

Geoffrey Lovelace

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Curriculum Vitae revised January 21, 2019

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 <i>California Institute of Technology</i>	Oct. 2002 – Jun. 2007
B.S. in Physics <i>University of Oklahoma</i>	Aug. 1998 – May 2002

Employment

Associate Professor of Physics <i>Department of Physics California State University, Fullerton</i>	Aug. 2017 – present
Assistant Professor of Physics <i>Department of Physics California State University, Fullerton</i>	Aug. 2012 – Aug. 2017
Research Associate <i>Department of Astronomy Cornell University</i>	Sep. 2007 – Aug. 2012
Postdoctoral Scholar <i>Department of Physics California Institute of Technology</i>	Jul. 2007 – Aug. 2007

Visiting Appointments

Visiting Associate in Physics <i>Department of Physics California Institute of Technology</i>	Aug. 2012 – July 2013
Visitor in Theoretical Astrophysics <i>Division of Physics, Mathematics, and Astronomy California Institute of Technology</i>	Aug. 2018 – Aug. 2019

Research

Extramural Grants

7 extramural proposals funded (\$1,929,771), including 6 as PI (\$992,403), since Fall 2012.

1. Co-PI for CSUF, National Science Foundation, PHY — Gravitational Experiments, “Collaborative Research: The Next Generation of Gravitational Wave Detectors” 2018
\$211,283 to CSUF, recommended
2. 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
3. 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
4. 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
5. 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
6. 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
\$937,368 over five years to CSUF, \$1,320,966 total budget, funded 2016-2021
7. 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
8. 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
9. 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

10. 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
11. PI, National Science Foundation, PHY - Gravitational Theory, “RUI: 2012 Numerical Simulations of Merging Black Holes and Neutron Stars” 2012
\$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, Extreme Science and Engineering Discovery Environment, “Gravitational Waves from Compact Binaries: Computational Contributions to LIGO” 2018
7.1 million CPU-hours computer time awarded to the Simulating eXtreme Spacetimes Collaboration
- Co-PI, Extreme Science and Engineering Discovery Environment, “Gravitational Waves from Compact Binaries: Computational Contributions to LIGO” 2018
Declined
- Co-PI, Extreme Science and Engineering Discovery Environment, “Gravitational Waves from Compact Binaries: Computational Contributions to LIGO” 2016
6.41 million CPU-hours computer time awarded to the Simulating eXtreme Spacetimes Collaboration
- Co-PI, Extreme Science and Engineering Discovery Environment, “Gravitational Waves from Compact Binaries: Computational Contributions to LIGO” 2015
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

Significant publications selected from 64 total peer-reviewed publications (listed near the end of my CV), including 14 publications resulting from membership in the LIGO Scientific Collaboration.

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

1. **Geoffrey Lovelace**, *Nicholas Demos*, and *Haroon Khan*. “Numerically modeling Brownian thermal noise in amorphous and crystalline thin coatings.” *Class. Quantum Grav.* **35**, 025017 (2017).
2. 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).
3. **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).
4. 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).
5. 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).
6. 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).
7. 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).

8. 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.*
9. 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 Anil Zenginoglu. “Effective-one-body model for black-hole binaries with generic mass ratios and spins.” *Phys. Rev. D* **89**, 061502 (2014).
10. 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, Anil 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).
11. 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).
12. **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.*

Undergraduate and Graduate Research Students Advised

1. **Nicholas Demos** B.S., May 2017
Pursing Ph.D. in physics at Massachusetts Institute of Technology
2. **John Derby** M.S., May 2017
3. **Alyssa Garcia** B.S., May 2017
*Pursing Ph.D. in physics at Brandeis University,
NSF Graduate Research Fellow*
4. **Haroon Khan** B.S., May 2017
Employed at NASA Kennedy Space Center
5. **Nousha Afshari** B.S., May 2016
*Employed as an Advanced Sterilization Products Engineering Technician
with Johnson & Johnson, beginning medical-physics M.S. program
at McGill University in fall 2017.*
6. **Kevin Kuper** B.S., May 2015
Pursuing Ph.D. in optics at University of Arizona

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7. **Evan Foley** M.S., May 2014
Employed at DnB Engineering, Fullerton, California
 8. **Reza Katebi** M.S., May 2014
Pursuing Ph.D. in physics, Ohio University
 9. **Matthew Giesler** B.S., May 2013
Pursuing Ph.D. in physics, California Institute of Technology

Selected Invited Presentations

Significant invited presentations selected from 45 total invited presentations.

1. “Numerical relativity in the era of gravitational-wave observations” Jan. 2019
*High energy and Gravity Seminar, University of California, Santa Barbara
Santa Barbara, California*
2. “Numerically modeling Brownian thermal noise in crystalline coatings.” Jun. 2018
*Workshop on AlGaAs thermal noise at American University
Washington, D.C.*
3. “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*
4. “The first observations of gravitational waves from merging black holes” Mar. 2017
*Physics and Astronomy Colloquium, Swarthmore College,
Swarthmore, Pennsylvania*
5. “Using supercomputers to simulate merging black holes in the era of Mar. 2017
gravitational-wave astronomy”
*Osher Lifelong Learning Institute Eclectics Seminar,
Fullerton, California*
6. “Doing science in the 21st century: colliding black holes and Feb. 2017
gravitational-wave astronomy”
*Keynote presentation, Better Together: CSU Fullerton EdTalk South—Next
Generation Science Standards, Discovery Cube Orange County,
Santa Ana, CA*
7. “Simulations of binary-black-hole mergers” Jan. 2017
American Physical Society April Meeting, Washington, D.C.
8. “The discovery of gravitational waves from merging black holes” Oct. 2016
*Scientific Symposium, Society for Advancement of Chicanos/Hispanics
and Native Americans in Science*
9. “The first observations of gravitational waves from merging black holes” Sep. 2016
*Physics and Astronomy Colloquium, University of Oklahoma,
Norman, Oklahoma*

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10. "Observation of gravitational waves from merging black holes" Jul. 2016
Orange County Astronomers General Meeting, Orange, California
 11. "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
 12. "Simulating colliding black holes and mirror thermal noise for gravitational-wave astronomy" Sep. 2015
Physics Colloquium, California State University, Northridge, California
 13. "Numerical simulations of merging black holes and neutron stars for gravitational-wave astronomy" Oct. 2014
Physics Colloquium, Washington State University
 14. "Numerical simulations of merging black holes for gravitational-wave astronomy" Apr. 2014
American Physical Society April Meeting, Savannah, Georgia

Selected Contributed Presentations

1. "Can LIGO measure the spins of nearly extremal, merging binary black holes?" Apr. 2018
*American Physical Society April Meeting
Columbus, Ohio*
2. "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*
3. "Numerically modeling Brownian thermal noise in amorphous and crystalline thin coatings" Jul. 2017
*12th Eduardo Amaldi Conference on Gravitational Waves
Pasadena, California*
4. "Simulations of binary-black-hole mergers" Feb. 2017
*The Dawning Era of Gravitational-Wave Astrophysics, Aspen Center for Physics
Winter Conference, Aspen, Colorado*
5. "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*
6. "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

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7. "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
 8. "Modeling crystalline Brownian coating noise with high performance computing" Jul. 2015
LIGO monthly coatings teleconference
 9. "Nearly extremal apparent horizons in simulations of merging black holes" Jun. 2015
International Conference on Black Holes, Fields Institute, Toronto, Ontario
 10. "Nearly extremal apparent horizons in simulations of merging black holes" Apr. 2015
American Physical Society April Meeting, Baltimore, Maryland
 11. "Collisions in Warped Space and Time" Oct. 2014
Outreach talk to physics classes at Grand Terrace High School, Grand Terrace, California
 12. "Results from numerical simulations of binaries containing nearly extremal black holes" Sep. 2013
2013 Numerical Relativity and Data Analysis Meeting, Mallorca, Spain
 13. "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
 14. "The tidal disruption of a neutron star by a nearly extremal black hole" Mar. 2013
29th Annual Pacific Coast Gravity Meeting, Davis, California
 15. "Supercomputer simulations of colliding black holes and neutron stars" Jun. 2012
Introductory talk to summer research undergraduates, University of Oklahoma, Norman, Oklahoma

Selected Student Presentations

Significant student presentations selected from 21 total student presentations.

1. **John Derby**, "Testing the spin limit for merging black holes" Mar. 2017
33rd Annual Pacific Coast Gravity Meeting
2. **Nicholas Demos**, "Modeling Thermal Noise From Crystalline Coatings For Gravitational-Wave Detectors" Jan. 2017
American Physical Society April Meeting, Washington, D.C.
3. **Alyssa Garcia**, "Comparing Numerical Waveforms for Gravitational-Wave Astronomy" Apr. 2016
32nd Pacific Coast Gravity Meeting, Fullerton, California

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4. **John Derby**, "Testing the Spin Limit for Merging Black Holes" Apr. 2016
32nd Pacific Coast Gravity Meeting, Fullerton, California
 5. **Nicholas Demos**, "Modeling Thermal Noise from Crystalline Coatings for Gravitational-Wave Detectors" Apr. 2016
32nd Pacific Coast Gravity Meeting, Fullerton, California
 6. **Alyssa Garcia**, "The Importance of Undergraduate Research" Nov. 2015
California State University, Fullerton Philanthropic Foundation Board of Governors Meeting, Santa Ana, California
 7. **Nicholas Demos**, "The Importance of Undergraduate Research" Nov. 2015
California State University, Fullerton Philanthropic Foundation Board of Governors Meeting, Santa Ana, California
 8. **Haroon Khan**, "Visualizing the Gravitational Lensing and Vortex and Tendex Lines of Colliding Black Holes" Nov. 2015
Southern California Conference for Undergraduate Research, Harvey Mudd College, Claremont, California
 9. **Evan Foley**, "Neutron star-black hole simulations with very fast black hole spins" Mar. 2014
31st Pacific Coast Gravity Meeting, University of California, San Diego, California
 10. **Reza Katebi**, "Simulations of merging, spinning black holes: How fast do the resulting holes initially spin?" Mar. 2014
31st Pacific Coast Gravity Meeting, University of California San Diego, San Diego, California

Selected Student Poster Presentations

Significant student poster presentations selected from 34 total student poster presentations.

1. **Samuel Rodriguez**, "Visualizing the Curvature of Spacetime: Vortex and Tendex Lines of a Head-On Merging Binary Black Hole Systems" Nov. 2017
Southern California Conference for Undergraduate Research, Pomona, California
2. **Denyz Melchor and Jennifer Sanchez**, "Simulating Black Hole-Neutron Star Mergers" Nov. 2017
Southern California Conference for Undergraduate Research, Pomona, California
3. **Haroon Khan**, "Visualizing the gravitational lensing and vortex and tendex lines of colliding black holes" Jan. 2017
American Physical Society April Meeting, Washington, D.C.
4. **Alyssa Garcia**, "Modeling the source of GW150914 with targeted numerical-relativity simulations" Nov. 2016
LIGO Virgo Collaboration Meeting, University of Glasgow, Glasgow, Scotland

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5. **Samuel Rodriguez**, "Visualizing the Curvature of spacetime: Vortex and Tendex Lines Of A Head-On Merging Binary Black Hole System" Aug. 2016
STEM² Summer Research Symposium 2016, California State University, Fullerton, Fullerton, California
 6. **Haroon Khan**, "Visualizing the gravitational lensing and vortex and tendex lines of colliding black holes" Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah
 7. **Alyssa Garcia**, "Making and Testing Hybrid Gravitational Waves from Colliding Black Holes and Neutron Stars" Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah
 8. **Nicholas Demos**, "Modeling Thermal Noise from Crystalline Coatings for Gravitational-Wave Detectors" Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah
 9. **Nousha Afshari**, "Accuracy Of Binary Black Hole Waveform Models For Advanced LIGO " Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah
 10. **Alyssa Garcia**, "Making and testing models of gravitational waves from colliding black holes" Jan. 2016
11th Annual Conference for Undergraduate Women in Physics, San Diego, California
 11. **Haroon Khan**, "Simulating Colliding Black Holes for Gravitational-Wave Astronomy" Apr. 2015
Posters on the Hill, Washington, DC
One of 60 students selected from 500+ applicants to present and advocate for undergraduate research to members of the U.S. Congress by the Council on Undergraduate Research
 12. **Haroon Khan**, "Comparing initial data for rapidly rotating, merging black holes" Apr. 2015
American Physical Society April Meeting, Baltimore, Maryland
 13. **Nicholas Demos**, "Testing improved length and accuracy of numerical simulations of merging black holes" Apr. 2015
American Physical Society April Meeting, Baltimore, Maryland
 14. **Haroon Khan**, "Simulating Colliding Black Holes for Gravitational-Wave Astronomy" Mar. 2015
Institution for Engineering and Technology's Southern California Present Around the World competition, Los Angeles, California, awarded second place

Teaching

Supervision

Supervision of 12 undergraduate and 3 graduate students for research projects in computational gravitational-wave physics
California State University, Fullerton Aug. 2012 – present

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

Courses Taught

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 — <i>flipped classroom redesign</i>	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	

Professional Development

Discussion Leader at Gordon Research Conference discussing "Relativity and Gravitation: Contemporary Research and Teaching of Einstein's Physics" <i>Salve Regina University, Newport, Rhode Island</i>	Jun. 2016
Participant in "Proven Course Redesign" eAcademy on research-based, "flipped classroom" pedagogy <i>California State Polytechnic University, Pomona</i>	Jul. 2013
Designed and presented online lecture introducing aspects of object-oriented programming and the Spectral Einstein Code <i>Cornell University, Ithaca, New York</i>	Jun. 2011

Service

Professional Leadership

Secretary and Treasurer, American Physical Society Division of Gravitation	Jan. 2017 – present
Senior member, Gravitational-Wave Physics and Astronomy Center (GWPAAC) 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, LIGO Scientific Collaboration	May 2014 – present
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Active member, Simulating eXtreme Spacetimes (SXS) Collaboration Sep. 2007 – present
Active member, American Physical Society, Division of Gravitation Feb. 2006 – present

Conferences Organized

Organize and host 32nd annual Pacific Coast Gravity Meeting Apr. 2016
Organize and host Theoretical Astrophysics
in Southern California conference Nov. 2015
Co-organize and host Numerical and Analytical Relativity and
Data Analysis (NARDA) 2014 meeting Aug. 2014

Peer-Review Service

Member, Classical and Quantum Gravity Advisory Panel Dec. 2016 – present
National Science Foundation Review Panelist Feb. 2015
Referee, Gravitational Physics Program,
National Science Foundation Jan. 2014 – present
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

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

Outreach, Advocacy, and Fundraising

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
Other Professional Service	
Participate in CSU Webinar on grant writing	Feb. 2017
System administrator for high-performance computing cluster, Orange-county Relativity Cluster for Astronomy (ORCA)	Oct. 2014 – present

Building marshal, McCarthy Hall, CSUF	Sep. 2013 – Aug. 2015
Assist in McCarthy Hall evacuation planning, California State University, Fullerton	Oct. 2012 – Sept. 2014
Assistant faculty marshal, College of Natural Sciences and Mathematics commencement, CSUF	May 2013

Awards and Other Accomplishments

Awards

Outstanding Untenured Faculty Member, \$2,500, annual award given by the California State University, Fullerton College of Natural Sciences and Mathematics	May 2017
Titan on the Rise: Early Career Investigator Award \$750, award given by the California State University, Fullerton Office of Research Development	May 2017
Special Breakthrough Prize in Fundamental Physics co-recipient \$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.”	May 2016
Woodward Faculty Research Award \$2,000, annual award given by the California State University, Fullerton Department of Physics	May 2015

Selected Student Awards

Nicholas Demos and Alyssa Garcia Outstanding Student Scholarly and Creative Activities Award for an undergraduate in the College of Natural Sciences and Mathematics, given by the California State University, Fullerton Office of Research and Sponsored Programs	April 2017
Haroon Khan Outstanding Student Scholarly and Creative Activities Award for an undergraduate in the College of Engineering and Computer Science, given by the California State University, Fullerton Office of Research and Sponsored Programs	April 2017

Other Accomplishments

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

1. **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>.
2. 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>
3. 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>
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Manuscripts Submitted for Peer-Reviewed Publication

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

48. 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." Submitted to *Phys. Rev. D* (2018), preprint <https://arxiv.org/abs/1804.03704>.
49. 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." Submitted to *Phys. Rev. D* (2018), preprint <https://arxiv.org/abs/1803.07695>.
50. "Assessing the Energetics of Spinning Binary Black Hole Systems." Serguei Ossokine, Tim Dietrich, *Evan Foley*, *Reza Katebi*, and **Geoffrey Lovelace**. Submitted to *Phys. Rev. D* (2017), preprint <https://arxiv.org/abs/1712.06533>.

Additional Peer-reviewed Publications Resulting from Membership in the LIGO Scientific Collaboration

51. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "GW170608: Observation of a 19-solar-mass Binary Black Hole Coalescence." *Astrophys. J.* **851**, L35 (2017). <https://doi.org/10.3847/2041-8213/aa9f0c>
52. A. Albert et al., for the ANTARES, IceCube, Pierre Auger, LIGO Scientific, and Virgo Collaborations. "Search for High-energy Neutrinos from Binary Neutron Star Merger GW170817 with ANTARES, IceCube, and the Pierre Auger Observatory." *Astrophys. J.* **850**, L35 (2017). <https://doi.org/10.3847/2041-8213/aa9aed>
53. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "On the Progenitor of Binary Neutron Star Merger GW170817." *Astrophys. J.* **850**, L40 (2017). <https://doi.org/10.3847/2041-8213/aa93fc>
54. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Estimating the Contribution of Dynamical Ejecta in the Kilonova Associated with GW170817." *Astrophys. J.* **850**, L39 (2017). <https://doi.org/10.3847/2041-8213/aa9478>
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57. B. P. Abbott et al., for the LIGO Scientific, Virgo, Fermi GBM, INTEGRAL, IceCube, IPN, Insight-Hxmt, ANTARES, Swift, Dark Energy Camera GW-EM, Dark Energy Survey, DLT40, GRAWITA, Fermi-LAT, ATCA, ASKAP, OzGrav, DWF (Deeper Wider Faster Program), AST3, CAASTRO, VINROUGE, MASTER, J-GEM, GROWTH, JAGWAR, CaltechNRAO, TTU-NRAO, NuSTAR, Pan-STARRS, KU, Nordic Optical Telescope, ePESSTO, GROND, Texas Tech University, TOROS, BOOTES, MWA, CALET, IKI-GW Follow-up, H.E.S.S., LOFAR, LWA, HAWC, Pierre Auger, ALMA, Pi of Sky, DFN, ATLAS Telescopes, High Time Resolution Universe Survey, RIMAS, RATIR, SKA South Africa/MeerKAT Collaborations, AstroSat Cadmium Zinc Telluride Imager Team, AGILE Team, 1M2H Team, Las Cumbres Observatory Group, MAXI Team, TZAC Consortium, SALT Group, Euro VLBI Team, and Chandra Team at McGill University collaborations. "Multi-messenger Observations of a Binary Neutron Star Merger." *Astrophys. J.* **848**, L12 (2017). <https://doi.org/10.3847/2041-8213/aa91c9>
58. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Upper Limits on Gravitational Waves from Scorpius X-1 from a Model-Based Cross-Correlation Search in Advanced LIGO Data." *Astrophys. J.* **847**, 47 (2017). <https://doi.org/10.3847/1538-4357/aa86f0>.
59. A. Albert et al., for the ANTARES and IceCube and LIGO Scientific and Virgo Collaborations. "Search for High-energy Neutrinos from Gravitational Wave Event GW151226 and Candidate LVT151012 with ANTARES and IceCube." *Phys. Rev. D* **96**, 022005 (2017). <https://doi.org/10.1103/PhysRevD.96.022005>.
60. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Search for Gravitational Waves Associated with Gamma-Ray Bursts During the First Advanced LIGO Observing Run and Implications for the Origin of GRB 150906B." *Astrophys. J.* **841**, 89 (2017). <https://doi.org/10.3847/1538-4357/aa6c47>.
61. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "First search for gravitational waves from known pulsars with Advanced LIGO." *Astrophys. J.* **839**, 12 (2017). <https://doi.org/10.3847/1538-4357/aa677f>
62. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Directional limits on persistent gravitational waves from Advanced LIGO's first observing run." *Phys. Rev. Lett.* **118**, 121102 (2017). <https://doi.org/10.1103/PhysRevLett.118.121102>
63. B. P. Abbott et al., for the LIGO Scientific Collaboration and the Virgo Collaboration. "Upper Limits on the Stochastic Gravitational-Wave Background from Advanced LIGO's First Observing Run." *Phys. Rev. Lett.* **118**, 121101 (2017). <https://doi.org/10.1103/PhysRevLett.118.121101>

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Thesis

Geoffrey Lovelace. “Topics in gravitational-wave physics.” Ph.D. thesis, California Institute of Technology (2007). URL <http://resolver.caltech.edu/CaltechETD:etd-05232007-115433>.

Invited Presentations

1. “Numerical relativity in the era of gravitational-wave observations” Jan. 2019
*High energy and Gravity Seminar, University of California, Santa Barbara
Santa Barbara, California*
2. “Numerically modeling Brownian thermal noise in crystalline coatings.” Jun. 2018
*Workshop on ALGaAs thermal noise at American University
Washington, D.C.*
3. “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*
4. “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*
5. “Undergraduate research in the era of gravitational-wave astronomy.” Mar. 2018
*Society of Physics Students Zone 18 Meeting Keynote,
Bakersfield, California*
6. “Simulating colliding black holes with the Spectral Einstein Code Nov. 2017
in the era of gravitational-wave astronomy”
*Cal Poly Pomona Physics and Astronomy Seminar
Pomona, California*
7. “Using supercomputers to simulate merging black holes in the era of Apr. 2017
gravitational-wave astronomy”
*Osher Lifelong Learning Institute Seminar
Irvine, California*
8. “The first observations of gravitational waves from merging black holes” Mar. 2017
*Physics and Astronomy Colloquium, Swarthmore College,
Swarthmore, Pennsylvania*

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9. "Using supercomputers to simulate merging black holes in the era of gravitational-wave astronomy" Mar. 2017
Osher Lifelong Learning Institute Eclectics Seminar, Fullerton, California
 10. "Colliding black holes and the dawn of gravitational-wave astronomy" Feb. 2017
California State University, Fullerton Emeriti Association Lunch Placentia, California
 11. "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
 12. "Simulations of binary-black-hole mergers" Jan. 2017
American Physical Society April Meeting, Washington, D.C.
 13. "The discovery of gravitational waves from merging black holes" Oct. 2016
Scientific Symposium, Society for Advancement of Chicanos/Hispanics and Native Americans in Science
 14. "The first observations of gravitational waves from merging black holes" Sep. 2016
Physics and Astronomy Colloquium, California State University, Los Angeles, Los Angeles, California
 15. "The first observations of gravitational waves from merging black holes" Sep. 2016
Physics and Astronomy Colloquium, University of Oklahoma, Norman, Oklahoma
 16. "Observation of gravitational waves from merging black holes" Jul. 2016
Orange County Astronomers General Meeting, Orange, California
 17. "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
 18. "The discovery of gravitational waves from merging black holes" Apr. 2016
Jim Woodward Faculty Research Award Colloquium, California State University, Fullerton, Fullerton, California
 19. "The discovery of gravitational waves from merging black holes" Apr. 2016
STEM² Seminar, Cypress College, Cypress, California
 20. "The discovery of gravitational waves from merging black holes" Apr. 2016
Osher Lifelong Learning Institute Presentation, California State University, Fullerton, Fullerton, California
 21. "Colliding black holes and ripples in space and time" Nov. 2015
Public lecture, Santiago Canyon College, Orange, California

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22. "Simulating colliding black holes and mirror thermal noise for gravitational-wave astronomy" Sep. 2015
Physics Colloquium, California State University, Northridge, California
 23. "Supercomputer simulations of merging black holes for gravitational-wave astronomy" May 2015
Public lecture, Santiago Canyon College, Orange, California
 24. "Simulations of colliding black holes for gravitational-wave astronomy" Mar. 2015
Physics Colloquium, Fresno State University, Fresno, California
 25. "Supercomputer simulations of colliding black holes" Mar. 2015
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California
 26. "Numerical simulations of merging black holes and neutron stars for gravitational-wave astronomy" Oct. 2014
Physics Colloquium, Washington State University
 27. "Colliding black holes and ripples in space and time" May 2014
Public lecture, Santiago Canyon College, Orange, California
 28. "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
 29. "Collisions in warped space and time" May 2014
Orange County Astronomers General Meeting, Orange, California
 30. "Numerical simulations of merging black holes for gravitational-wave astronomy" Apr. 2014
American Physical Society April Meeting, Savannah, Georgia
 31. "Supercomputer simulations of colliding black holes" Oct. 2013
Physics & Astronomy Colloquium, California State University, Long Beach, Long Beach, California
 32. "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
 33. "Supercomputer simulations of colliding black holes and neutron stars" Nov. 2012
Natural Science Seminar, Fullerton College, Fullerton, California
 34. "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

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35. “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
36. “Supercomputer simulations of colliding black holes” Jan. 2012
Physics Department Colloquium, California State University, Fullerton, California
37. “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
38. “Simulating merging black holes with spins above the Bowen-York limit” May 2011
Advances and Challenges in Computational General Relativity Workshop, Providence, Rhode Island
39. “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
40. “Numerical simulations of binary black holes with nearly extremal spins” Nov. 2009
Center for Gravitational Wave Physics Seminar, Penn State University, University Park, Pennsylvania
41. “Numerical simulations of binary black holes with nearly extremal spins” Sep. 2009
Canadian Institute for Theoretical Astrophysics Seminar, University of Toronto, Toronto, Ontario
42. “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
43. “Momentum flow in numerical simulations of binary black hole mergers” Jun. 2009
30-minute seminar, Syracuse University, Syracuse, New York
44. “Spin and shape in binary-black-hole simulations” Feb. 2008
Theoretical Astrophysics and Relativity Seminar, California Institute of Technology, Pasadena, California
45. “Improving binary-black-hole initial data” Nov. 2007
General Relativity and Astrophysics Seminar, University of Illinois at Urbana-Champaign, Urbana, Illinois

Student Presentations

1. **Samuel Rodriguez**, “Visualizing the Curvature of Spacetime: Vortex and Tendex Lines of Head-On Merging Binary Black Holes” Apr. 2017
American Physical Society April Meeting, Columbus, Ohio

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2. **Samuel Rodriguez**, "Visualizing the Curvature of Spacetime: Vortex and Tendex Lines of Head-On Merging Binary Black Holes"
34th Annual Pacific Coast Gravity Meeting, Pasadena, California Mar. 2017
 3. **John Derby**, "Testing the spin limit for merging black holes"
33rd Annual Pacific Coast Gravity Meeting, Santa Barbara, California Mar. 2017
 4. **Nicholas Demos**, "Modeling Thermal Noise From Crystalline Coatings For Gravitational-Wave Detectors"
American Physical Society April Meeting, Washington, D.C. Jan. 2017
 5. **Nicholas Demos**, "Modeling Thermal Noise From Crystalline Coatings For Gravitational-Wave Detectors"
Syracuse University Undergraduate Research Day, Syracuse, New York Nov. 2016
 6. **Alyssa Garcia**, "Modeling the source of GW150914 with targeted numerical-relativity simulations"
Syracuse University Undergraduate Research Day, Syracuse, New York Nov. 2016
 7. **Nicholas Demos**, "A Gravitational-Wave Introduction"
High-school outreach via Skype with North Park Secondary School, Ontario, Canada Jun. 2016
 8. **Alyssa Garcia**, "A Gravitational-Wave Introduction"
High-school outreach via Skype with North Park Secondary School, Ontario, Canada Jun. 2016
 9. **Alyssa Garcia**, "Comparing Numerical Waveforms for Gravitational-Wave Astronomy"
32nd Pacific Coast Gravity Meeting, Fullerton, California Apr. 2016
 10. **John Derby**, "Testing the Spin Limit for Merging Black Holes"
32nd Pacific Coast Gravity Meeting, Fullerton, California Apr. 2016
 11. **Nicholas Demos**, "Modeling Thermal Noise from Crystalline Coatings for Gravitational-Wave Detectors"
32nd Pacific Coast Gravity Meeting, Fullerton, California Apr. 2016
 12. **Alyssa Garcia**, "The Importance of Undergraduate Research"
California State University, Fullerton Philanthropic Foundation Board of Governors Meeting, Santa Ana, California Nov. 2015
 13. **Nicholas Demos**, "The Importance of Undergraduate Research"
California State University, Fullerton Philanthropic Foundation Board of Governors Meeting, Santa Ana, California Nov. 2015
 14. **Haroon Khan**, "Visualizing the Gravitational Lensing and Vortex and Tendex Lines of Colliding Black Holes"
Southern California Conference for Undergraduate Research, Harvey Mudd College, Claremont, California Nov. 2015

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15. **Nick Demos**, "Measuring the Accuracy of Binary Black Hole Simulations" Nov. 2014
Southern California Conference for Undergraduate Research, Fullerton, California
 16. **Haroon Khan**, "Simulating Merging Black Holes: Exploring Initial Data and Visualizations" Nov. 2014
Southern California Conference for Undergraduate Research, Fullerton, California
 17. **Kevin Kuper**, "Simulating Black Holes and Neutron Stars" Sep. 2014
15-minute presentation in the CSUF Physics Department Colloquium, Fullerton, California
 18. **Nousha Afshari**, "Predicting Binary Black Hole Properties After Collision Using Numerical Methods" Apr. 2014
Research Day, California State University, Fullerton, California
 19. **Evan Foley**, "Neutron star-black hole simulations with very fast black hole spins" Mar. 2014
31st Pacific Coast Gravity Meeting, University of California, San Diego, California
 20. **Reza Katebi**, "Simulations of merging, spinning black holes: How fast do the resulting holes initially spin?" Mar. 2014
31st Pacific Coast Gravity Meeting, University of California San Diego, San Diego, California
 21. **Evan Foley**, "Comparing black-hole masses and spins in simulations using different initial data methods" Mar. 2013
30th Pacific Coast Gravity Meeting, University of California, Davis, California

Student Poster Presentations

1. **Samuel Rodriguez**, "Visualizing the Curvature of Spacetime: Vortex and Tendex Lines of a Head-On Merging Binary Black Hole Systems" Nov. 2017
Southern California Conference for Undergraduate Research, Pomona, California
2. **Denyz Melchor and Jennifer Sanchez**, "Simulating Black Hole-Neutron Star Mergers" Nov. 2017
Southern California Conference for Undergraduate Research, Pomona, California
3. **Denyz Melchor and Jennifer Sanchez**, "Simulating Black Hole-Neutron Star Mergers" Aug. 2017
STEM2 Summer Research Symposium 2016, California State University, Fullerton, Fullerton, California
5th Annual Cal State Fullerton Science, Technology, Engineering, and Math Summer Research Symposium

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4. **Sky Soltero**, “Exploring Potential Orbits for Spacecraft to Serve as a Early Detector System for LIGO” Aug. 2017
5th Annual Cal State Fullerton Science, Technology, Engineering, and Math Summer Research Symposium
 5. **Youwei Liu**, “Checking convergence of gravitational waves from merging black holes in the Simulating eXtreme Spacetimes (SXS) Catalog” Aug. 2017
5th Annual Cal State Fullerton Science, Technology, Engineering, and Math Summer Research Symposium
 6. **Nicholas Demos**, “Modeling Thermal Noise from Crystalline Coatings for Gravitational-Wave Detectors” Mar. 2017
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California
 7. **Samuel Rodriguez**, “Visualizing the Curvature of spacetime: Vortex and Tendex Lines Of A Head-On Merging Binary Black Hole System” Mar. 2017
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California
 8. **Haroon Khan**, “Visualizing the gravitational lensing and vortex and tendex lines of colliding black holes” Mar. 2017
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California
 9. **Haroon Khan**, “Visualizing the gravitational lensing and vortex and tendex lines of colliding black holes” Jan. 2017
American Physical Society April Meeting, Washington, D.C.
 10. **Alyssa Garcia**, “Modeling the source of GW150914 with targeted numerical-relativity simulations” Nov. 2016
LIGO Virgo Collaboration Meeting, University of Glasgow, Glasgow, Scotland
 11. **Samuel Rodriguez**, “Visualizing the Curvature of spacetime: Vortex and Tendex Lines Of A Head-On Merging Binary Black Hole System” Aug. 2016
STEM² Summer Research Symposium 2016, California State University, Fullerton, Fullerton, California
 12. **Haroon Khan**, “Visualizing the gravitational lensing and vortex and tendex lines of colliding black holes” Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah
 13. **Alyssa Garcia**, “Making and Testing Hybrid Gravitational Waves from Colliding Black Holes and Neutron Stars” Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah
 14. **Nicholas Demos**, “Modeling Thermal Noise from Crystalline Coatings for Gravitational-Wave Detectors” Apr. 2016
American Physical Society April Meeting, Salt Lake City, Utah

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15. **Nousha Afshari**, "Accuracy Of Binary Black Hole Waveform Models For Advanced LIGO"
American Physical Society April Meeting, Salt Lake City, Utah Apr. 2016
 16. **Alyssa Garcia**, "Making and testing models of gravitational waves from colliding black holes"
11th Annual Conference for Undergraduate Women in Physics, San Diego, California Jan. 2016
 17. **Nousha Afshari**, "Comparing Binary Black Hole Collisions Produced by Numerical Methods with Approximations"
11th Annual Conference for Undergraduate Women in Physics, San Diego, California Jan. 2016
 18. **Alyssa Garcia**, "Making and Testing Models of Gravitational Waves from Colliding Black Holes"
Southern California Conference for Undergraduate Research, Harvey Mudd College, Claremont, California Nov. 2015
 19. **Nicholas Demos**, "Numerical Confirmation of Post-Newtonian Binary Black Hole Prediction"
Southern California Conference for Undergraduate Research, Harvey Mudd College, Claremont, California Nov. 2015
 20. **Nousha Afshari**, "Comparing Binary Black Hole Collisions Produced by Numerical Methods with Approximations"
Southern California Conference for Undergraduate Research, Harvey Mudd College, Claremont, California Nov. 2015
 21. **Haroon Khan**, "Simulating Colliding Black Holes for Gravitational-Wave Astronomy"
Posters on the Hill, Washington, DC
One of 60 students selected from 500+ applicants to present and advocate for undergraduate research to members of the U.S. Congress by the Council on Undergraduate Research Apr. 2015
 22. **Haroon Khan**, "Comparing initial data for rapidly rotating, merging black holes"
American Physical Society April Meeting, Baltimore, Maryland Apr. 2015
 23. **Nicholas Demos**, "Testing improved length and accuracy of numerical simulations of merging black holes"
American Physical Society April Meeting, Baltimore, Maryland Apr. 2015
 24. **Nousha Afshari**, "Predicting Binary Black Hole Collisions Using Numerical Methods in Collaboration with LIGO"
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California Mar. 2015

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25. **Alyssa Garcia**, “Hybridizing Gravitational Waveforms for Gravitational-Wave Astronomy” Mar. 2015
College of Natural Sciences and Mathematics Inter-club Council Symposium, Fullerton, California
26. **Haroon Khan**, “Simulating Colliding Black Holes for Gravitational-Wave Astronomy” Mar. 2015
Institution for Engineering and Technology’s Southern California Present Around the World competition, Los Angeles, California, awarded second place
27. **Nousha Afshari**, “Predicting Binary Black Hole Collisions Using Numerical Methods in Collaboration with LIGO” Nov. 2014
Southern California Conference for Undergraduate Research, Fullerton, California
28. **Kevin Kuper**, “Studying How Spin Affects Black-Hole-Binary Orbits” Nov. 2014
Southern California Conference for Undergraduate Research, Fullerton, California
29. **Evan Foley**, “Black hole-neutron star simulations with very fast black hole spins.” Apr. 2014
Research Day, California State University, Fullerton, California
30. **Reza Katebi**, “Simulations of merging, spinning black holes: how fast do the resulting holes initially spin?” Apr. 2014
Research Day, California State University, Fullerton, California
31. **Kevin Kuper and Nousha Afshari**, “Predicting Binary Black Hole Properties After Collision Using Numerical Methods” Apr. 2014
Research Day, California State University, Fullerton, California
32. **Evan Foley**, “Black hole-neutron star simulations with very fast black hole spins” Mar. 2014
College of Natural Sciences and Mathematics Symposium, California State University, Fullerton, California
33. **Reza Katebi**, “Simulations of merging, spinning black holes: how fast do the resulting holes initially spin?” Mar. 2014
College of Natural Sciences and Mathematics Symposium, California State University, Fullerton, California
34. **Kevin Kuper and Nousha Afshari**, “Predicting Binary Black Hole Properties After Collision Using Numerical Methods” Mar. 2014
College of Natural Sciences and Mathematics Symposium, California State University, Fullerton, California