 2016
ASTR 444: Applications of Gravitation — *new course pilot*
PHYS 499: Independent Study
PHYS 597: Master's Project
PHYS 599: Independent Graduate Research

PHYS 499: Undergraduate Independent Study — Fall 2015
PHYS 520: Analytical Mechanics
PHYS 599: Independent Graduate Research

PHYS 211: Elementary Physics — Spring 2015
PHYS 211L: Elementary Physics Laboratory
PHYS 499: Undergraduate Independent Study

PHYS 499: Undergraduate Independent Study — Fall 2014
PHYS 520: Analytical Mechanics

PHYS 225: Fundamental Physics: Mechanics — *flipped classroom redesign* — Spring 2014
PHYS 499: Undergraduate Independent Study
PHYS 597: Master's Project
PHYS 599: Independent Graduate Research

PHYS 499: Undergraduate Independent Study — Fall 2013
PHYS 520: Analytical Mechanics
PHYS 597: Master's Project
PHYS 599: Independent Graduate Research

PHYS 211: Elementary Physics — Spring 2013
PHYS 499: Undergraduate Independent Study
PHYS 597: Master's Project
PHYS 599: Independent Graduate Research

PHYS 211: Elementary Physics — Fall 2012
PHYS 499: Undergraduate Independent Study
PHYS 599: Independent Graduate Research

Other Teaching Accomplishments

Workshop on Gravitational Waves and High-Performance Computing — Aug. 2024
Introduced 11 students from Citrus College to gravitational-wave science and high-performance computing through a 1-week summer workshop

Workshop on Gravitational Waves and High-Performance Computing — Aug. 2023
Introduced 15 students from Citrus College to gravitational-wave science and high-performance computing through a 1-week summer workshop

Workshop on Gravitational Waves and High-Performance Computing — Aug. 2022
Introduced 7 students from Citrus College to gravitational-wave science and high-performance computing through a 1-week summer workshop

Virtual Workshop on Gravitational Waves and High-Performance Computing — Aug. 2021
Introduced 22 students from Citrus College to gravitational-wave science and high-performance computing through a 1-week virtual summer workshop

Workshop on Gravitational Waves and High-Performance Computing — Aug. 2019
Introduced 22 students from Citrus College to gravitational-wave science and high-performance computing through a 1-week summer workshop

Workshop on Gravitational Waves and High-Performance Computing — Aug. 2018
Introduced 16 students from Citrus College to gravitational-wave science and high-performance computing through a 1-week summer workshop

Discussion Leader at Gordon Research Conference discussing "Relativity and Gravitation: Contemporary Research and Teaching of Einstein's Physics" — Jun. 2016
Salve Regina University, Newport, Rhode Island

Participant in "Proven Course Redesign" eAcademy on research-based, "flipped classroom" pedagogy — Jul. 2013
California State Polytechnic University, Pomona

Designed and presented online lecture introducing aspects of object-oriented programming and the Spectral Einstein Code — Jun. 2011
Cornell University, Ithaca, New York

Service

Professional Leadership

Head of Computational Modeling, Cosmic Explorer Project — May 2024 – present

Secretary and Treasurer, American Physical Society Division of Gravitation — Jan. 2017 – Jan. 2021

Senior member, Gravitational-Wave Physics and Astronomy Center (GWPAC) at California State University, Fullerton — Aug. 2012 – present

Member, Executive Committee of the Simulating eXtreme Spacetimes (SXS) collaboration — Nov. 2009 – present

Professional Membership

Active member, Cosmic Explorer Project — Jul. 2018 – present

Active member, LIGO Scientific Collaboration — May 2014 – present

Active member, Simulating eXtreme Spacetimes (SXS) Collaboration — Sep. 2007 – present

Active member, American Physical Society, Division of Gravitation — Feb. 2006 – present

Professional Service

National Science Foundation Review Panelist — Mar. 2024

External examiner, Oberlin College Physics honors program — Jan. 2022 – May 2022

Member, Classical and Quantum Gravity Editorial Board — Mar. 2021 – Mar. 2025

Member, Classical and Quantum Gravity Advisory Panel — Dec. 2016 – Mar. 2021

Member, American Physical Society LeRoy Apker Award Selection Committee — May 2019 – Aug. 2021

Ph.D. committee member for Rochester Institute of Technology student Jacob Lange — Mar. 2018 – Aug. 2020

National Science Foundation Review Panelist — Feb. 2019

Referee for journal Physical Review Letters, APS publishing — Apr. 2008 – present

Referee for journal Physical Review D, APS publishing — Mar. 2008 – present

Participate in CSU Webinar on grant writing	Feb. 2017
Organize and host 32nd annual Pacific Coast Gravity Meeting	Apr. 2016
Organize and host Theoretical Astrophysics in Southern California conference	Nov. 2015
National Science Foundation Review Panelist	Feb. 2015
Referee, Gravitational Physics Program, National Science Foundation	Jan. 2014 – present
Co-organize and host Numerical and Analytical Relativity and Data Analysis (NARDA) 2014 meeting	Aug. 2014
Reviewer, NASA Postdoctoral Program	May 2013
Reviewer, NSF Physics at the Information Frontier program	Feb. 2013
Referee for journal Classical and Quantum Gravity, IOP publishing	Mar. 2008 – present

Department, College, and University Committee Service

Supplemental Instruction Physics Faculty Liaison	August 2023 – present
Department of Physics Personnel Committee	Aug. 2021 – present
College of Natural Sciences and Mathematics Personnel Committee	Aug. 2021 – July 2022
Reviewer, NSM Jr/Sr Intramural Award Committee	Mar. 2020
Chair, Physics Department Faculty Search Committee	Aug. 2019 – Aug. 2020
Discuss NSF CAREER proposal writing with CSUF professors, hosted by the Office of Research Development & College of Engineering	Mar. 2019
Member, Center for Computational and Applied Mathematics Computing Committee	Aug. 2017 – present
Discuss NSF CAREER proposal writing with CSUF professors, hosted by the Office of Research Development	April 2017
Curriculum Committee Chair, Department of Physics, CSUF	Aug. 2015 – Aug. 2018
Member, search committee for high-performance computing system administrator	Aug. 2016 – Oct. 2017
Lab Development Committee, Department of Physics, California State University, Fullerton	Aug. 2015 – Aug. 2016
Curriculum Committee, College of Natural Sciences and Mathematics, California State University, Fullerton	Sep. 2014 – present

Safety Committee, College of Natural Sciences and Mathematics, California State University, Fullerton — Aug. 2013 – Sep. 2014

Outreach, Advocacy, and Fundraising

Tutorial on constructing SpECTRE executables at SXSCon, Institute for Computational and Experimental Research in Mathematics, Brown University, Providence, Rhode Island — Aug. 2024

Week-long workshop course and tutorials on next-generation numerical-relativity, discontinuous Galerkin methods, and task-based parallelism in SpECTRE International Centre for Theoretical Sciences, Tata Institute of Fundamental Physics, Bengaluru, India. — Aug. 2023

Outreach seminar at Morningside of Fullerton — Jul. 2023

Outreach seminar at Fullerton College — Mar. 2023

Outreach seminar at Cal State Fullerton Osher Lifelong Learning Institute — Dec. 2022

Outreach talk with Josh Smith and Jocelyn Read at Fullerton Community Center — Oct. 2022

Speak and facilitate keynote address by Kip Thorne at the renaming ceremony for the Nicholas and Lee Begovich Center for Gravitational-Wave Physics and Astronomy — Oct. 2019

Outreach seminar at Citrus College, recruiting for a 1-week CSUF summer workshop on high-performance computing — Apr. 2019

Participant in American Physical Society Congressional Outreach Day — Feb. 2019

Interview with Tom Lovelace on local New York radio station WTBQ — Sep. 2018

Guest teaching in introductory calculus courses, demonstrating Monte Carlo integration with dice — Sep. 2018

Present 15-minute public lecture at Dock Mennonite Academy (high school) — Sep. 2018

Outreach seminar at Citrus College, recruiting for a 1-week CSUF summer workshop on high-performance computing — Apr. 2018

Q&A with Joshua Smith at Fullerton Community Center, hosted by Parents' Voice and the Lions Club — May 2017

Supervision of high school volunteer intern for a computational research project — Jun. 2016 – Aug. 2016

Presenter at CSUF fundraising dinner event, "Gravitational Waves: Examining the Universe in a Whole New Way" — Apr. 2016

Discuss gravitational-wave research with CSU Chancellor, CSUF President, GWPAC student researchers and professors — Feb. 2016

Co-lead CSUF press conference announcing the discovery of gravitational waves from merging black holes — Feb. 2016

Contribute to CSUF media relations outreach for gravitational-wave discovery
http://news.fullerton.edu/gravitational-waves/ — Feb. 2016

Present, with undergraduate researchers Nick Demos and Alyssa Garcia and Profs. Josh Smith and Josh Der, to California State University, Fullerton Philanthropic Foundation Board of Directors — Nov. 2015

Attend Posters on the Hill with student Haroon Khan to advocate for undergraduate STEM research to members of Congress and their staff in Washington, D.C. — Apr. 2015

Supervision of high school volunteer intern for a computational research project — Jun. 2013 – Aug. 2013

Participant in Discover STEM event, Cyprus College — Apr. 2013

Participant in Welcome to Fullerton Day, California State University, Fullerton — Apr. 2013

Interview with local middle school student — Jan. 2013

Participant in GWPAC opening celebration, California State University, Fullerton — Sep. 2012

Awards and Other Accomplishments

Awards

Alumni of the Year 2023 - Outstanding Achievement Award — Oct. 2023
One of two Outstanding Achievement Awards given in 2023, Dock Mennonite Academy, Lansdale, Pennsylvania

Outstanding Untenured Faculty Member — May 2017
$2,500, annual award given by the California State University, Fullerton College of Natural Sciences and Mathematics

Titan on the Rise: Early Career Investigator Award — May 2017
$750, award given by the California State University, Fullerton Office of Research Development

Special Breakthrough Prize in Fundamental Physics co-recipient — May 2016
$1,976, portion of $2 million shared among 1,012 contributors to the LIGO experiment "for the observation of gravitational waves, opening new horizons in astronomy and physics."

Woodward Faculty Research Award — May 2015
$2,000, annual award given by the California State University, Fullerton Department of Physics

Media

Appeared with CSUF undergraduate Teresita Ramirez in documentary "LIGO: A Discovery that Shook the World" by Les Guthman — Dec. 2019
https://vimeo.com/378452738 *starting at 3:07*

Quoted in Scientific American article on LIGO observation GW190814 — Aug. 2019
https://www.scientificamerican.com/article/astronomers-spy-a-black-hole-devouring-a-neutron-star/

Visualization of LIGO's first ten binary-black-hole observations, created by CSUF undergraduate Teresita Ramirez, Geoffrey Lovelace, the SXS Collaboration, and the LIGO Virgo Collaboration, featured in national media — Dec. 2018
https://youtu.be/gmmD72cFOU4 — *109,000+ views on YouTube*
https://arstechnica.com/science/2018/12/physicists-detected-gravitational-waves-from-four-new-black-hole-mergers/
https://www.scientificamerican.com/article/has-ligo-seen-galaxy-warped-gravitational-waves/

Visualization of GW170814 created by CSUF undergraduate Nicholas Demos, Peter Holderness at Caltech, and the SXS Collaboration featured in the New York Times — Jan. 2017
Second figure in https://nyti.ms/2ss9syS

Scientific results from and outreach concerning the discovery of gravitational waves from merging black holes featured in local, national, and international media — Feb. 2016
(e.g. visualization starting at 00:53 in https://youtu.be/z7pKXVkcDzs*)*

Article selected for cover of Phys. Rev. Lett. vol. 116, no. 6 — Feb. 2016
Contributed to creating cover image

Article selected for cover of Phys. Rev. Lett. vol. 106, no. 15 — Apr. 2011

Research on visualizing curved spacetime featured in news media — Apr. 2011
(e.g. http://www.universetoday.com/84807/a-new-way-to-visualize-warped-space-and-time/)

Complete Lists of Publications and Presentations

Peer-Reviewed Publications

California State University, Fullerton Student Co-Authors in ***Bold-Italics***. Excludes publications resulting from membership in the LIGO Scientific Collaboration, Cosmic Explorer Project, and LISA Consortium.

1. Kathryne J. Daniel, Joshua R. Smith, Stefan Ballmer, Warren Bristol, Jennifer C. Driggers, Anamaria Effler, Matthew Evans, Joseph Hoover, Kevin Kuns, Michael Landry, **Geoffrey Lovelace**, Chris Lukinbeal, Vuk Mandic, Kiet Pham, Jocelyn Read, Joshua B. Russell, Francois Schiettekatte, Robert M. S. Schofield, Christopher A. Scholz, David H. Shoemaker, Piper Sledge, and Amber Strunk. "Criteria for identifying and evaluating locations that could potentially host the Cosmic Explorer observatories." Rev. Sci. Instrum. **96**, 014502 (2025) https://doi.org/10.1063/5.0242016.

2. **Geoffrey Lovelace**, Kyle C. Nelli, Nils Deppe, Nils L. Vu, William Throwe, Marceline S. Bonilla, ***Alexander Carpenter***, Lawrence E. Kidder, ***Alexandra Macedo***, Mark A. Scheel, ***Azer Afram***, Michael Boyle, ***Andrea Ceja***, Matthew Giesler, Sarah Habib, ***Ken Z. Jones***, Prayush Kumar, Guillermo Lara, ***Denyz Melchor,*** Iago B. Mendes, Keefe Mitman, ***Marlo Morales***, Jordan Moxon, Eamonn O'Shea, ***Kyle Pannone***, Harald P. Pfeiffer, ***Teresita Ramirez-Aguilar***, ***Jennifer Sanchez***, ***Daniel Tellez***, Saul A. Teukolsky, and Nikolas A. Wittek. "Simulating binary black hole mergers using discontinuous Galerkin methods." Class Quantum Grav. **42**, 035001 (2025). https://doi.org/10.1088/1361-6382/ad9f19.

3. Nils Deppe, Francois Foucart, Marceline S. Bonilla, Michael Boyle, Nicholas J. Corso, Matthew D. Duez, Matthew Giesler, François Hébert, Lawrence E. Kidder, Yoonsoo Kim, Prayush Kumar, Isaac Legred, **Geoffrey Lovelace**, Elias R. Most, Jordan Moxon, Kyle C. Nelli, Harald P. Pfeiffer, Mark A. Scheel, Saul A. Teukolsky, William Throwe, and Nils L. Vu. "Binary neutron star mergers using a discontinuous Galerkin-finite difference hybrid method." Class. Quantum Grav. **41**, 245002 (2024). https://doi.org/10.1088/1361-6382/ad88cf.

4. Guillermo Lara, Harald P. Pfeiffer, Nikolas A. Wittek, Nils L. Vu, Kyle C. Nelli, ***Alexander Carpenter***, **Geoffrey Lovelace**, Mark A. Scheel, and William Throwe. "Scalarization of isolated black holes in scalar Gauss-Bonnet theory in the fixing-the-equations approach." Phys. Rev. D **110**, 024033 (2024). https://doi.org/10.1103/PhysRevD.110.024033.

5. Sizheng Ma, Jordan Moxon, Mark A. Scheel, Kyle C. Nelli, Nils Deppe, Marceline S. Bonilla, Lawrence E. Kidder, Prayush Kumar, **Geoffrey Lovelace**, William Throwe, and Nils L. Vu. "Fully relativistic three-dimensional Cauchy-characteristic matching for physical degrees of freedom." Phys. Rev. D **109**, 124027 (2024). https://doi.org/10.1103/PhysRevD.109.124027.

6. Marissa Walker, Vijay Varma, Geoffrey Lovelace, and Mark A. Scheel. "Numerical-relativity surrogate modeling with nearly extremal black-hole spins." Class. Quantum Grav. **40**, 055003 (2023). https://doi.org/10.1088/1361-6382/acb3a7.

7. Nils L. Fischer, ***Samuel Rodriguez***, Tom Wlodarczyk, **Geoffrey Lovelace**, Harald P. Pfeiffer, Gabriel S. Bonilla, Nils Deppe, François Hébert, Lawrence E. Kidder, Jordan Moxon, William Throwe. "High-accuracy numerical models of Brownian thermal noise in thin mirror coatings." Class. Quantum Grav. **40**, 025015 (2023). https://doi.org/10.1088/1361-6382/acad62.

8. Nils L. Fischer, Harald P. Pfeiffer, Gabriel S. Bonilla, Nils Deppe, François Hébert, Lawrence E. Kidder, **Geoffrey Lovelace**, Jordan Moxon, Mark A. Scheel, Saul A. Teukolsky, William Throwe, Nikolas A. Wittek, Tom Wlodarczyk. "A scalable elliptic solver with task-based parallelism for the SpECTRE numerical relativity code." Phys. Rev. D **105**, 084027 (2022). https://doi.org/10.1103/PhysRevD.105.084027.

9. Nils Deppe, François Hébert, Lawrence E. Kidder, William Throwe, Isha Anantpurkar, Cristóbal Armaza, Gabriel S. Bonilla, Michael Boyle, Himanshu Chaudhary, Matthew D. Duez, Nils L. Fischer, Francois Foucart, Matthew Giesler, Jason S. Guo, Yoonsoo Kim, Prayush Kumar, Isaac Legred, Dongjun Li, **Geoffrey Lovelace**, Sizheng Ma, Alexandra Macedo, ***Denyz Melchor***, ***Marlo Morales***, Jordan Moxon, Kyle C. Nelli, Eamonn O'Shea, Harald P. Pfeiffer, ***Teresita Ramirez***, Hannes R. Rüter, ***Jennifer Sanchez***, Mark A. Scheel, ***Sierra Thomas***, Daniel Vieira, Nikolas A. Wittek, Tom Wlodarczyk, Saul A. Teukolsky. "Simulating magnetized neutron stars with discontinuous Galerkin methods." Phys. Rev. D **105**, 123031 (2022). https://doi.org/10.1103/PhysRevD.105.123031.

10. Michael Boyle, Daniel Hemberger, Dante A.B. Iozzo, **Geoffrey Lovelace**, Serguei Ossokine, Harald P. Pfeiffer, Mark A. Scheel, Leo C. Stein, Charles J. Woodford, Aaron B. Zimmerman, ***Nousha Afshari***, Kevin Barkett, Jonathan Blackman, Katerina Chatziioannou, Tony Chu, ***Nicholas Demos***, Nils Deppe, Scott E. Field, Nils L. Fischer, ***Evan Foley***, Heather Fong, ***Alyssa Garcia***, Matthew Giesler, Francois Hebert, Ian Hinder, ***Reza Katebi***, ***Haroon Khan***, Lawrence E. Kidder, Prayush Kumar, ***Kevin Kuper***, Halston Lim, Maria Okounkova, ***Teresita Ramirez***, ***Samuel Rodriguez***, Hannes R. Rüter, Patricia Schmidt, Bela Szilagyi, Saul A. Teukolsky, Vijay Varma, and Marissa Walker. "The SXS Collaboration catalog of binary black hole simulations." Class. Quantum Grav. **36**, 195006 (2019). https://doi.org/10.1088/1361-6382/ab34e2

11. Katerina Chatziioannou, Roberto Cotesta, Sudarshan Ghonge, Jacob Lange, Ken KY Ng, Juan Calderón Bustillo, James Clark, Carl-Johan Haster, Sebastian Khan, Michael Pürrer, Vivien Raymond, Salvatore Vitale, ***Nousha Afshari***, Stanislav Babak, Kevin Barkett, Jonathan Blackman, Alejandro Bohé, Michael Boyle, Alessandra Buonanno, Manuela Campanelli, Gregorio Carullo, Tony Chu, ***Eric Flynn***, Heather Fong, ***Alyssa Garcia***, Matthew Giesler, Maria Haney, Mark Hannam, Ian Harry, James Healy, Daniel Hemberger, Ian Hinder, Karan Jani, Bhavesh Khamersa, Lawrence E Kidder, Prayush Kumar, Pablo Laguna, Carlos O Lousto, **Geoffrey Lovelace**, Tyson B Littenberg, Lionel London, Margaret Millhouse, Laura K Nuttall, Frank Ohme, Richard O'Shaughnessy, Serguei Ossokine, Francesco Pannarale, Patricia Schmidt, Harald P Pfeiffer, Mark A Scheel, Lijing Shao, Deirdre Shoemaker, Bela Szilagyi, Andrea Taracchini, Saul A Teukolsky, and Yosef Zlochower. "On the properties of the massive binary black hole merger GW170729." Phys. Rev. D **100**, 104015 (2019). https://doi.org/10.1103/PhysRevD.100.104015

12. Michael Boyle, Daniel Hemberger, Dante A.B. Iozzo, **Geoffrey Lovelace**, Serguei Ossokine, Harald P. Pfeiffer, Mark A. Scheel, Leo C. Stein, Charles J. Woodford, Aaron B. Zimmerman, ***Nousha Afshari,*** Kevin Barkett, Jonathan Blackman, Katerina Chatziioannou, Tony Chu, ***Nicholas Demos***, Nils Deppe, Scott E. Field, Nils L. Fischer, ***Evan Foley***, Heather Fong, ***Alyssa Garcia***, Matthew Giesler, Francois Hebert, Ian Hinder, ***Reza Katebi***, ***Haroon Khan***, Lawrence E. Kidder, Prayush Kumar, ***Kevin Kuper***, Halston Lim, Maria Okounkova, ***Teresita Ramirez***, ***Samuel Rodriguez***, Hannes R. Rüter, Patricia Schmidt, Bela Szilagyi, Saul A. Teukolsky, Vijay Varma, and Marissa Walker. "The SXS Collaboration catalog of binary black hole simulations." Class. Quantum Grav. **36**, 195006 (2019). https://doi.org/10.1088/1361-6382/ab34e2

13. Katerina Chatziioannou, Geoffrey Lovelace, Michael Boyle, Matthew Giesler, Daniel A. Hemberger, ***Reza Katebi***, Lawrence E. Kidder, Harald P. Pfeiffer, Mark A. Scheel, and Béla Szilágyi. "Measuring the properties of nearly extremal black holes with gravitational waves." Phys. Rev. D **98**, 044028 (2018). https://doi.org/10.1103/PhysRevLett.121.231103

14. "Assessing the Energetics of Spinning Binary Black Hole Systems." Serguei Ossokine, Tim Dietrich, ***Evan Foley***, ***Reza Katebi***, and **Geoffrey Lovelace**. Phys. Rev. D **98**, 104057 (2018). https://doi.org/10.1103/PhysRevD.98.104057

15. Chaitanya Afle, Anuradha Gupta, Bhooshan Gadre, Prayush Kumar, ***Nick Demos***, **Geoffrey Lovelace**, Han Gil Choi, Hyung Mok Lee, Sanjit Mitra, Michael Boyle, Daniel A. Hemberger, Lawrence E. Kidder, Harald P. Pfeiffer, Mark A. Scheel, and Béla Szilágyi. "Detection and characterization of spin-orbit resonances in the advanced gravitational wave detectors era." Phys. Rev. D **98**, 083014 (2018). https://dx.doi.org/10.1103/PhysRevD.98.083014

16. **Geoffrey Lovelace**, ***Nicholas Demos***, and ***Haroon Khan***. "Numerically modeling Brownian thermal noise in amorphous and crystalline thin coatings." Class. Quantum Grav. **35**, 025017 (2017). http://doi.org/10.1088/1361-6382/aa9ccc.

17. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "GW170817: Observation of Gravitational Waves from a Binary Neutron Star Inspiral." Phys. Rev. Lett. **119**, 161101 (2017). https://doi.org/10.1103/PhysRevLett.119.161101

18. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "GW170814: A three-detector observation of gravitational waves from a binary black hole coalescence." Phys. Rev. Lett. **119**, 141101 (2017). https://doi.org/10.1103/PhysRevLett.119.141101

19. Jacob Lange, Richard O'Shaughnessy, Michael Boyle, Juan Calderón Bustillo, Manuela Campanelli, Tony Chu, James A Clark, ***Nicholas Demos***, Heather Fong, James Healy, Daniel Hemberger, Ian Hinder, Karan Jani, Bhavesh Khamesra, Lawrence E Kidder, Prayush Kumar, Pablo Laguna, Carlos O Lousto, **Geoffrey Lovelace**, Serguei Ossokine, Harald Pfeiffer, Mark A Scheel, Deirdre Shoemaker, Bela Szilagyi, Saul Teukolsky, Yosef Zlochower. "A Parameter Estimation Method that Directly Compares Gravitational Wave Observations to Numerical Relativity." Phys. Rev. D **96**, 104041 (2017), http://doi.org/10.1103/PhysRevD.96.104041.

20. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "GW170104: Observation of a 50-Solar-Mass Binary Black Hole Coalescence at Redshift 0.2." Phys. Rev. Lett. **118**, 221101 (2017). https://doi.org/10.1103/PhysRevLett.118.221101

21. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Effects of waveform model systematics on the interpretation of GW150914." Class. Quantum Grav. **34**, 104002 (2017). https://doi.org/10.1088/1361-6382/aa6854

22. Alejandro Bohé, Lijing Shao, Andrea Taracchini, Alessandra Buonanno, Stanislav Babak, Ian W. Harry, Ian Hinder, Serguei Ossokine, Michael Pürrer, Vivien Raymond, Tony Chu, Heather Fong, Prayush Kumar, Harald P. Pfeiffer, Michael Boyle, Daniel A. Hemberger, Lawrence E. Kidder, **Geoffrey Lovelace**, Mark A. Scheel, and Béla Szilágyi. "An improved effective-one-body model of spinning, nonprecessing binary black holes for the era of gravitational-wave astrophysics with advanced detectors." Phys. Rev. D **95**, 044028 (2017). https://doi.org/10.1103/PhysRevD.95.044028

23. **Geoffrey Lovelace**, Carlos O. Lousto, James Healy, Mark A. Scheel, ***Alyssa Garcia***, Richard O'Shaughnessy, Michael Boyle, Manuela Campanelli, Daniel A. Hemberger, Lawrence E. Kidder, Harald P. Pfeiffer, Béla Szilágyi, Saul A. Teukolsky, and Yosef Zlochower. "Modeling the source of GW150914 with targeted numerical-relativity simulations." Class. Quantum Grav. **33**, 244002 (2016). https://doi.org/10.1088/0264-9381/33/24/244002

24. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "GW151226: Observation of Gravitational Waves from a 22-Solar-Mass Binary Black Hole Coalescence." Phys. Rev. Lett. **116**, 241103 (2016). https://doi.org/10.1103/PhysRevLett.116.241103

25. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Directly comparing GW150914 with numerical solutions of Einstein's equations for binary black hole coalescence." Phys. Rev. D **94**, 064035 (2016). https://doi.org/10.1103/PhysRevD.94.064035

26. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "An improved analysis of GW150914 using a fully spin-precessing waveform model." Phys. Rev. X **6**, 041014 (2016). https://doi.org/10.1103/PhysRevX.6.041014

27. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Tests of general relativity with GW150914." Phys. Rev. Lett. **116**, 221101 (2016). https://doi.org/10.1103/PhysRevLett.116.241101

28. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Properties of the Binary Black Hole Merger GW150914." Phys. Rev. Lett. **116**, 241102 (2016). https://doi.org/10.1103/PhysRevLett.116.241102

29. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Observation of Gravitational Waves from a Binary Black Hole Merger." Phys. Rev. Lett. **116**, 061102 (2016). https://doi.org/10.1103/PhysRevLett.116.061102

30. Prayush Kumar, Kevin Barkett, Swetha Bhagwat, ***Nousha Afshari***, Duncan A. Brown, **Geoffrey Lovelace**, Mark A. Scheel, and Béla Szilágyi. "Accuracy and precision of gravitational-wave models of inspiraling neutron star-black hole binaries with spin: Comparison with matter-free numerical relativity in the low-frequency regime." Phys. Rev. D **92**, 102001 (2015). https://doi.org/10.1103/PhysRevD.92.102001

31. Mark A. Scheel, Matthew Giesler, Daniel A. Hemberger, **Geoffrey Lovelace**, ***Kevin Kuper***, Michael Boyle, Béla Szilágyi, and Lawrence E. Kidder. "Improved methods for simulating nearly extremal binary black holes." Class. Quantum Grav. **32**, 105009 (2015). https://doi.org/10.1088/0264-9381/32/10/105009

32. **Geoffrey Lovelace**, Mark A. Scheel, Robert Owen, Matthew Giesler, ***Reza Katebi***, Béla Szilágyi, Tony Chu, ***Nicholas Demos***, Daniel A. Hemberger, Lawrence E. Kidder, Harald P. Pfeiffer, ***Nousha Afshari***. "Nearly extremal apparent horizons in simulations of merging black holes." Class. Quantum Grav. **32**, 065007 (2015). *IOPselect article. Selected for CQG+ Author Insight.* https://doi.org/10.1088/0264-9381/32/6/065007

33. The LIGO Scientific Collaboration, the Virgo Collaboration, and the NINJA-2 Collaboration: J. Aasi et al. "The NINJA-2 project: Detecting and characterizing gravitational waveforms modelled using numerical binary black hole simulations." Class. Quantum Grav. **31**, 115004 (2014). https://doi.org/10.1088/0264-9381/31/11/115004

34. Andrea Taracchini, Alessandra Buonanno, Yi Pan, Tanja Hinderer, Michael Boyle, Daniel A. Hemberger, Lawrence E. Kidder, **Geoffrey Lovelace**, Abdul H. Mroué, Harald P. Pfeiffer Mark A. Scheel, Béla Szilágyi, Nicholas W. Taylor, and Anıl Zenginoglu. "Effective-one-body model for black-hole binaries with generic mass ratios and spins." Phys. Rev. D **89**, 061502 (2014). https://doi.org/10.1103/PhysRevD.89.061502

35. Ian Hinder et al, "Error-analysis and comparison to analytical models of numerical waveforms produced by the NRAR Collaboration." Class. Quantum Grav. **31**, 025012 (2014). https://doi.org/10.1088/0264-9381/31/2/025012

36. Abdul H. Mroué, Mark A. Scheel, Béla Szilágyi, Harald P. Pfeiffer, Michael Boyle, Daniel A. Hemberger, Lawrence E. Kidder, **Geoffrey Lovelace**, Serguei Ossokine, Nicholas W. Taylor, Anıl Zenginoglu, Luisa T. Buchman, Tony Chu, ***Evan Foley***, ***Matthew Giesler***, Robert Owen, Saul A. Teukolsky. "A catalog of 174 high-quality binary black-hole simulations for gravitational-wave astronomy." Phys. Rev. Lett. **111**, 241104 (2013). https://doi.org/10.1103/PhysRevLett.111.241104

37. Alexandre Le Tiec, Alessandra Buonanno, Abdul H. Mroué, Harald P. Pfeiffer, Daniel A. Hemberger, **Geoffrey Lovelace**, Lawrence E. Kidder, Mark A. Scheel, Béla Szilágyi, Nicholas W. Taylor, and Saul A. Teukolsky. "Periastron Advance in Spinning Black Hole Binaries: Gravitational Self-Force from Numerical Relativity." Phys. Rev. D **88**, 124027 (2013).

38. Tanja Hinderer, Alessandra Buonanno, Abdul H. Mroué, Daniel A. Hemberger, **Geoffrey Lovelace**, Harald P. Pfeiffer, Lawrence E. Kidder, Mark A. Scheel, Béla Szilágyi, Nicholas W. Taylor, and Saul A. Teukolsky. "Periastron advance in spinning black hole binaries: comparing effective-one-body and numerical relativity." Phys. Rev. D **88**, 084005 (2013). https://doi.org/10.1103/PhysRevD.88.124027

39. Daniel Hemberger, **Geoffrey Lovelace**, Thomas J. Loredo, Lawrence E. Kidder, Mark A. Scheel, Béla Szilágyi, Nicholas W. Taylor, and Saul A. Teukolsky. "Final spin and radiated energy in numerical simulations of binary black holes with equal masses and equal, aligned or anti-aligned spins." Phys. Rev. D **88**, 064014 (2013). https://doi.org/10.1103/PhysRevD.88.064014

40. **Geoffrey Lovelace**, Matthew D. Duez, Francois Foucart, Lawrence E. Kidder, Harald P. Pfeiffer, Mark A. Scheel, and Béla Szilágyi. "Massive disk formation in the tidal disruption of a neutron star by a nearly extremal black hole." Class. Quantum Grav. **30**, 135004 (2013). *Class. Quantum Grav. 2013-2014 Highlight article.* https://doi.org/10.1088/0264-9381/30/13/135004

41. Daniel A. Hemberger, Mark A. Scheel, Lawrence E. Kidder, Béla Szilágyi, **Geoffrey Lovelace**, Nicholas W. Taylor, and Saul A. Teukolsky. "Dynamical excision boundaries in spectral evolutions of binary black hole spacetimes." Class. Quantum Grav. **30**, 115001 (2013). https://doi.org/10.1088/0264-9381/30/11/115001

42. David A. Nichols, Aaron Zimmerman, Yanbei Chen, **Geoffrey Lovelace**, Keith D. Matthews, Robert Owen, Fan Zhang, and Kip S. Thorne. "Visualizing Spacetime Curvature via Frame-Drag Vortexes and Tidal Tendexes III. Quasinormal Pulsations of Schwarzschild and Kerr Black Holes." Phys. Rev. D **86**, 104028 (2012). https://doi.org/10.1103/PhysRevD.86.104028

43. Fan Zhang, Aaron Zimmerman, David A. Nichols, Yanbei Chen, **Geoffrey Lovelace**, Keith D. Matthews, Robert Owen, and Kip S. Thorne. "Visualizing Spacetime Curvature via Frame-Drag Vortexes and Tidal Tendexes II. Stationary Black Holes." Phys. Rev. D **86**, 084049 (2012). https://doi.org/10.1103/PhysRevD.86.084049

44. Fan Zhang, Jeandrew Brink, Béla Szilágyi, and **Geoffrey Lovelace**. "A geometrically motivated coordinate system for exploring spacetime dynamics using a quasi-Kinnersley tetrad." Phys. Rev. D **86**, 084020 (2012). https://doi.org/10.1103/PhysRevD.86.084020

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Submitted for Peer-Reviewed Publication

California State University, Fullerton Student Co-Authors in ***Bold-Italics***

Other Products

i. Deppe, Nils; Throwe, William; Kidder, Lawrence E.; Vu, Nils L.; Nelli, Kyle C.; Armaza, Cristóbal; Bonilla, Marceline S.; Hébert, François; Kim, Yoonsoo; Kumar, Prayush; **Lovelace, Geoffrey**; ***Macedo, Alexandra***; Moxon, Jordan; O'Shea, Eamonn; Pfeiffer, Harald P.; Scheel, Mark A.; Teukolsky, Saul A.; Wittek, Nikolas A.; Anantpurkar, Isha; Anderson, Carter; Boyle, Michael; ***Carpenter, Alexander***; ***Ceja, Andrea***; Chaudhary, Himanshu; Corso, Nicholas; Fayyazuddin Ljungberg, Nora; Foucart, Francois; ***Ghadiri, Noora***; Giesler, Matthew; Guo, Jason S.; Habib, Sarah; Iozzo, Dante A. B.; ***Jones, Ken Z.;*** Lara, Guillermo; Legred, Isaac; Li, Dongjun; Ma, Sizheng; ***Melchor, Denyz***; Mendes, Iago; ***Morales, Marlo***; Most, Elias R.; Nee, Peter James; ***Osorio, Alejandro***; Pajkos, Michael A.; ***Pannone, Kyle***; Prasad, Vaishak; ***Ramirez, Teresita***; Ring, Noah; Rüter, Hannes R.; ***Sanchez, Jennifer***; Stein, Leo C.; ***Tellez, Daniel***; ***Thomas, Sierra***; Tommasini, Vittoria; Vieira, Daniel; Wlodarczyk, Tom; Wu, David; Yoo, Jooheon. "SpECTRE numerical relativity code." (2025). https://doi.org/10.5281/zenodo.14774916.

ii. LISA Consortium Waveform Working Group: Niayesh Afshordi, Sarp Akçay, Pau Amaro Seoane, Andrea Antonelli, Josu C. Aurrekoetxea, Leor Barack, Enrico Barausse, Robert Benkel, Laura Bernard, Sebastiano Bernuzzi, Emanuele Berti, Matteo Bonetti, Béatrice Bonga, Gabriele Bozzola, Richard Brito, Alessandra Buonanno, Alejandro Cárdenas-Avendaño, Marc Casals, David F. Chernoff, Alvin J. K. Chua, Katy Clough, Marta Colleoni, Mekhi Dhesi, Adrien Druart, Leanne Durkan, Guillaume Faye, Deborah Ferguson, Scott E. Field, William E. Gabella, Juan García-Bellido, Miguel Gracia-Linares, Davide Gerosa, Stephen R. Green, Maria Haney, Mark Hannam, Anna Heffernan, Tanja Hinderer, Thomas Helfer, Scott A. Hughes, Sascha Husa, Soichiro Isoyama, Michael L. Katz, Chris Kavanagh, Gaurav Khanna, Larry E. Kidder, Valeriya Korol, Lorenzo Küchler, Pablo Laguna, François Larrouturou, Alexandre Le Tiec, Benjamin Leather, Eugene A. Lim, Hyun Lim, Tyson B. Littenberg, Oliver Long, Carlos O. Lousto, **Geoffrey Lovelace**, Georgios Lukes-Gerakopoulos, Philip Lynch, Rodrigo P. Macedo, Charalampos Markakis, Elisa Maggio, Ilya Mandel, Andrea Maselli, Josh Mathews, Pierre Mourier, David Neilsen, Alessandro Nagar, David A. Nichols, Jan Novák, Maria Okounkova, Richard O'Shaughnessy, Naritaka Oshita, Conor O'Toole, Zhen Pan, Paolo Pani, George Pappas, Vasileios Paschalidis, Harald P. Pfeiffer, Lorenzo Pompili, Adam Pound, Geraint Pratten, Hannes R. Rüter, Milton Ruiz, Zeyd Sam, Laura Sberna, Stuart L. Shapiro, Deirdre M. Shoemaker, Carlos F. Sopuerta, Andrew Spiers, Hari Sundar, Nicola Tamanini, Jonathan E. Thompson, Alexandre Toubiana, Antonios Tsokaros, Samuel D. Upton, Maarten van de Meent, Daniele Vernieri, Jeremy M. Wachter , Niels Warburton, Barry Wardell, Helvi Witek, Vojtěch Witzany, Huan Yang, Miguel Zilhão, Angelica Albertini, K. G. Arun, Miguel Bezares, Alexander Bonilla, Christian Chapman-Bird, Bradley Cownden, Kevin Cunningham, Chris Devitt, Sam Dolan, Francisco Duque, Conor Dyson, Chris L. Fryer, Jonathan R. Gair, Bruno Giacomazzo, Priti Gupta, Wen-Biao Han, Roland Haas, Eric W. Hirschmann, E. A. Huerta, Philippe Jetzer, Bernard Kelly, Mohammed Khalil, Jack Lewis, Nicole Lloyd-Ronning, Sylvain Marsat, Germano Nardini, Jakob Neef, Adrian Ottewill, Christiana Pantelidou, Gabriel Andres Piovano, Jaime Redondo-Yuste, Laura Sagunski, Leo C. Stein, Viktor Skoupý, Ulrich Sperhake, Lorenzo Speri, Thomas F.M. Spieksma, Chris Stevens, David Trestini, and Alex Vañó-Viñuales. "Waveform Modelling for the Laser Interferometer Space Antenna." (2023). https://arxiv.org/abs/2311.01300

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iv. Francois Foucart, Pablo Laguna, **Geoffrey Lovelace**, David Radice, Helvi Witek. "Snowmass2021 Cosmic Frontier White Paper: Numerical relativity for next-generation gravitational-wave probes of fundamental physics." (2022). https://arxiv.org/abs/2203.08139.

v. **Geoffrey Lovelace**. "Computational challenges in numerical relativity in the gravitational-wave era." Nature Computational Science **1**, 450 (2021). https://doi.org/10.1038/s43588-021-00102-2. Invited comment.

vi. Matthew Evans, Rana X Adhikari, Chaitanya Afle, Stefan W. Ballmer, Sylvia Biscoveanu, Ssohrab Borhanian, Duncan A. Brown, Yanbei Chen, Robert Eisenstein, Alexandra Gruson, Anuradha Gupta, Evan D. Hall, Rachael Huxford, Brittany Kamai, Rahul Kashyap, Kevin Kuns, Philippe Landry, Amber Lenon, **Geoffrey Lovelace**, Lee McCuller, Ken K. Y. Ng, Alexander H. Nitz, Jocelyn Read, B. S. Sathyaprakash, David H. Shoemaker, Bram J. J. Slagmolen, Joshua R. Smith, Varun Srivastava, Ling Sun, Salvatore Vitale, Rainer Weissa. "A Horizon Study for Cosmic Explorer: Science, Observatories, and Community." Cosmic Explorer Technical Report CE-P2100003 (2021). https://arxiv.org/abs/2109.09882.

vii. David Reitze, Rana X. Adhikari, Stefan Ballmer, Barry Barish, Lisa Barsotti, GariLynn Billingsley, Duncan A. Brown, Yanbei Chen, Dennis Coyne, Robert Eisenstein, Matthew Evans, Peter Fritschel, Evan D. Hall, Albert Lazzarini, **Geoffrey Lovelace**, Jocelyn Read, B. S. Sathyaprakash, David Shoemaker, Joshua Smith, Calum Torrie, Salvatore Vitale, Rainer Weiss, Christopher Wipf, and Michael Zucker. "Cosmic Explorer: The U.S. Contribution to Gravitational-Wave Astronomy beyond LIGO." Bulletin of the American Astronomical Society **51**, 034 (2019). https://arxiv.org/abs/1907.04833.

Invited Presentations

1. "Modeling binary black holes with numerical relativity for LISA" Sep. 2024
   Fundamental Physics Meets Waveforms with LISA, Max Planck Institute for Gravitational Physics, Golm, Germany
2. "Simulating merging binary black holes with SpECTRE" Jun. 2024
   NAHOMCon'24 and NENAD'24 mini-symposium 12: high-order methods for computational relativity, Dartmouth College, Hanover, New Hampshire
3. "Simulating binary black holes with nearly extremal spins" Mar. 2024
   Taking it to the extreme: symmetries and dynamics of extremal black holes, Princeton University, Princeton, New Jersey
4. "Modeling merging black holes with numerical relativity for current and future gravitational-wave observatories" Feb. 2023
   University of Arkansas Physics Colloquium, Fayetteville, Arkansas
5. "Status of binary-black-hole simulations with SpECTRE" Jul. 2022
   Frontiers in Numerical Relativity 2022, Jena, Germany
6. "The SpEC and SpECTRE Codes (for binary black holes)" Jun. 2022
   Einstein Toolkit Workshop, Moscow, Idaho
7. "Numerical relativity for next-generation gravitational-wave observatories" Apr. 2022
   Kavli Institute for Theoretical Physics Conference: Storming the Gravitational-Wave Frontier, Santa Barbara, California
8. "Modeling binary black holes with numerical relativity in the era of gravitational-wave observations" Mar. 2021
   Virtual HEP-Astro Seminar, University of Michigan
9. "Computational Gravitational-Wave Physics and Astronomy at California State University, Fullerton" Oct. 2020
   CSU Chancellor's Office STEM-NET webcast
10. "Gravitational-Wave Astronomy and Cal State Fullerton" Aug. 2020
    Virtual CSU Fullerton Emeriti Meeting
11. "Numerical relativity for next-generation gravitational-wave observatories" May 2019
    Presentation and discussion on invited panel, Physics and Astrophysics at the eXtreme (PAX) workshop, Cascina, Italy
12. "Numerical relativity in the era of gravitational-wave observations" Jan. 2019
    High energy and Gravity Seminar, University of California, Santa Barbara Santa Barbara, California
13. "Numerically modeling Brownian thermal noise in crystalline coatings." Jun. 2018
    Workshop on AlGaAs thermal noise at American University Washington, D.C.

14. "Numerical relativity in the era of gravitational-wave observations." Mar. 2018
Center for Computational Relativity and Gravitation Seminar,
Rochester Institute of Technology,
Rochester, New York

15. "Numerical relativity in the era of gravitational-wave observations." Mar. 2018
Center for Astrophysics and Space Sciences Seminar,
University of California, San Diego,
San Diego, California

16. "Undergraduate research in the era of gravitational-wave astronomy." Mar. 2018
Society of Physics Students Zone 18 Meeting Keynote,
Bakersfield, California

17. "Simulating colliding black holes with the Spectral Einstein Code in the era of gravitational-wave astronomy" Nov. 2017
Cal Poly Pomona Physics and Astronomy Seminar
Pomona, California

18. "Using supercomputers to simulate merging black holes in the era of gravitational-wave astronomy" Apr. 2017
Osher Lifelong Learning Institute Seminar
Irvine, California

19. "The first observations of gravitational waves from merging black holes" Mar. 2017
Physics and Astronomy Colloquium, Swarthmore College,
Swarthmore, Pennsylvania

20. "Using supercomputers to simulate merging black holes in the era of gravitational-wave astronomy" Mar. 2017
Osher Lifelong Learning Institute Eclectics Seminar,
Fullerton, California

21. "Colliding black holes and the dawn of gravitational-wave astronomy" Feb. 2017
California State University, Fullerton Emeriti Association Lunch
Placentia, California

22. "Doing science in the 21st century: colliding black holes and gravitational-wave astronomy" Feb. 2017
Keynote presentation, Better Together: CSU Fullerton EdTalk South—Next Generation Science Standards, Discovery Cube Orange County,
Santa Ana, CA

23. "Simulations of binary-black-hole mergers" Jan. 2017
American Physical Society April Meeting, Washington, D.C.

24. "The discovery of gravitational waves from merging black holes" Oct. 2016
Scientific Symposium, Society for Advancement of Chicanos/Hispanics and Native Americans in Science

25. "The first observations of gravitational waves from merging black holes" Sep. 2016
Physics and Astronomy Colloquium, California State University, Los Angeles, Los Angeles, California

26. "The first observations of gravitational waves from merging black holes" Sep. 2016
Physics and Astronomy Colloquium, University of Oklahoma, Norman, Oklahoma

27. "Observation of gravitational waves from merging black holes" Jul. 2016
Orange County Astronomers General Meeting, Orange, California

28. "Modeling merging black holes with numerical relativity in the era of first gravitational-wave observations" May 2016
Center for Astrophysics & Space Sciences Astrophysics Seminar, University of California, San Diego, San Diego, California

29. "The discovery of gravitational waves from merging black holes" Apr. 2016
Jim Woodward Faculty Research Award Colloquium, California State University, Fullerton, Fullerton, California

30. "The discovery of gravitational waves from merging black holes" Apr. 2016
STEM² Seminar, Cypress College, Cypress, California

31. "The discovery of gravitational waves from merging black holes" Apr. 2016
Osher Lifelong Learning Institute Presentation, California State University, Fullerton, Fullerton, California

32. "Colliding black holes and ripples in space and time" Nov. 2015
Public lecture, Santiago Canyon College, Orange, California

33. "Simulating colliding black holes and mirror thermal noise for gravitational-wave astronomy" Sep. 2015
Physics Colloquium, California State University, Northridge, California

34. "Supercomputer simulations of merging black holes for gravitational-wave astronomy" May 2015
Public lecture, Santiago Canyon College, Orange, California

35. "Simulations of colliding black holes for gravitational-wave astronomy" Mar. 2015
Physics Colloquium, Fresno State University, Fresno, California

36. "Supercomputer simulations of colliding black holes" Mar. 2015
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California

37. "Numerical simulations of merging black holes and neutron stars for gravitational-wave astronomy" Oct. 2014
Physics Colloquium, Washington State University

38. "Colliding black holes and ripples in space and time" May 2014
Public lecture, Santiago Canyon College, Orange, California

39. "Einstein's Gravitational Waves: Recent and Future Discoveries" May 2014
Town and Gown Series public lecture, co-presented with Jocelyn Read and Joshua Smith, Fullerton Public Library, Fullerton, California

40. "Collisions in warped space and time" May 2014
Orange County Astronomers General Meeting, Orange, California

41. "Numerical simulations of merging black holes for gravitational-wave astronomy" Apr. 2014
American Physical Society April Meeting, Savannah, Georgia

42. "Supercomputer simulations of colliding black holes" Oct. 2013
Physics & Astronomy Colloquium, California State University, Long Beach, Long Beach, California

43. "Supercomputer simulations of merging black holes and neutron stars" Sep. 2013
N. D. Pearson Colloquium Series in Physics, California State University, Dominguez Hills, Dominguez Hills, California

44. "Supercomputer simulations of colliding black holes and neutron stars" Nov. 2012
Natural Science Seminar, Fullerton College, Fullerton, California

45. "Simulating compact-binary mergers containing nearly extremal black holes" Sep. 2012
Fall 2012 Meeting of the Eastern Section of the American Mathematical Society, Rochester, New York

46. "Numerical simulations of binary black holes in the presence of spins" Jul. 2012
Rattle and Shine: Gravitational Wave and Electromagnetic Studies of Compact Binary Mergers conference, Santa Barbara, California

47. "Supercomputer simulations of colliding black holes" Jan. 2012
Physics Department Colloquium, California State University, Fullerton, California

48. "Numerical simulations of coalescing black holes with nearly extremal spins: gravitational waveforms and horizon dynamics" Sep. 2011
Center for Computational Relativity and Gravitation Seminar, Rochester Institute of Technology, Rochester, New York

49. "Simulating merging black holes with spins above the Bowen-York limit" May 2011
Advances and Challenges in Computational General Relativity Workshop, Providence, Rhode Island

50. "Implicit-explicit evolutions of black-hole spacetimes" Apr. 2010
"Selected Topics in Analysis and Numerics for PDEs" session, *Spring 2010 Meeting of the Western Section of the American Mathematical Society, Albuquerque, New Mexico*

51. "Numerical simulations of binary black holes with nearly extremal spins" — Nov. 2009
Center for Gravitational Wave Physics Seminar, Penn State University, University Park, Pennsylvania

52. "Numerical simulations of binary black holes with nearly extremal spins" — Sep. 2009
Canadian Institute for Theoretical Astrophysics Seminar, University of Toronto, Toronto, Ontario

53. "Momentum flow in numerical simulations of binary black hole mergers" — Sep. 2009
Canadian Institute for Theoretical Astrophysics 20-minute Blackboard Lunch, University of Toronto, Toronto, Ontario

54. "Momentum flow in numerical simulations of binary black hole mergers" — Jun. 2009
30-minute seminar, Syracuse University, Syracuse, New York

55. "Spin and shape in binary-black-hole simulations" — Feb. 2008
*Theoretical Astrophysics and Relativity Seminar, California Institute of Technology, Pasadena, Californi*a

56. "Improving binary-black-hole initial data" — Nov. 2007
General Relativity and Astrophysics Seminar, University of Illinois at Urbana-Champaign, Urbana, Illinois