

# Duncan Alexander Brown

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## EMPLOYMENT

- 2015– Charles Brightman Professor of Physics  
Department of Physics,  
Syracuse University
- 2012 Visiting Associate in Physics,  
California Institute of Technology
- 2011–2015 Associate Professor  
Department of Physics,  
Syracuse University
- 2007–2011 Assistant Professor  
Department of Physics,  
Syracuse University
- 2004–2007 Postdoctoral Scholar in Physics  
LIGO Laboratory and Theoretical Astrophysics and Relativity Group,  
California Institute of Technology
- 2002 Visitor in Physics  
California Institute of Technology
- 2000 Visitor in Physics  
California Institute of Technology
- 2000–2004 Research Assistant, LIGO Scientific Collaboration Group  
Center for Gravitation and Cosmology,  
University of Wisconsin–Milwaukee

## EDUCATION

- 1999–2004 Doctor of Philosophy in Physics  
University of Wisconsin–Milwaukee
- 1994–1999 Master of Mathematics with First Class Honors  
University of Newcastle Upon Tyne

## HONORS AND AWARDS

2015	Research Corporation for Science Advancement Scialog Fellow
2014	Fellow of the American Physical Society
2013	Syracuse University Physics Department Teaching Award
2011	Syracuse University Physics Department Teaching Award
2010	Cottrell Scholar
2010	Syracuse University Meredith Teaching Recognition Award
2010	Syracuse University Physics Department Teaching Award
2009	Kavli Frontiers Fellow
2008	National Science Foundation CAREER Award
2003	UWM Dissertator Fellowship
2002	UWM Physics Graduate Student Trust Fund Award
2002–2003	UWM Chancellor’s Graduate Student Fellowship
2002	UWM Graduate School Fellowship
2001	UWM Papastamatiou Scholarship
1999	Institute of Mathematics and Its Applications Prize
1997	University of Newcastle Stroud Book Prize

## CONFERENCE AND WORKSHOP ORGANIZATION

2014	Vice-chair of 2016 Gordon Research Conference: Physics Research and Education, Chair-elect for 2016 GRC.
2012	Kavli Institute for Theoretical Physics Three Month Program Chirps, Mergers and Explosions: Co-organizer
2012	Elected vice-chair of 2014 and chair of 2016 Gordon Research Conference: Physics Research and Education
2012	Gravitational Wave Physics and Astronomy Workshop, Scientific Organizing Committee
2011	Amaldi 9 and NRDA: Scientific Organizing Committee
2008	Numerical Relativity and Data Analysis 2008: Chair, Scientific Organizing Committee

## PUBLICATIONS

### *Papers Submitted for Publication*

Abbott B P et al., *GW150914: The Advanced LIGO Detectors in the Era of First Discoveries*, E-print archive 1602.03838 (2016)

Abbott B P et al., *GW150914: First results from the search for binary black hole coalescence with Advanced LIGO*, E-print archive 1602.03839 (2016)

Abbott B P et al., *Characterization of transient noise in Advanced LIGO relevant to gravitational wave signal GW150914*, E-print archive 1602.03844 (2016)

Abbott B P et al., *Calibration of the Advanced LIGO detectors for the discovery of the binary black-hole merger GW150914*, E-print archive 1602.03845 (2016)

Abbott B P et al., *Properties of the binary black hole merger GW150914*, E-print archive 1602.03840 (2016)

Abbott B P et al., *Tests of general relativity with GW150914*, E-print archive 1602.03841 (2016)

Abbott B P et al., *The Rate of Binary Black Hole Mergers Inferred from Advanced LIGO Observations Surrounding GW150914*, E-print archive 1602.03842 (2016)

Abbott B P et al., *Observing gravitational-wave transient GW150914 with minimal assumptions*, E-print archive 1602.03843 (2016)

Barkett Kevin et al., *Gravitational waveforms for neutron star binaries from binary black hole simulations*, E-print archive 1509.05782 (2015), Submitted to Phys. Rev. D

Usman Samantha A, Kehl Marcel S, Nitz Alexander H, Harry Ian W, Brown Duncan A, et al., *An improved pipeline to search for gravitational waves from compact binary coalescence*, E-print archive 1508.02357 (2015), Submitted to Class. Quant. Grav.

Aasi J et al., *Prospects for Localization of Gravitational Wave Transients by the Advanced LIGO and Advanced Virgo Observatories*, E-print archive 1304.0670 (2013), Submitted to Liv. Rev. Rel.

### *Refereed Publications (including LIGO Scientific Collaboration papers to which Brown has made a significant contribution)*

Abbott B P et al., *Observation of Gravitational Waves from a Binary Black Hole Merger*, Phys Rev Lett **116** 061102 (2016)

Abbott B P et al., *Astrophysical Implications of the Binary Black-Hole Merger GW150914*, Astrophys J **818** L22 (2016)

Kumar Prayush, Barkett Kevin, Bhagwat Swetha, Afshari Nousha, Brown Duncan A, Lovelace Geoffrey, Scheel Mark A, and Szilagyi Bela, *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 **D92** 102001 (2015)

Aasi J et al., *Characterization of the LIGO detectors during their sixth science run*, *Class Quant Grav* **32** 115012 (2015)

Dal Canton Tito, Nitz Alexander, Lundgren Andrew, Nielsen Alex, Brown Duncan A, et al., *Implementing a search for aligned-spin neutron star-black hole systems with advanced ground based gravitational wave detectors*, *PhysRev* **D90** 082004 (2014)

Aasi J et al., *Search for gravitational waves associated with gamma-ray bursts detected by the Inter-Planetary Network*, *PhysRevLett* **113** 011102 (2014)

Aasi J et al., *The NINJA-2 project: Detecting and characterizing gravitational waveforms modelled using numerical binary black hole simulations*, *ClassQuantGrav* **31** 115004 (2014)

Kumar Prayush, MacDonald Ilana, Brown Duncan A, Pfeiffer Harald P, Cannon Kipp, et al., *Template Banks for Binary black hole searches with Numerical Relativity waveforms*, *PhysRev* **D89** 042002 (2014)

Aasi J et al., *Search for gravitational wave ringdowns from perturbed intermediate mass black holes in LIGO-Virgo data from 2005-2010*, *PhysRev* **D89** 102006 (2014)

Harry IW, Nitz AH, Brown Duncan A, Lundgren A, Ochsner Evan, et al., *Investigating the effect of precession on searches for neutron-star-black-hole binaries with Advanced LIGO*, *PhysRev* **D89** 024010 (2014)

Nitz Alexander H, Lundgren Andrew, Brown Duncan A, Ochsner Evan, Keppel Drew, et al., *Accuracy of gravitational waveform models for observing neutron-star-black-hole binaries in Advanced LIGO*, *PhysRev* **D88** 124039 (2013)

Singer Leo P, Cenko S Bradley, Kasliwal Mansi M, Perley Daniel A, Ofek Eran O, Brown Duncan A, et al., *Discovery and redshift of an optical afterglow in 71 square degrees iPTF13bxi and GRB 130702A*, *AstrophysJ* **776** L34 (2013)

Hannam Mark, Brown Duncan A, Fairhurst Stephen, Fryer Chris L, and Harry Ian W, *When can gravitational-wave observations distinguish between black holes and neutron stars?*, *AstrophysJ* **766** L14 (2013)

Aasi J et al., *Parameter estimation for compact binary coalescence signals with the first generation gravitational-wave detector network*, *PhysRev* **D88** 062001 (2013)

Brown Duncan A, Kumar Prayush, and Nitz Alexander H, *Template banks to search for low-mass binary black holes in advanced gravitational-wave detectors*, *PhysRev* **D87** 082004 (2013)

Huerta EA and Brown Duncan A, *Effect of eccentricity on binary neutron star searches in Advanced LIGO*, *Phys Rev* **D87** 127501 (2013)

Babak S, Biswas R, Brady PR, Brown DA, Cannon K, et al., *Searching for gravitational waves from binary coalescence*, *PhysRev* **D87** 024033 (2013)

Aasi J et al., *Search for Gravitational Waves from Binary Black Hole Inspiral, Merger and Ringdown in LIGO-Virgo Data from 2009-2010*, *Phys Rev* **D87** 022002 (2013)

Briggs M S et al., *Search for gravitational waves associated with gamma-ray bursts during LIGO science run 6 and Virgo science runs 2 and 3*, *Astrophys J* **760** 12 (2012)

Brown Duncan A, Harry Ian, Lundgren Andrew, and Nitz Alexander H, *Detecting binary neutron star systems with spin in advanced gravitational-wave detectors*, Phys Rev **D86** 084017 (2012)

Brown Duncan A, Lundgren Andrew, and O Shaughnessy R, *Nonspinning searches for spinning binaries in ground-based detector data: Amplitude and mismatch predictions in the constant precession cone approximation*, Phys Rev **D86** 064020 (2012)

Aasi J et al., *The characterization of Virgo data and its impact on gravitational-wave searches*, Class Quant Grav **29** 155002 (2012)

Huerta E A, Kumar Prayush, and Brown Duncan A, *Accurate modeling of intermediate-mass-ratio inspirals: exploring the form of the self-force in the intermediate-mass-ratio regime*, PhysRev **D86** 024024 (2012)

Huerta E A, Gair Jonathan R, and Brown Duncan A, *Importance of including small body spin effects in the modelling of intermediate mass-ratio inspirals. II Accurate parameter extraction of strong sources using higher-order spin effects*, PhysRev **D85** 064023 (2012)

Abadie J et al., *Search for Gravitational Waves from Low Mass Compact Binary Coalescence in LIGO's Sixth Science Run and Virgo's Science Runs 2 and 3*, PhysRev **D85** 082002 (2012)

Allen Bruce, Anderson Warren G, Brady Patrick R, Brown Duncan A, and Creighton Jolien D E, *FINDCHIRP: An algorithm for detection of gravitational waves from inspiraling compact binaries*, PhysRev **D85** 122006 (2012)

Ajith P, Boyle Michael, Brown Duncan A, Brugmann Bernd, Buchman Luisa T, et al., *The NINJA-2 catalog of hybrid post-Newtonian/numerical-relativity waveforms for non-precessing black-hole binaries*, ClassQuantGrav **29** 124001 (2012)

Abadie J et al., *Implications For The Origin Of GRB 051103 From LIGO Observations*, AstrophysJ **755** 2 (2012)

Abadie J et al., *Search for gravitational waves from binary black hole inspiral, merger and ringdown*, Phys Rev **D83** 122005 (2011)

Abadie J et al., *Search for Gravitational Waves from Compact Binary Coalescence in LIGO and Virgo Data from S5 and VSR1*, Phys Rev **D82** 102001 (2010)

Slutsky J et al., *Methods for Reducing False Alarms in Searches for Compact Binary Coalescences in LIGO Data*, Class Quant Grav **27** 165023 (2010)

Abadie J et al., *Predictions for the Rates of Compact Binary Coalescences Observable by Ground-based Gravitational-wave Detectors*, Class Quant Grav **27** 173001 (2010)

Abadie J et al., *Search for gravitational-wave inspiral signals associated with short Gamma-Ray Bursts during LIGO's fifth and Virgo's first science run*, Astrophys J **715** 1453–1461 (2010)

Brown Duncan A and Zimmerman Peter J, *Effect of eccentricity on searches for gravitational waves from coalescing compact binaries in ground-based detectors*, Phys Rev D **81** 024007 (2010)

Abbott B P et al., *Search for Gravitational Waves from Low Mass Compact Binary Coalescence in 186 Days of LIGO's fifth Science Run*, Phys Rev **D80** 047101 (2009)

Abbott B P et al., *Search for gravitational wave ringdowns from perturbed black holes in LIGO S4 data*, Phys Rev **D80** 062001 (2009)

Aylott Benjamin et al., *Testing gravitational-wave searches with numerical relativity waveforms: Results from the first Numerical INjection Analysis (NINJA) project*, Class Quant Grav **26** 165008 (2009)

Van Den Broeck Chris, Brown Duncan A, Cokelaer Thomas, Harry Ian, Jones Gareth, Sathyaprakash B S, Tagoshi Hideyuki, and Takahashi Hirotaka, *Template banks to search for compact binaries with spinning components in gravitational wave data*, Phys Rev **D80** 024009 (2009)

Boyle Michael, Brown Duncan A, and Pekowsky Larne, *Comparison of high-accuracy numerical simulations of black-hole binaries with stationary phase post-Newtonian template waveforms for Initial and Advanced LIGO*, Class Quant Grav **26** 114006 (2009)

Cadonati Laura et al., *Status of NINJA: the Numerical INjection Analysis project*, Class Quant Grav **26** 114008 (2009)

Abbott B P et al., *Search for Gravitational Waves from Low Mass Binary Coalescences in the First Year of LIGO's S5 Data*, Phys Rev **D79** 122001 (2009)

B P Abbott et al., *LIGO: the Laser Interferometer Gravitational-Wave Observatory*, Reports on Progress in Physics **72** 076901 (2009)

Lindblom Lee, Owen Benjamin J, and Brown Duncan A, *Model Waveform Accuracy Standards for Gravitational Wave Data Analysis*, Phys Rev **D78** 124020 (2008)

Ilya Mandel, Duncan A Brown, Jonathan R Gair, and M Coleman Miller, *Rates and Characteristics of Intermediate Mass Ratio Inspirals Detectable by Advanced LIGO*, Astrophys J **681** 1431 (2008)

Abbott B et al., *Search of S3 LIGO data for gravitational wave signals from spinning black hole and neutron star binary inspirals*, Phys Rev **D78** 042002 (2008)

Babak Stanislav et al., *Report on the second Mock LISA Data Challenge*, Class Quant Grav **25** 114037 (2008)

Abbott B et al., *Search for gravitational waves from binary inspirals in S3 and S4 LIGO data*, Phys Rev **D77** 062002 (2008)

Abbott B et al., *Implications for the Origin of GRB 070201 from LIGO Observations*, Astrophys J **681** 1419–1430 (July 2008)

Beauville F et al., *Detailed comparison of LIGO and Virgo inspiral pipelines in preparation for a joint search*, Class Quant Grav **25** 045001 (2008)

Brown Duncan A et al., *Prospects for detection of gravitational waves from intermediate-mass-ratio inspirals*, Phys Rev Lett **99** 201102 (2007)

Boyle Michael et al., *High-accuracy comparison of numerical relativity simulations with post-Newtonian expansions*, Phys Rev **D76** 124038 (2007)

Singh Gurmeet et al., *Optimizing workflow data footprint*, Scientific Programming **15** 249 (2007)

Brown Duncan A, Crowder Jeff, Cutler Curt, Mandel Ilya, and Vallisneri Michele, *A Three-Stage Search for Supermassive Black Hole Binaries in LISA Data*, *Class Quant Grav* **24** S595–S606 (2007)

Arnaud K A et al., *Report on the first round of the Mock LISA Data Challenges*, *Class Quant Grav* **24** S529–S540 (2007)

Pfeiffer Harald P et al., *Reducing orbital eccentricity in binary black hole simulations*, *Class Quant Grav* **24** S59–S82 (2007)

Brown D A et al., *A Case Study on the Use of Workflow Technologies for Scientific Analysis: Gravitational Wave Data Analysis*, in Ian J. Taylor, Ewa Deelman, Dennis Gannon, and Matthew S. Shields, editors, *Workflows for e-Science*, chapter 5, pages 41–61, (Springer-Verlag) (2006)

Abbott B et al., *Joint LIGO and TAMA300 search for gravitational waves from inspiralling neutron star binaries*, *Phys Rev* **D73** 102002 (2006)

Abbott B et al., *Search for gravitational waves from binary black hole inspirals in LIGO data*, *Phys Rev* **D73** 062001 (2006)

Brown Duncan A, *Using the INSPIRAL program to search for gravitational waves from low-mass binary inspiral*, *Class Quant Grav* **22** S1097–S1108 (2005)

Abbott B et al., *Search for gravitational waves from primordial black hole binary coalescences in the galactic halo*, *Phys Rev* **D72** 082002 (2005)

Abbott B et al., *Search for gravitational waves from galactic and extra-galactic binary neutron stars*, *Phys Rev* **D72** 082001 (2005)

Blackburn L et al., *A first comparison between LIGO and Virgo inspiral search pipelines*, *Class Quant Grav* **22** S1149–S1158 (2005)

Brown Duncan A et al., *Searching for Gravitational Waves from Binary Inspirals with LIGO*, *Class Quant Grav* **21** S1625–S1633 (2004)

Brown Duncan A, *Testing the LIGO inspiral analysis with hardware injections*, *Class Quant Grav* **21** S797–S800 (2004)

Abbott B et al., *Analysis of LIGO data for gravitational waves from binary neutron stars*, *Phys Rev* **D69** 122001 (2004)

Abbott B et al., *Detector description and performance for the first coincidence observations between LIGO and GEO*, *Nucl Instrum Meth* **A517** 154–179 (2004)

#### *Other Refereed Publications*

Abbott Benjamin P et al., *All-sky search for long-duration gravitational wave transients with initial LIGO*, *Phys Rev* **D93** 042005 (2016)

Aasi J et al., *First low frequency all-sky search for continuous gravitational wave signals*, *Phys Rev* **D93** 042007 (2016)

Aasi J et al., *Search of the Orion spur for continuous gravitational waves using a loosely coherent algorithm on data from LIGO interferometers*, Phys Rev **D93** 042006 (2016)

Aasi J et al., *Directed search for gravitational waves from Scorpius X-1 with initial LIGO data*, PhysRev **D91** 062008 (2015)

Aasi J et al., *Searching for stochastic gravitational waves using data from the two colocated LIGO Hanford detectors*, PhysRev **D91** 022003 (2015)

Aasi J et al., *Advanced LIGO*, ClassQuantGrav **32** 074001 (2015)

Aasi J et al., *Implementation of an  $\mathcal{F}$ -statistic all-sky search for continuous gravitational waves in Virgo VSR1 data*, ClassQuantGrav **31** 165014 (2014)

Aasi J et al., *Improved Upper Limits on the Stochastic Gravitational-Wave Background from 20092010 LIGO and Virgo Data*, PhysRevLett **113** 231101 (2014)

Aasi J et al., *First all-sky search for continuous gravitational waves from unknown sources in binary systems*, PhysRev **D90** 062010 (2014)

Aasi J et al., *Search for gravitational radiation from intermediate mass black hole binaries in data from the second LIGO-Virgo joint science run*, PhysRev **D89** 122003 (2014)

Aasi J et al., *Application of a Hough search for continuous gravitational waves on data from the fifth LIGO science run*, ClassQuantGrav **31** 085014 (2014)

Aasi J, Abadie J, Abbott BP, Abbott R, Abbott T, et al., *Constraints on cosmic strings from the LIGO-Virgo gravitational-wave detectors*, PhysRevLett **112** 131101 (2014)

Aasi J et al., *First Searches for Optical Counterparts to Gravitational-wave Candidate Events*, AstrophysJSuppl **211** 7 (2014)

Aasi J et al., *Directed search for continuous gravitational waves from the Galactic center*, PhysRev **D88** 102002 (2013)

Aasi J et al., *Search for long-lived gravitational-wave transients coincident with long gamma-ray bursts*, PhysRev **D88** 122004 (2013)

Aasi J et al., *Gravitational waves from known pulsars: results from the initial detector era*, AstrophysJ **785** 119 (2014)

Abadie J et al., *All-sky search for gravitational-wave bursts in the second joint LIGO-Virgo run*, Phys Rev D **85** 122007 (2012)

Abadie J et al., *Search for gravitational waves from intermediate mass binary black holes*, Phys Rev D **85** 102004 (2012)

Abadie J et al., *Upper limits on a stochastic gravitational-wave background using LIGO and Virgo interferometers at 600–1000 Hz*, Phys Rev D **85** 122001 (2012)

Abadie J et al., *All-sky search for periodic gravitational waves in the full S5 LIGO data*, Phys Rev D **85** 022001 (2012)

Abadie J et al., *Implementation and testing of the first prompt search for gravitational wave transients with electromagnetic counterparts*, Astronomy and Astrophysics **539** A124 (2012)



- Abadie J et al., *Beating the spin-down limit on gravitational wave emission from the Vela pulsar*, *AstrophysJ* **737** 93 (2011)
- Abadie J et al., *Search for Gravitational Wave Bursts from Six Magnetars*, *AstrophysJ* **734** L35 (2011)
- Abadie J et al., *A search for gravitational waves associated with the August 2006 timing glitch of the Vela pulsar*, *PhysRev* **D83** 042001 (2011)
- Abadie J et al., *First search for gravitational waves from the youngest known neutron star*, *Astrophys J* **722** 1504–1513 (2010)
- Abadie J et al., *Calibration of the LIGO Gravitational Wave Detectors in the Fifth Science Run*, *Nucl Instrum Meth* **A624** 223–240 (2010)
- Abadie J et al., *All-sky search for gravitational-wave bursts in the first joint LIGO-GEO-Virgo run*, *Phys Rev* **D81** 102001 (2010)
- Abbott B P et al., *Search for gravitational-wave bursts associated with gamma-ray bursts using data from LIGO Science Run 5 and Virgo Science Run 1*, *Astrophys J* **715** 1438–1452 (2010)
- Collaboration The LIGO Scientific et al., *Searches for gravitational waves from known pulsars with S5 LIGO data*, *Astrophys J* **713** 671–685 (2010)
- Abbott B P et al., *Search for gravitational-wave bursts in the first year of the fifth LIGO science run*, *Phys Rev* **D80** 102001 (2009)
- Abbott B P et al., *Search for High Frequency Gravitational Wave Bursts in the First Calendar Year of LIGO's Fifth Science Run*, *Phys Rev* **D80** 102002 (2009)
- Abbott B P et al., *An upper limit on the stochastic gravitational-wave background of cosmological origin*, *Nature* **460** 990 (2009)
- Abbott B et al., *Observation of a kilogram-scale oscillator near its quantum ground state*, *New J Phys* **11** 073032 (2009)
- Abbott B P et al., *First LIGO search for gravitational wave bursts from cosmic (super)strings*, *Phys Rev* **D80** 062002 (2009)
- Abbott B P et al., *Einstein@Home search for periodic gravitational waves in early S5 LIGO data*, *Phys Rev* **D80** 042003 (2009)
- Abbott B P et al., *Stacked Search for Gravitational Waves from the 2006 SGR 1900+14 Storm*, *Astrophys J* **701** L68–L74 (2009)
- Abbott B et al., *All-sky LIGO Search for Periodic Gravitational Waves in the Early S5 Data*, *Phys Rev Lett* **102** 111102 (2009)
- Abbott B et al., *Search for Gravitational Wave Bursts from Soft Gamma Repeaters*, *Phys Rev Lett* **101** 211102 (2008)
- Abbott B et al., *First joint search for gravitational-wave bursts in LIGO and GEO600 data*, *Class Quant Grav* **25** 245008 (2008)

- Abbott B et al., *Beating the spin-down limit on gravitational wave emission from the Crab pulsar*, *Astrophys J* **683** L45–L50 (2008)
- Abbott B et al., *The Einstein@Home search for periodic gravitational waves in LIGO S4 data*, *Phys Rev* **D79** 022001 (2009)
- Abbott B et al., *Search for gravitational waves associated with 39 gamma-ray bursts using data from the second, third, and fourth LIGO runs*, *Phys Rev* **D77** 062004 (2008)
- Abbott B et al., *Astrophysically Triggered Searches for Gravitational Waves: Status and Prospects*, *Class Quant Grav* **25** 114051 (2008)
- Baggio L et al., *A Joint Search for Gravitational Wave Bursts with AURIGA and LIGO*, *Class Quant Grav* **25** 095004 (2008)
- Abbott B et al., *All-sky search for periodic gravitational waves in LIGO S4 data*, *Phys Rev* **D77** 022001 (2008)
- Beauville F et al., *A comparison of methods for gravitational wave burst searches from LIGO and Virgo*, *Class Quant Grav* **25** 045002 (2008)
- Abbott B et al., *Upper limits on gravitational wave emission from 78 radio pulsars*, *Phys Rev* **D76** 042001 (2007)
- Abbott B et al., *Search for gravitational-wave bursts in LIGO data from the fourth science run*, *Class Quant Grav* **24** 5343–5370 (2007)
- Abbott B et al., *Search for gravitational wave radiation associated with the pulsating tail of the SGR 1806-20 hyperflare of 27 December 2004 using LIGO*, *Phys Rev* **D76** 062003 (2007)
- Abbott B et al., *First cross-correlation analysis of interferometric and resonant-bar gravitational-wave data for stochastic backgrounds*, *Phys Rev* **D76** 022001 (2007)
- Abbott B et al., *Upper limit map of a background of gravitational waves*, *Phys Rev* **D76** 082003 (2007)
- Abbott B et al., *Searching for a stochastic background of gravitational waves with LIGO*, *Astrophys J* **659** 918–930 (2007)
- Harry G M et al., *The LIGO gravitational wave observatories: Recent results and future plans* (2003), Proceedings of the 10th Marcel Grossmann Meeting, Rio de Janeiro, Brazil, 20-26 Jul 2003
- Abbott B et al., *Coherent searches for periodic gravitational waves from unknown isolated sources and Scorpius X-1: Results from the second LIGO science run*, *Phys Rev* **D76** 082001 (2007)
- Abbott B et al., *Search for gravitational wave bursts in LIGO's third science run*, *Class Quant Grav* **23** S29–S39 (2006)
- Abbott B et al., *First all-sky upper limits from LIGO on the strength of periodic gravitational waves using the Hough transform*, *Phys Rev* **D72** 102004 (2005)
- Abbott B et al., *Upper limits from the LIGO and TAMA detectors on the rate of gravitational-wave bursts*, *Phys Rev* **D72** 122004 (2005)

- Abbott B et al., *Upper limits on a stochastic background of gravitational waves*, Phys Rev Lett **95** 221101 (2005)
- Abbott B et al., *Upper limits on gravitational wave bursts in LIGO's second science run*, Phys Rev **D72** 062001 (2005)
- Abbott B et al., *A search for gravitational waves associated with the gamma ray burst GRB030329 using the LIGO detectors*, Phys Rev **D72** 042002 (2005)
- Blackburn L et al., *A first comparison of search methods for gravitational wave bursts using LIGO and Virgo simulated data*, Class Quant Grav **22** S1293–S1302 (2005)
- Abbott B et al., *First upper limits from ligo on gravitational wave bursts*, Phys Rev **D69** 102001 (2004)
- Abbott B et al., *Setting upper limits on the strength of periodic gravitational waves using the first science data from the GEO 600 and LIGO detectors*, Phys Rev **D69** 082004 (2004)
- Abbott B et al., *Analysis of first LIGO science data for stochastic gravitational waves*, Phys Rev **D69** 122004 (2004)
- Abbott B et al., *First upper limits from LIGO on gravitational wave bursts*, Class Quant Grav **21** S677–S684 (2004)
- Allen Bruce et al., *Upper limits on the strength of periodic gravitational waves from PSR J1939+2134*, Class Quant Grav **21** S671–S676 (2004)

## RESEARCH GRANTS

- |                           |   |
|---------------------------|---|
| Co-Principal Investigator | CC*DNI Engineer: Leading the way for research computing at Syracuse University and beyond<br>National Science Foundation Award ACI-1541396<br>September 1, 2015–August 31, 2017: \$396,098  |
| Principal Investigator    | CIF21 DIBBs: Domain-aware management of heterogeneous workflows: Active data management for gravitational-wave science workflows<br>National Science Foundation Award ACI-1443047<br>September 1, 2014–August 31, 2017: \$900,000 |
| Principal Investigator    | Computational Optimization for High-Latency Compact Binary Searches in Advanced LIGO<br>Sub-contract from California Institute of Technology<br>August 1, 2014–July 31, 2015: \$335,264   |
| Principal Investigator    | Gravitational Wave Astrophysics With Advanced LIGO<br>National Science Foundation Award PHY-1404395<br>July 1, 2014–June 30, 2017: \$360,000  |

Principal Investigator	<p>Collaborative Research: Theoretical-Computational Network for Extracting Astrophysics and Fundamental Physics from Multi-Messenger Observations of Compact Objects  National Science Foundation Award AST-1333142  September 1, 2013–August 31, 2016: \$385,442</p>
Co-Principal Investigator	<p>CC-NIE Networking Infrastructure: Enhancing the OrangeGrid - Upgrading the Syracuse Campus Network to Enable High Throughput Research Computing  National Science Foundation Award PHY-1341006  September 1, 2013–August 31, 2015: \$498,452</p>
Co-Principal Investigator	<p>Data Handling and Analysis Infrastructure for Advanced LIGO and Beyond  National Science Foundation Award PHY-1104371  December 15, 2011–December 15, 2016: \$9,000,000  Sub-contract to Syracuse University: \$2,250,000</p>
Principal Investigator	<p>Exploring the universe with gravitational waves: a new frontier in 21st-century astronomy and astrophysics  Research Corporation for Science Advancement Cottrell Scholar Award  November 15, 2010–November 14, 2013: \$75,000</p>
Principal Investigator	<p>Major Research Instrumentation: Development of a High-Throughput Computing Cluster for Gravitational-Wave Data Analysis and High-Energy Physics  National Science Foundation Award PHY-1040231  September 1, 2010–August 31, 2013: \$807,619</p>
Principal Investigator	<p>CAREER: An Integrated Research and Education Proposal in Gravitational Wave Astronomy and Astrophysics  National Science Foundation Award PHY-0847611  April 1, 2009–March 31, 2014: \$550,000</p>
Co-Principal Investigator	<p>Enabling Gravitational-Wave Astronomy on the LIGO Data Grid  National Science Foundation Sub-award K087577 (Prime award PHY-0600953)  January 28, 2008–October 31, 2011: \$819,814</p>
Principal Investigator	<p>Student Travel for Numerical Relativity and Data Analysis 2008 Conference  National Science Foundation Award PHY-0838740  August 30, 2008–July 31, 2009: \$5,000</p>
Principal Investigator	<p>Syracuse University Gravitational-Wave Group Computing Cluster  Sun Microsystems Academic Excellence Grant EDUD-7824-080104-US  August 31, 2007: \$20,574</p>

## INVITED PRESENTATIONS

- July 2015                      Lectures on Detecting Coalescing Binaries,  
Caltech Gravitational Wave Astrophysics School, Pasadena, CA
- February 2015                Gravitational Waves: A New Frontier in 21st Century Astrophysics,  
Physics Department Colloquium, Carnegie Mellon University, Pittsburgh, MA
- November 2014               Gravitational Waves: A New Frontier in 21st Century Astrophysics,  
Physics Department Colloquium, Cornell University, NY
- October 2014                Gravitational Waves: A New Frontier in 21st Century Astrophysics,  
Giant Magellan Telescope Community Science Meeting, Smithsonian Intitution,  
Washington DC
- September 2014             Gravitational Waves: A New Frontier in 21st Century Astrophysics,  
Physics Department Colloquium, Massachusetts Institute of Technology, MA
- June 2014                    Gravitational-Wave Astronomy with Advanced LIGO,  
Royal Society Gamma Ray Burst Workshop, Chichley Hall, UK
- November 2013              Measuring the parameters of compact binary coalescence with aLIGO,  
TCAN Workshop, California Institute of Technology, CA
- April 2013                    The New Astronomy of LIGO: Exploring the Gravitational-wave Sky,  
Physics Department Colloquium, University of Florida, FL
- February 2013               Challenges in searching for compact binary coalescence with aLIGO,  
Seminar, Caltech-JPL Association for Gravitational-wave Research, California In-  
stitute of Technology, CA
- December 2012              Gravitational Waves: A New Frontier in 21st Century Astrophysics,  
Enrio Fermi Institute Colloquium, University of Chicago, IL
- November 2012              The New Astronomy of LIGO,  
Physics Department Colloquium, University of Washington, WA
- November 2012              Challenges in Advanced LIGO's Binary Black Hole Search,  
Numerical Relativity Seminar, California Institute of Technology, CA
- October 2012                Chirps, Mergers and Explosions,  
LIGO Seminar, California Institute of Technology, CA
- August 2012                The New Astronomy of LIGO: Exploring the Gravitational Wave Sky,  
Director's Blackboard Talk, Kavli Institute for Theoretical Physics, CA
- July 2012                    The New Astronomy of LIGO,  
NASA Education Ambassador Training, Sonoma State University, CA
- June 2012                    The New Astronomy of LIGO,  
2012 Physics Research and Education Gordon Research Conference, Colby College,  
ME

May 2012 Commissioning and Observing Scenarios for LIGO and Virgo,  
LIGO Astronomy and Astrophysics Advisory Panel, Caltech, Pasadena, CA

May 2012 Connecting the Electromagnetic and Gravitational Wave Skies in the Era of  
Advanced LIGO  
Princeton Center for Theoretical Science, Princeton, NJ

March 2012 The New Astronomy of LIGO,  
Liverpool Public Library, Liverpool, NY

August 2011 Invited Lecturer,  
2011 International School on Numerical Relativity and Gravitational Waves, SPCTP,  
Pohang, Korea

July 2011 The New Astronomy of LIGO,  
University of Nebraska–Lincoln, Lincoln, NE

July 2011 Improving the Laboratory Experience for Non-Science Majors,  
Cottrell Scholar’s Conference, Research Corporation for Science Advancement, Tuc-  
son, AZ

May 2011 Gravitational Wave Astronomy with LIGO and Virgo,  
Advances and Challenges in Computational Relativity, Brown University, RI

April 2011 LIGO’s Interactions with the Numerical Relativity Community,  
LIGO Astronomy and Astrophysics Advisory Panel, Caltech, CA

November 2010 Gravitational Wave Astronomy with LIGO and Virgo,  
Physics Colloquium, Cal State Fullerton, CA

October 2010 Searching for Coalescing Compact Binaries using LIGO and Virgo,  
Gravitational Waves 2010, University of Minnesota, MN

September 2010 Gravitational Wave Astronomy with LIGO and Virgo,  
Physics Colloquium, Syracuse University, NY

July 2010 Searching for Compact Binaries using LIGO and Virgo,  
19th International Conference on General Relativity and Gravitation, Mexico City,  
Mexico

March 2010 Gravitational Wave Astronomy with LIGO and Virgo,  
Department of Astronomy and Astrophysics Colloquium, University of Toronto

January 2010 LIGO’s Need for Cyberinfrastructure,  
National Science Foundation Office of Cyberinfrastructure, Washington D.C.

October 2009 Gravitational Wave Astronomy with LIGO,  
Challenges in Computational Astrophysics, Princeton Center for Theoretical Sci-  
ence

July 2009 The LIGO Scientific Collaboration’s Interaction with the Numerical Relativ-  
ity Community,  
LIGO Program Advisory Committee, Massachusetts Institute of Technology

April 2009                      Towards Gravitational Wave Astronomy with LIGO,  
California Institute of Technology

April 2009                      Towards Gravitational Wave Astronomy with LIGO,  
Rochester Institute of Technology

February 2009                 Searches for Gravitational Waves from Compact Binary Coalescence,  
Center for Gravitational Wave Physics, The Pennsylvania State University

January 2009                   Results of the Numerical INJECTION Analysis (NINJA) Project,  
13th Gravitational Wave Data Analysis Workshop, San Juan, Puerto Rico

April 2008                      Searches for Gravitational Waves from the Inspiral of Binary  
Neutron Stars and Black Holes,  
American Physical Society Meeting, St. Louis, MO

January 2008                   Director's Blackboard Seminar,  
Kavli Institute For Theoretical Physics, Santa Barbara, CA

November 2007                Physics Colloquium,  
Rochester Institute of Technology

November 2007                LIGO Inspiral Analysis and Computing: Where are we now and where do  
we want to be in 6 months?,  
Workshop on Computing Workflows, University of Wisconsin-Milwaukee

March 2007                      Physics Colloquium,  
University of Wisconsin-Milwaukee

March 2007                      Physics Colloquium,  
Syracuse University

November 2006                Searching for Gravitational Waves From Compact Binaries,  
Numerical Relativity and Data Analysis Conference 2006, Massachusetts Institute  
of Technology

October 2006                   LIGO/LSC Analysis Software:Case Study of Inspiral Analysis,  
National Science Foundation LIGO Annual Review, LIGO Hanford Observatory

July 2006                        LIGO's Search for Inspiralling Binaries,  
LIGO Program Advisory Committee, California Institute of Technology

May 2006                        LIGO, Gravitational Waves and Einstein at Home,  
Public Lecture at Riverside Community College, CA

Aug 2006                        The Search for Gravitational Waves with LIGO,  
6th Rencontres du Vietnam

Apr 2006                        Searching for Gravitational Waves with LIGO,  
Physics Colloquium, Whittier College, CA

November 2005                Running the Inspiral Analysis on non-LSC Grid Computing Resources,  
National Science Foundation LIGO Annual Review, California Institute of Technol-  
ogy

September 2004	Searching for Gravitational Radiation from Binary Inspirals with LIGO, Physics Colloquium, University of Wisconsin–Milwaukee
Feb 2004	Searching for Primordial Black Hole Binaries with LIGO, California Institute of Technology
Jan 2004	Searching for Gravitational Waves from Binary Inspiral with LIGO: Current Status and Future Plans, Louisiana State University

#### STUDENTS AND POSTDOCS SUPERVISED

Postdoctoral Researchers	Ryan Fisher, Ian Harry, Eliu Huerta, Benjamin Lackey, Andrew Lundgren, Ping Wei, Laura Nuttall, Jedidah Isler.
Graduate Students	Collin Capano (Ph.D. 2012), Larne Pekowsky (Ph.D. 2012), Kayleigh Ayn Bohémier (MLIS 2012, co-supervised with Jian Qin), Prayush Kumar (Ph.D. 2014), Alex Nitz (Ph.D. 2015), Christopher Biver (expected 2016), Swetha Bhagwat (expected 2017), Steven Reyes (expected 2019)
Undergraduate Students	Almir Alemic, Erika Cowan, Amber Lenon, Seth Rothschild, Matthew Turner, Samantha Usman, Peter Zimmerman

#### COURSES TAUGHT

PHY607	Computational Physics, Spring 2012
AST101	Introduction to Astronomy, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2013, Fall 2014
PHY308	Science and Computers II, Spring 2009
PHY221	General Physics I, Fall 2007

#### PROFESSIONAL DEVELOPMENT

April 2010	NASA Center for Astronomy Education: Improving the Introductory Astronomy Survey Course for Non-Science Majors through Active Learning. 16 hour workshop
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October 2008 NASA Center for Astronomy Education: Improving the Introductory Astronomy Survey Course for Non-Science Majors through Active Learning. 16 hour workshop

SERVICE

2014– NYSERNET Scientific Advisory Board

2013– Director of the Graduate Program, Physics Department, Syracuse University

2012–2015 Co-chair, LIGO Scientific Collaboration and Virgo Collaboration Compact Binary Coalescence Working Group

2011 Syracuse University Physics Department Graduate Student Open Day

2010 Syracuse University New Faculty Orientation Teaching Panel Participant

2010– Grant Reviewer for National Science Foundation

2009–2011 Chair, Physics Department Web Committee, Syracuse University

2010 Syracuse University New Faculty Orientation: Research and Funding Panel Participant

2009 Undergraduate Research Day Committee, Syracuse University

2008–2011 LIGO Scientific Collaboration Conference Committee

2008 Chair, Undergraduate Research Day Committee, Syracuse University

2007– NASA Grant Reviewer

2007–2008 Syracuse University Freshman Adviser

2007– LIGO Scientific Collaboration Computing Committee

2007– Referee for Physical Review D, Physical Review Letters, Classical and Quantum Gravity

2004–2007 LIGO Scientific Collaboration Inspiral Review Committee