

BENJAMIN J. OWEN - CURRICULUM VITAE

Research summary

- Foundational contributions to gravitational wave data analysis, particularly application of differential geometry to statistics and efficient computing
- One of the few people who has contributed to searches and theory of all four types of gravitational waves (binary mergers, continuous waves, stochastic backgrounds, miscellaneous bursts) with LIGO, including leading key searches
- Key contributions to multi-messenger astronomy of neutron stars including mergers, pulsars, low mass x-ray binaries, magnetars, and central compact objects
- Theory of gravitational wave emission mechanisms, including alternative theories of gravity, from binary black holes to novel sources with great discovery potential in the near future
- Neutron star structure, composition, and microphysics tying together nuclear physics, particle physics, condensed matter, gravitational waves, and multi-messenger astronomy
- High performance computing and optimization of gravitational wave data analysis
- Now planning for the next generation of gravitational wave discoveries and multi-messenger astronomy as Head of Observational Analysis for the Cosmic Explorer project
- Now looking toward novel applications of machine learning and quantum computation

Contact information

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Education

- 1998 **Ph.D. in Physics, California Institute of Technology**
Thesis title: Gravitational waves from compact objects
Thesis advisor: Kip S. Thorne
- 1993 B.S. in Physics, *magna cum laude*, Sonoma State University (California)
Minors: Astronomy, German
Research advisors: Lynn R. Cominsky, Gordon G. Spear

Academic positions

Primary:

2015–	Professor of Physics & Astronomy	Texas Tech University
2013–2015	Professor of Physics	Penn State
2008–2013	Associate Professor of Physics	Penn State
2002–2008	Assistant Professor of Physics	Penn State
2000–2002	Research Associate	University of Wisconsin Milwaukee

1998–2000	Research Scholar	Max Planck Institute for Gravitational Physics (Golm)
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Secondary:

2015–2018	Adjunct Professor	Penn State
2012 (2 months)	Visiting Scientist	Max Planck Inst. Grav. Physics (Hanover)
2010 (6 months)	Visiting Associate	LIGO Lab, California Institute of Technology
2009 (6 months)	Visiting Scientist	Max Planck Inst. Grav. Physics (Hanover)
2001 (1 month)	Visiting Scientist	Max Planck Inst. Grav. Physics (Golm)
2000 (1 month)	Visiting Scientist	KITP Santa Barbara

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Honors and awards [\[back to contents\]](#)

2017	Princess of Asturias Award for Technical and Scientific Research (with the LIGO Scientific Collaboration)
2017	Albert Einstein Medal (with the LIGO Scientific Collaboration)
2017	Bruno Rossi Prize for High Energy Astrophysics (with the LIGO Scientific Collaboration)
2017	Royal Astronomical Society Group Achievement Award (with the LIGO Scientific Collaboration)
2016	Gruber Cosmology Prize (with the LIGO Scientific Collaboration)
2016	Special Breakthrough Prize in Fundamental Physics (with the LIGO Scientific Collaboration)
2013	Fellow of the American Physical Society “For leadership in understanding how neutron stars can produce gravitational waves, for creating better methods to search for these waves, and for demonstrating how gravitational wave observations can be used to probe the structure and dynamics of neutron stars.”

1998	Milton and Francis Clauser Prize for Ph.D. thesis of the year, Caltech
1998	Jocelyn Bell Prize for best student presentation, Pacific Coast Gravity Meeting
1993–1995, 1997–1998	National Science Foundation Graduate Fellowship, Caltech
1990–1993	Edgar and Beulah Dryden Scholarship, Sonoma State University

Professional leadership [[back to contents](#)]

2023–	Group Leader of the Texas Tech LISA Consortium group
2015–2019, 2023–	Principal Investigator of the Texas Tech LIGO Scientific Collaboration group
2010–2019, 2023–	Council member of the LIGO Scientific Collaboration
2022–	Head of Observational Analysis for Cosmic Explorer
2007–2019	Astronomy Liaison for the continuous waves group of the LIGO Scientific Collaboration
2010–2015	Principal Investigator of the Penn State LIGO Scientific Collaboration group
2009–2012	Chair of the burst data analysis review committee and member of the Data Analysis Council of the LIGO Scientific Collaboration

Professional memberships [[back to contents](#)]

2023–	LISA Consortium
2023–	NASA Physics of the Cosmos GW Science Interest Group
1997–2019, 2022–	LIGO Scientific Collaboration
2021–	Cosmic Explorer consortium
2020–	Sigma Xi
2013–	American Astronomical Society
2002–	International Society on General Relativity and Gravitation
1997–	American Physical Society

Research support [[back to contents](#)]

Direct funding (total of about \$2.1 million as Principal Investigator):

2023–2025	Principal Investigator , National Science Foundation AST-2319327, \$195,088, “Collaborative Research: Breaking Barriers in Multi-messenger Astrophysics: The RITTU Partnership,” collaborative proposal with Rochester Institute of Technology
2023–2026	Principal Investigator , National Science Foundation PHY-2309305, \$345,000, “Neutron stars and gravitational waves from LIGO to Cosmic Explorer”
2019–2023	Principal Investigator , National Science Foundation PHY-1912625, \$300,000, “Gravitational waves from compact objects”
2016–2019	Principal Investigator , National Science Foundation PHY-1607673, \$297,452, “Gravitational waves from compact objects”

- 2016 **Co-Principal Investigator**, National Radio Astronomical Observatory community study Round 1, \$5,700, “Cosmic Explosions and Collisions in the ngVLA Era,” Principal Investigator: Alessandra Corsi
- 2015–2016 **Principal Investigator**, National Science Foundation PHY-1506311, \$60,000, “Gravitational waves from compact objects”
- 2012–2015 **Principal Investigator**, National Science Foundation PHY-1206027, \$270,000, “Gravitational waves from compact objects”
- 2009–2012 **Principal Investigator**, National Science Foundation PHY-0855589, \$300,000, “Gravitational waves from compact objects”
- 2006–2009 **Principal Investigator**, National Science Foundation PHY-0555628, \$150,000, “Gravitational waves from compact objects”
- 2003–2006 **Principal Investigator**, National Science Foundation PHY-0245649, \$150,000, “Gravitational waves from compact objects”

Observing time:

- 2015–2016 **Co-Principal Investigator**, Very Large Array VLA/15B-288, 2.5 hours, “Probing the magnetar scenario for GRBs with the VLA, Principal Investigator: Alessandra Corsi”

Indirect funding for collaborative travel and computing as international partner investigator:

- 2017–2019 **Partner Investigator**, Australian Research Council DP-170103625, AU\$377,868, “Smart searches for continuous gravitational waves with Advanced LIGO,” Chief Investigator: Andrew Melatos (U. of Melbourne)
- 2010–2014 **Partner Investigator**, Australian Research Council DP-110103347, AU\$348,260, “Gravitational wave astrophysics with LIGO,” Chief Investigator: Andrew Melatos (U. of Melbourne)
- 2009–2013 **Partner Investigator**, Australian Research Council DP-1092556, AU\$428,994, “Probing the Universe with gravitational waves: from cutting-edge technology to astronomy,” Chief Investigators: David McClelland and Susan M. Scott (Australian National U.)
- 2006–2010 **Partner Investigator**, Australian Research Council DP-0770426, AU\$838,490, “Pushing the frontiers of gravitational wave science: from technology to astrophysics,” Chief Investigators: David McClelland and Susan M. Scott (Australian National U.)

Research advisees [\[back to contents\]](#)

Undergraduates: (Those in boldface are co-authors on scientific publications)

- 2023 Brayden Brown (B.S. 2023)
- 2020–2022** **Anthony Pearce (B.S. 2022)**
now high school teacher in American Samoa
- 2022 Ruben Martinez
- 2020 **Luciano Soares Pinheiro (B.S. 2020)**
now data analyst with Aquila Engineering
- 2016–2017 T. Blake Head (B.S. 2017)

2016–2017 Alexander Cardona (B.S. 2016)
 2014 Treyton Stanton (B.S. 2014)
 2011–2013 **Hanyuan Zhu (B.S. 2013)**
 2004–2006 **Benjamin D. Lackey (B.S. w/honors 2006)**
 now **Data and Applied Scientist at Microsoft**
 2005 Thomas Essinger-Hileman (B.S. w/honors 2005)
 now Astrophysicist at Goddard Space Flight Center
 2003–2004 **Chad Hanna (B.S. 2004)**
 now **Professor of Physics and Astronomy and Astrophysics at Penn State**

Graduate students: (Those in boldface are in nonprofit science positions)

2023– **Kushagra Narain Nag**
 2023– **Taha Moursy**
 2017–2022 **Giammarco Turriziani Colonna (Ph.D. 2022)**
 now **Math and Physics professor at Liceo scientifico Rocci, Italy**
 2020–2022 Luciano Soares Pinheiro (M.S. 2022)
 now data analyst with Aquila Engineering
 2015–2020 **Binod Rajbhandari (Ph.D. 2020)**
 now **postdoc at the Rochester Institute of Technology**
 2011–2015 Ashikuzzaman Idrisy (Ph.D. 2015)
 now Chief of Data Analytics at Learfield IMG Ticket Solutions
 2006–2011 **Nathan Johnson-McDaniel (Ph.D. 2011)**
 now **Postdoctoral Research Associate in Physics and Astronomy, University of Mississippi**
 2006–2009 **Karl Wette (science adviser for main project; Ph.D. 2009 w/Susan Scott at Australian National University)**
 now **Research Fellow in Gravitational Astrophysics at Australian National University**
 2003–2008 **Nicolás Yunes (Ph.D. 2008)**
 now **Professor of Physics at University of Illinois Urbana-Champaign**
 2002–2007 Mohit Nayyar (Ph.D. 2007)
 now Manager of Data Engineering at Warby Parker
 2003–2006 **David M. Whitbeck (Ph.D. 2006)**
 now **Physics Instructor at South Carolina Governor’s School for Science and Mathematics**
 2002–2003 **Steven J. Berukoff**
 now **Extremely Large Telescope Project Manager at NOIRLab**

Postdocs: (Those in boldface are in nonprofit science positions)

2022–2023 Binod Rajbhandari
 now **postdoc at the Rochester Institute of Technology**
 2015–2018 Santiago Caride
 now Analyst at Minnesota Twins baseball team
 2013–2018 Ra Inta
 now Data Science Manager at Chevron Phillips Chemical Company

- 2010–2011 Andrew P. Lundgren**
now **Reader in Gravitational Wave Physics at University of Portsmouth**
- 2007–2010 Richard O’Shaughnessy**
now **Associate Professor in the School of Mathematical Sciences, Rochester Institute of Technology**
- 2002–2004 D. Ian Jones**
now **Professor of Mathematical Physics at University of Southampton**

Courses taught [\[back to contents\]](#)

Texas Tech:

Semester	Topic	Units	Level	Students
Fall 2023	Stellar Astronomy	4	Intro. undergrad	140
Spring 2023	Relativity	3	Adv. UG & Adv. G	6
Fall 2022	Stellar Astronomy	4	Intro. undergrad	135
Spring 2022	Relativity	3	Adv. UG & Adv. G	6
Fall 2021	Stellar Astronomy	4	Intro. undergrad	163
Spring 2021	Relativity	3	Adv. UG & Adv. G	11
Fall 2020	Stellar Astronomy	4	Intro. undergrad	166
Fall 2019	Relativity	3	Adv. undergrad	20
Spring 2019	Quantum Mechanics II	3	Adv. undergrad	9
Fall 2018	Quantum Mechanics I	3	Adv. undergrad	45
Spring 2018	Stellar Astrophysics	3	Interm. undergrad	17
Fall 2017	Quantum Mechanics I	3	Adv. undergrad	23
Spring 2017	Quantum Mechanics II	3	Intro. grad	8
Fall 2016	Quantum Mechanics I	3	Adv. undergrad	31
Spring 2016	Quantum Mechanics II	3	Adv. UG & Intro. G	11
Fall 2015	Relativity	3	Adv. UG & Adv. G	12

Penn State:

Semester	Title	Units	Level	Students
Fall 2014	Electricity & Magnetism	4	Adv. undergrad	42
Spring 2014	Electricity & Magnetism	4	Adv. undergrad	25
Fall 2013	Quantum Mechanics I	4	Adv. undergrad	27
Spring 2013	Electricity & Magnetism	4	Adv. undergrad	31
Fall 2012	Electricity & Magnetism	4	Adv. undergrad	37
Spring 2012	Relativity	3	Adv. undergrad	42
Fall 2011	Relativity I	3	Adv. grad	6
Fall 2010	Electricity & Magnetism	4	Intro. undergrad	984
Fall 2008	Electricity & Magnetism	4	Intro. undergrad	868
Spring 2008	Electricity & Magnetism I	3	Adv. undergrad	32
Fall 2007	Quantum Mechanics I	4	Adv. undergrad	22
Spring 2007	Special Topics in Relativity	3	Adv. grad	6
Fall 2006	Quantum Mechanics I	4	Adv. undergrad	23
Fall 2005	Quantum Mechanics I	4	Adv. undergrad	35
Fall 2004	Quantum Mechanics I	4	Adv. undergrad	28

Spring 2004	Electricity & Magnetism I	3	Adv. undergrad	27
Fall 2003	Quantum Mechanics I	4	Adv. undergrad	34
Spring 2003	Electricity & Magnetism I	3	Adv. undergrad	35

Invited lecture series on gravitational waves and neutron stars:

Year	Institution	Place
2015	California Institute of Technology	Pasadena, California
2013	Polish Academy of Sciences	Warsaw, Poland
2012	Max Planck Institute for Gravitational Physics	Hanover, Germany
2010	University of Rome “Sapienza”	Rome, Italy
2010	California Institute of Technology	Pasadena, California
2008	The Pennsylvania State University	State College, Pennsylvania

Service to university [[back to contents](#)]

Texas Tech:

2023–	Department	Faculty and staff affairs committee chair
2022–	College of Arts & Sciences	Awards Committee member
2022–	Department	Astronomy faculty search committee member
2018–	Department	Policy and strategy committee member
2018–	Department	Faculty and staff affairs committee member (promotion and tenure, awards, etc.)
2016–	Department	Graduate recruitment committee member
2020–2023	Department	Junior faculty mentor
2019–2020	Department	Astronomy faculty search committee chair
2017–2018	Department	Gravity faculty search committee chair
2017–2018	Department	Astronomy faculty search committee member
2016–2018	Department	Graduate exams committee member
2015–2018	Department	Web committee member

Penn State:

2011–2015	Department	Chair of the web/IT committee
2010–2015	Department	Member of the graduate recruiting committee
2008–2011	College of Science	Director of the Center for Gravitational-Wave Physics
2006–2009	Department	Member of the graduate recruiting committee
2007–2008	Department	Member of the graduate candidacy committee
2004–2006	Department	Chair of the graduate recruiting committee
2002–2005	Department	Member of the colloquium committee
2003–2004	Department	Member of the graduate recruiting committee

Service to profession [[back to contents](#)]

- Journal referee for Adv. Space Res., Astrophys. J., Astrophys. J. Lett., Astrophys. Space Sci., Class. Quantum Grav., J. Cosmol. Astroparticle Phys., Mon. Not. Roy. Astron. Soc., Phys. Rev. C, Phys. Rev. D, Phys. Rev. Lett.
- Book reviewer for Cambridge University Press, Institute of Physics, Physics Today
- Grant reviewer for Indo-US Science and Technology Forum, Marsden Fund (New Zealand), NASA (US; postdoctoral program), National Science Foundation (US; gravity program, PHY

CAREER program, PFC program, PIF program), NWO (Netherlands), PPARC and STFC (United Kingdom)

- Grant panel reviewer for National Science Foundation (US; gravity program, PFC program, AST CAREER program)
- Scientific organizing committee member (or equivalent) for 13 meetings, ranging from working groups of the LSC (~20 participants) to the East Coast Gravity Meeting (~90 participants) to the international Gravitational Wave Physics and Astronomy Workshop (~200 participants); main organizer for 4 of those
- External tenure and/or promotion reviewer for 6 cases
- NASA Time Domain and Multimessenger Astrophysics COMMS Science Analysis Group member

Outreach, media, and diversity [[back to contents](#)]

Includes outreach to the public and to fields other than astronomy or gravitational physics.

- 2022– Representative of Cosmic Explorer in the Multimessenger Diversity Network
- 2003– Research advisor for minority undergrads, grads, and postdocs
- 2023 Television interview, LIGO and Cosmic Explorer, KLBK Lubbock
- 2022 Webmaster for the Cosmic Explorer consortium
- 2018 Invited talk on r -modes, Institute for Nuclear Theory Workshop on Astro-Solids, University of Washington, Seattle, WA
- 2018 Invited LIGO talk, Acoustical Society of America meeting, New Orleans, LA
- 2018 Invited LIGO talk, STEMinar, Texas Tech University, Lubbock, TX
- 2018 Television interview, In Memoriam Stephen Hawking, Fox 34 Lubbock
- 2018 Newspaper interview, In Memoriam Stephen Hawking, [Lubbock Avalanche-Journal](#)
- 2018 Television interview, In Memoriam Stephen Hawking, KCBD Lubbock
- 2017 Invited talk on differential geometry and signal processing, Texas Tech Math Department
- 2017 Invited talk on gravitational waves and neutron stars, WAVES 2017 Conference at University of Minnesota, Minneapolis, MN
- 2016 Newspaper interview, LIGO discovery of gravitational waves, [Amarillo Globe-News](#)
- 2016 Newspaper interview, LIGO discovery of gravitational waves, Lubbock Avalanche-Journal
- 2016 Television online article, LIGO discovery of gravitational waves, [KCBD Lubbock](#)
- 2016 Radio interview, LIGO discovery of gravitational waves, KTTZ Lubbock
- 2014 Volunteer exhibitor, Astronomy Night on the National Mall, Washington, DC
- 2014 LIGO games and demo exhibitor, American Astronomical Society meeting, Boston, MA
- 2009 Invited talk on gravitational waves and neutron star matter, PREx (nuclear physics) workshop, Trento, Italy
- 2008 Invited talk on gravitational waves and neutron star crusts, PREx (nuclear physics) workshop, Jefferson Lab, Virginia
- 2008–2013 Chair of the web committee of the LIGO Scientific Collaboration, building <http://www.ligo.org> including science summaries for the public in English and Spanish
- 2007 Invited talk on continuous gravitational waves, European Center for Theoretical Studies workshop on matter at extreme densities, Trento, Italy

- 2004–2006 Consultant to “Ask A Physicist,” an American Physical Society web outreach project for the World Year of Physics
- 1999 Sonified binary merger gravitational waves for Westdeutscher Rundfunk (West German Broadcasting) TV show “Quarks & Co.”

Invited seminars and colloquia [[back to contents](#)]

71. *Multi-messenger astrophysics from LIGO to Cosmic Explorer*; **University of Wisconsin-Milwaukee**, Physics colloquium on May 3, 2023.
70. *Binary mergers and beyond, from LIGO to Cosmic Explorer*; **The Pennsylvania State University**, Physics colloquium on September 1, 2022.
69. *What happens next? Gravitational waves beyond binary mergers*; **Georgia Institute of Technology**, Physics colloquium on February 28, 2022.
68. *Continuous gravitational waves, or all ten volumes of Landau and Lifschitz*; **Carnegie Mellon University** (virtual), Physics colloquium on April 22, 2021.
67. *The latest Nobel Prize in physics: Black holes (Roger Penrose)*; **Texas Tech University** (virtual), Physics and Astronomy colloquium on April 13, 2021.
66. *Detection of gravitational waves from binary black holes and binary neutron stars*; **Texas Tech University**; STEMinar on November 27, 2017.
65. *Differential geometry, statistics, and gravitational waves*; **Texas Tech University**, Mathematics colloquium on November 16, 2017.
64. *Observation of gravitational waves from a binary black hole merger*; **Texas A&M University**, Physics colloquium on May 2, 2016.
63. *Observation of gravitational waves from a binary black hole merger*; **Texas Tech University**, Physics colloquium on March 10, 2016.
62. *Gravitational waves from neutron stars, and oh yeah black holes too*; **Texas A&M University - Commerce**, Physics colloquium on February 18, 2016.
61. *Gravitational waves from neutron stars*; **University of Texas Dallas**, Physics colloquium on December 2, 2015.
60. *Gravitational waves from neutron stars*; **Trinity University**, Physics and Astronomy colloquium on March 24, 2015.
59. *Gravitational waves from young neutron stars*; **George Washington University**, Physics and Astronomy colloquium on May 8, 2014.
58. *Gravitational waves from young neutron stars*; **Texas Tech University**, Physics colloquium on April 15, 2014.
57. *Gravitational waves from young neutron stars*; **Florida Atlantic University**, Physics colloquium on March 13, 2014.

56. *The long and short of the matter: Gravitational waves from neutron stars*; **George Washington University**, Physics and Astronomy colloquium on October 18, 2012.
55. *The long and short of the matter: Gravitational waves from neutron stars*; **The Pennsylvania State University**, Physics colloquium on September 6, 2012.
54. *Gravitational waves from magnetar flares*; **The Pennsylvania State University**, Gravitational waves seminar on January 18, 2011.
53. *First search for gravitational waves from the youngest neutron star - and r-modes!*; **The Pennsylvania State University**, Gravitational waves seminar on October 5, 2010.
52. *Probing neutron stars with gravitational waves*; **California Institute of Technology**, Gravitational wave seminar on March 2, 2010.
51. *Why LIGO results are already interesting*; **University of Maryland**, Gravity seminar on February 18, 2010.
50. *Why LIGO results are already interesting and Virgo soon will be*; **University of Rome "Sapienza,"** Gravitational waves seminar on December 18, 2009.
49. *Why LIGO results are already interesting*; **University of Jena (Germany)**, Joint astro/relativity seminar on November 11, 2009.
48. *Probing neutron stars with continuous gravitational waves*; **California Institute of Technology**, Theoretical astrophysics seminar on March 19, 2009.
47. *Why LIGO results are already interesting*; **Syracuse University**, Gravity seminar on July 11, 2008.
46. *Why LIGO results are already interesting*; **Ohio University**, Nuclear astrophysics seminar on June 3, 2008.
45. *Why LIGO results are already interesting*; **Indiana University**, Physics colloquium on April 2, 2008.
44. *Why LIGO results are already interesting*; **Rochester Institute of Technology**, Astrophysics seminar on March 10, 2008.
43. *Learning about neutron stars with LIGO*; **Washington University in St. Louis**, Theory seminar on February 14, 2008.
42. *Why LIGO results are already interesting*; **Washington University in St. Louis**, Physics colloquium on February 13, 2008.
41. *Why LIGO results are already interesting*; **Columbia University**, Astrophysics seminar on February 5, 2008.
40. *Why LIGO results are already interesting*; **The Pennsylvania State University**, Physics colloquium on August 30, 2007.
39. *Why LIGO results are already interesting*; **Stanford Linear Accelerator Center**, Astrophysics seminar on July 23, 2007.

38. *Why LIGO results are already interesting*; **University of Melbourne (Australia)**, Astrophysics seminar on June 27, 2007.
37. *Why LIGO results are already interesting*; **Mt. Stromlo Observatory (Australia)**, Astronomy seminar on June 21, 2007.
36. *Why LIGO results are already interesting*; **California Institute of Technology**, Theoretical astrophysics seminar on June 14, 2007.
35. *Why LIGO results are already interesting*; **University of Texas Brownsville**, Gravity seminar on June 6, 2007.
34. *Why LIGO results are already interesting*; **Northwestern University**, Theoretical astrophysics seminar on May 24, 2007.
33. *Why LIGO results are already interesting*; **University of Wisconsin - Milwaukee**, Physics colloquium on March 15, 2007.
32. *What gravitational waves and photon astronomy can say about neutron stars*; **The Pennsylvania State University**, Gravity seminar on February 12, 2007.
31. *How high a hill can you make on a neutron star?*; **Max Planck Institute for Gravitational Physics (Golm, Germany)**, Astrophysical relativity seminar on August 3, 2006.
30. *How neutron stars emit gravitational waves*; **Beijing Normal University**, Physics colloquium on July 14, 2006.
29. *What gravitational waves and photon astronomy can say about neutron stars*; **Peking University**, Astronomy colloquium on July 12, 2006.
28. *What gravitational waves and photon astronomy can say about neutron stars*; **Beijing Normal University**, Astronomy colloquium on July 11, 2006.
27. *How neutron stars emit gravitational waves*; **Peking University**, Physics colloquium on July 10, 2006.
26. *How high a hill can you make on a neutron star?*; **University of Wisconsin - Milwaukee**, Gravity seminar on May 26, 2006.
25. *What science can initial LIGO do with pulsars?*; **The Pennsylvania State University**, Gravitational waves seminar on November 10, 2005.
24. *Gravitational waves from rotating neutron stars*; **University of Tuebingen (Germany)**, Mathematics and Physics colloquium on October 28, 2005.
23. *How big a bump can you make on a neutron star?*; **The Pennsylvania State University**, Gravity seminar on February 14, 2005.
22. *R-modes in rapidly accreting neutron stars as sources of gravitational waves*; **Cornell University**, Astronomy colloquium on October 7, 2004.
21. *R-modes in accreting neutron stars as sources of gravitational waves*; **University of Wisconsin - Milwaukee**, Relativity seminar on August 12, 2004.

20. *R-modes in accreting neutron stars as sources of gravitational waves*; **University of Birmingham (England)**, Astrophysics and space science seminar on July 26, 2004.
19. *R-modes as sources of gravitational waves in accreting neutron stars*; **Kavli Institute for Theoretical Physics / U. California Santa Barbara**, Astrophysics seminar on May 20, 2004.
18. *Gravitational waves from precessing binaries*; **California Institute of Technology**, Gravitational waves seminar on May 18, 2004.
17. *The Post-Newtonian approximation to general relativity*; **The Pennsylvania State University**, Gravitational waves seminar on October 9, 2002.
16. *How the weak interaction can prevent gravitational waves*; **The Pennsylvania State University**, Gravity seminar on October 7, 2002.
15. *How the weak interaction can prevent gravitational waves*; **The Pennsylvania State University**, Astronomy seminar on September 24, 2002.
14. *The r-mode instability, or how the Coriolis force makes gravitational waves*; **University of California at Santa Barbara**, Physics colloquium on March 6, 2002.
13. *The r-mode instability, or how the Coriolis force makes gravitational waves*; **University of Wisconsin - Milwaukee**, Physics colloquium in March 2002.
12. *The r-mode instability, or how the Coriolis force makes gravitational waves*; **The Pennsylvania State University**, Gravity seminar on February 11, 2002.
11. *Gravitational waves from neutron star r-modes*; **Massachusetts Institute of Technology**, Astrophysics colloquium on January 17, 2002.
10. *How strange particles can prevent gravitational radiation*; **Max Planck Institute for Gravitational Physics (Golm, Germany)**, Astrophysical relativity seminar in August 2001.
9. *Effect of hyperon bulk viscosity on neutron-star r-modes*; **University of Illinois at Urbana-Champaign**, Nuclear astrophysics seminar on October 17, 2000.
8. *Post-Newtonian approximations in general relativity*; **Charles University (Prague)**, Relativity seminar on May 9, 2000.
7. *The r-mode instability: How the Coriolis force makes gravitational waves*; **Charles University (Prague)**, Physics colloquium on May 9, 2000.
6. *Post-Newtonian spin effects on compact binaries*; **University of Wisconsin - Milwaukee**, Gravity seminar in July 1999.
5. *Slow-rotation expansion of neutron-star r-modes*; **Max Planck Institute for Gravitational Physics (Golm, Germany)**, Astrophysical relativity seminar in March 1999.
4. *Data analysis requirements for binary inspiral searches*; **National Astronomical Observatory (Japan)**, Gravitational waves seminar in August 1997.
3. *LIGO's search for inspiraling binaries: Computational power requirements*; **California Institute of Technology**, LIGO seminar in November 1995.

2. *And now for something completely different: Gravity waves*; **Sonoma State University (California)**, Physics and Astronomy colloquium on September 11, 1995.
1. *Seeing the universe through infrared glasses*; **Sonoma State University (California)**, Physics and Astronomy colloquium on September 21, 1992.

Invited conference talks [\[back to contents\]](#)

56. *New discovery frontiers of gravitational waves*; virtual, **15th Edoardo Amaldi Conference on Gravitational Waves** on July 21, 2023.
55. *Multi-messenger astrophysics with continuous gravitational waves in the XG era*; Minneapolis, Minnesota, **American Physical Society meeting** on April 16, 2023.
54. *What can we learn from isolated neutron stars in the XG era?*; Aspen, Colorado, **Aspen Center for Physics summer workshop** on June 28, 2022.
53. *Recent searches for continuous gravitational waves*; Hanover, Germany (virtual), **Gravitational Wave Physics and Astronomy Workshop** on December 14, 2021.
52. *Searches for continuous gravitational waves from fifteen supernova remnants and Fomalhaut b with Advanced LIGO*, virtual, **LIGO Scientific Collaboration** on November 30, 2018.
51. *How we look for r-modes (and what we can learn from them)*; University of Washington, **Institute for Nuclear Theory Workshop on Astro-Solids** on April 18, 2018.
50. *Gravitational wave sources and data analysis*; New Orleans, LA, **174th Meeting of the Acoustical Society of America** on December 7, 2017.
49. *Gravitational waves, LIGO, and Virgo*; University of Texas Dallas, **meeting of the Texas Section of the American Physical Society** on October 21, 2017.
48. *Using gravitational waves to understand the physics of neutron stars*; Minneapolis, Minnesota, **WAVES 2017 Conference** on May 16, 2017.
47. *LIGO-band gravitational waves and neutron stars*; Baltimore, Maryland, **2nd Workshop on US Radio/Millimeter/Submillimeter Futures** on August 4, 2016.
46. *Gravitational waves from neutron stars*; Texas A&M University, **Workshop on Building Astronomy in Texas** on September 27, 2015.
45. *Theory of continuous gravitational wave sources*; University of Rome “Sapienza”, **14th Marcel Grossmann Meeting** on July 16, 2015.
44. *Continuous gravitational waves and neutron star microphysics*; Galileo Galilei Institute for Theoretical Physics, **Conference on Neutron Star Structure and Signals** on March 28, 2014.
43. *The long and short of the matter: Gravitational waves from neutron stars*; Stockholm, Sweden, **13th Marcel Grossmann Meeting** on July 2, 2012.
42. *Directed searches for continuous waves*; Boston, MA, **4th Neutron Stars and Gravitational Waves Workshop** on May 22, 2011.

41. *Astrophysical motivation for present search strategies*; Boston, MA, **4th Neutron stars and Gravitational Waves workshop** on May 22, 2011.
40. *Continuous gravitational waves from spinning neutron stars*; Big Bear Lake, California, **Caltech GW/EM astronomy retreat** on March 23, 2010.
39. *Targets for directed searches*; Arcadia, California, **LIGO and Virgo Collaboration meeting** on March 12, 2011.
38. *How astronomy and astrophysics affect continuous wave searches*; Arcadia, California, **LIGO and Virgo Collaboration meeting** on March 16, 2010.
37. *Should we send continuous-wave candidates for EM follow-up?*; Arcadia, California, **LIGO and Virgo Collaboration meeting** on March 14, 2010.
36. *Continuous gravitational waves from neutron stars*; University of Rome "Sapienza", **14th Gravitational Wave Data Analysis Workshop** on January 28, 2010.
35. *Why it's worth it to narrowband*; Eotvos University, Budapest, **LIGO and Virgo collaboration meeting** on September 20, 2009.
34. *Gravitational waves and neutron star matter*; ECT* Trento, Italy, **PREx workshop** on August 6, 2009.
33. *"Permanent" neutron-star quadrupoles*; Paris, **12th Marcel Grossmann Meeting** on July 16, 2009.
32. *Parity violating gravitational waves*; Case Western Reserve University, **Tests of Gravity workshop** on May 21, 2009.
31. *Interactions between gravitational waves and photon astronomy (periodic signals)*; San Juan, Puerto Rico, **3rd LSC / Neutron Star Experts Workshop** on January 18, 2009.
30. *Gravitational waves and neutron star crusts*; Jefferson Lab, Virginia, **PREx workshop** on August 18, 2008.
29. *Interactions between gravitational waves and photon astronomy (periodic signals)*; Albert Einstein Institute, Hannover, **LSC / neutron star experts workshop** on October 20, 2007.
28. *How LIGO and pulsar astronomy can complement each other right now ... and in the era of SKA*; National Astronomy and Ionosphere Center, **Chicago-3 workshop** on September 14, 2007.
27. *Compact objects as sources of periodic gravitational waves*; European Center for Theoretical Studies, Trento, Italy, **Workshop on matter at extreme densities and gravitational waves from compact objects** on September 11, 2007.
26. *Periodic signals science progress and plans*; Baton Rouge, Louisiana, **LIGO Science Collaboration meeting** on March 20, 2007.
25. *Spin and eccentricity: As if post-Newtonian weren't bad enough*; Washington University in St. Louis, **Numerical Relativity meets 3PN workshop** on February 9, 2007.

24. *How LIGO searches are affected by astrophysical predictions and astronomical observations*; MIT, **LIGO / pulsar experts workshop** on November 2, 2006.
23. *What can gravitational waves tell us about neutron stars?*; University of Wisconsin - Madison, **TeV Astrophysics Conference** on August 30, 2006.
22. *Gravitational waves from rapidly rotating neutron stars (theory)*; Technical University of Berlin, **11th Marcel Grossmann Meeting** on July 25, 2006.
21. *Are we getting all the astrophysics we can out of the data?*; Massachusetts Institute of Technology, **LIGO Science Collaboration meeting** on June 4, 2006.
20. *The fastest young pulsar*; LIGO Hanford Observatory, **LIGO Science Collaboration meeting** on March 22, 2006.
19. *Theoretical prospects for observing a pulsar*; LIGO Hanford Observatory, **LIGO Science Collaboration meeting** on March 20, 2006.
18. *Where should we look?*; Massachusetts Institute of Technology, **LIGO Science Collaboration Pulsar Group meeting** on November 18, 2005.
17. *Sources of gravitational waves for ground-based detectors*; Nago, Japan, **6th Edoardo Amaldi Conference on Gravitational Waves** on June 20, 2005.
16. *Implications of GW Observations for Neutron Star Physics*; The Pennsylvania State University, **Gravitational Wave Phenomenology Workshop** on November 6, 2003.
15. *Making waves on neutron stars: The gravitational-wave instability*; The Pennsylvania State University, **Gravitation: A decennial perspective** on June 8, 2003.
14. *Gravitational waves from compact objects*; LIGO Livingston Observatory, **LIGO Program Advisory Committee meeting** on December 5, 2002.
13. *Show-stopper viscosities*; The Pennsylvania State University, **CGWP focus session on instabilities of neutron stars** on October 23, 2002.
12. *The advantages of a well-modeled signal*; LIGO Livingston Observatory, **LIGO Science Collaboration meeting** in March 2002.
11. *The problem with precession*; LIGO Livingston Observatory, **LIGO Science Collaboration meeting** in March 2001.
10. *Searching for precessing binaries*; Louisiana State University, **Gravitational wave data analysis workshop** on December 14, 2000.
9. *The r-modes are a burst source*; Louisiana State University, **Gravitational wave data analysis workshop** on December 14, 2000.
8. *LIGO-II detectability of r-modes in young neutron stars*; University of California at Santa Barbara, **ITP workshop on Spin and Magnetism in Young Neutron Stars** on August 29, 2000.
7. *How can the r-modes prevent crust formation?*; University of California at Santa Barbara, **ITP mini-program on r-modes** on August 2, 2000.

6. *Crust formation and the r-mode instability (in young neutron stars)*; University of Rome “Sapienza”, **Marcel Grossmann meeting** in July 2000.
5. *Gravitational waves from disturbed neutron stars*; California Institute of Technology, **KipFest** in June 2000.
4. *Latest news on continuous-wave sources*; LIGO Livingston Observatory, **LIGO Science Collaboration meeting** in March 2000.
3. *Gravitational waves from the r-modes of rapidly rotating neutron stars*; California Institute of Technology, **3rd Edoardo Amaldi conference on gravitational waves** in July 1999.
2. *Computational costs of binary searches*; Linear Accelerator Laboratory (France), **Gravitational wave data analysis workshop** on November 13, 1997.
1. *Matched filtering binary search*; Massachusetts Institute of Technology, **Gravitational wave data analysis workshop** in December 1996.

Contributed conference talks [\[Back to quick links\]](#)

51. *Detectability of continuous gravitational waves with future interferometers*, Amsterdam, The Netherlands, **NIKHEF multi-messenger continuous gravitational waves workshop** on July 12, 2023.
50. *Multi-messenger astronomy with continuous gravitational waves now and in the 2030s*, Albuquerque, NM, **242nd American Astronomical Society meeting** on June 6, 2023.
49. *Continuous gravitational waves from supernova remnants: NS 1987A in SNR 1987A*, New York, NY, **American Physical Society meeting** on April 9, 2022.
48. *TTU directed searches for continuous gravitational waves*, remotely at **Texas Section of the American Physical Society meeting** on October 23 2021.
47. *Directed searches for continuous gravitational waves*, virtual **14th Edoardo Amaldi Conference on Gravitational Waves** on July 20, 2021.
46. *Directed searches for continuous gravitational waves*, virtual **American Physical Society meeting** on April 20, 2021.
45. *Texas Tech plans for O3*, Lake Geneva, WI, **LIGO-Virgo Collaboration meeting** on March 19, 2019.
44. *Final update on O1 searches for supernova remnants and Fomalhaut b*, remotely at **LIGO-Virgo Collaboration meeting** on September 4, 2018.
43. *Update on O1 Directed Searches–SNRs + Fomalhaut B*, Rohnert Park, CA, **LIGO-Virgo Collaboration meeting** on March 19, 2018.
42. *LIGO and Virgo searches for continuous gravitational waves*, National Harbor, MD, **231st American Astronomical Society meeting** on January 10, 2018.
41. *Searches for continuous gravitational waves with Advanced LIGO*, Salt Lake City, UT, **American Physical Society meeting** on April 18, 2016.

40. *R-mode frequencies of slowly rotating relativistic neutron stars with realistic equations of state*, Baltimore, MD, **American Physical Society meeting** on April 13, 2015.
39. *Cas A and friends: directed searches for continuous waves from isolated neutron stars*, Gainesville, FL, **8th Gulf Coast Gravity Meeting** on February 28, 2015.
38. *Cas A and friends: directed searches for continuous waves from isolated neutron stars*, Savannah, GA, **American Physical Society meeting** on April 5, 2014.
37. *Astronomical guidance for directed searches for continuous gravitational waves*, Washington, DC, **223rd American Astronomical Society meeting** on January 7, 2014.
36. *Astronomical guidance for directed searches for continuous gravitational waves*, Warsaw, Poland, **20th General Relativity & 10th Amaldi Conference** on July 9, 2013.
35. *How high a hill can you make on a neutron star?*, Warsaw, Poland, **20th General Relativity & 10th Amaldi Conference** on July 8, 2013.
34. *Post Cas A coherent directed searches*, Bethesda, MD, **LIGO and Virgo collaboration meeting** on March 18, 2013.
33. *Cas A & friends*, Cambridge, MA, **LIGO and Virgo collaboration meeting** on March 19, 2012.
32. *Post Cas A S6 searches*, Gainesville, FL, **LIGO Scientific Collaboration meeting** on September 24, 2011.
31. *Gravitational waves from neutron stars in our galaxy*, Bremen, Germany, **38th COSPAR Assembly** on July 18, 2010.
30. *First search for gravitational waves from the youngest known neutron star*, Washington, DC, **American Physical Society Meeting** on February 13, 2010.
29. *Directed search targets*, Eotvos University, Budapest, **LIGO and Virgo meeting** on September 19, 2009.
28. *Finishing Cas A*, Eotvos University, Budapest, **LIGO and Virgo meeting** on September 19, 2009.
27. *How photon astronomy affects searches for continuous gravitational waves*, Puerto Rico, **13th Gravitational Wave Data Analysis Workshop** on January 21, 2009.
26. *Stacking gravitational waves from SGR bursts*, Puerto Rico, **13th Gravitational Wave Data Analysis Workshop** on January 19, 2009.
25. *How LIGO can follow up observations of young neutron stars*, Montreal, Canada, **37th COSPAR Assembly** on July 18, 2008.
24. *What can LIGO say about mountains on pulsars?*, St. Louis, **American Physical Society meeting** on April 13, 2008.
23. *How photon astronomy affects searches for continuous gravitational waves*, MIT, **12th Gravitational Wave Data Analysis Workshop** on December 13, 2007.

22. *How LIGO and pulsar astronomy can complement each other right now*, McGill University, **40 Years of Neutron Stars meeting** on August 17, 2007.
21. *Gravitational waves from rotating neutron stars*, Penn State, **IGC Inaugural Conference** on August 11, 2007.
20. *Gravitational waves from low-mass x-ray binaries revisited*, Sydney, Australia, **18th General Relativity & 7th Amaldi Conference** on July 12, 2007.
19. *Big mountains on neutron stars*, Cornell University, **Eastern Gravity Meeting** on June 1, 2007.
18. *Einstein@Home's search for spinning neutron stars*, Jacksonville, FL, **American Physical Society meeting** on April 17, 2007.
17. *How LIGO and photon astronomy can complement each other right now*, Beijing Institute of Technology, **36th COSPAR (Committee on Space Research) Assembly** on July 19, 2006.
16. *How big a bump can you make on a neutron star?*, Dallas, Texas, **American Physical Society meeting** on April 17, 2005.
15. *The pulsar upper limits are already interesting!*, LIGO Livingston Observatory, **LIGO Science Collaboration meeting** on March 23, 2005.
14. *The r-modes look good again in accreting neutron stars*, LIGO Hanford Observatory, **LIGO Science Collaboration meeting** on August 19, 2004.
13. *When do the pulsar upper limits get interesting?*, LIGO Hanford Observatory, **LIGO Science Collaboration meeting** on August 18, 2004.
12. *R-modes in accreting neutron stars as sources of gravitational waves*, Dublin, Ireland, **17th Conference on General Relativity and Gravitation** on July 22, 2004.
11. *Template placement for precessing binaries*, LIGO Livingston Observatory, **LIGO Science Collaboration meeting** on March 18, 2004.
10. *Data analysis strategies for precessing binaries*, Philadelphia, **American Physical Society meeting** on April 6, 2003.
9. *Radiation reaction on fluid bodies*, University College (Dublin), **Black holes and gravitational waves workshop** in August 1999.
8. *Gravitational waves from neutron-star r-modes*, Linear Accelerator Laboratory (France), **Moriond Workshop on Gravitational Waves and Experimental Gravity** in January 1999.
7. *Gravitational waves from hot young rapidly rotating neutron stars*, University of Oregon at Eugene, **14th Pacific Coast Gravity Meeting** in March 1998.
6. *Hierarchical search strategies for gravitational waves from binary inspiral*, University of Pune (India), **15th General Relativity and Gravitation conference** on December 16, 1997.

5. *Gravitational waves from (binary) spinning point masses*, University of California at Santa Barbara, **13th Pacific Coast Gravity Meeting** on March 22, 1997.
4. *Matched filtering to detect gravitational waves from inspiraling binaries: Genetic algorithms vs brute force*, University of Utah, **12th Pacific Coast Gravity Meeting** in March 1996.
3. *Searching for coalescing binaries: Templates, strategies, computing requirements*, Aspen Center for Physics, **Aspen Winter Conference** on January 18, 1996.
2. *A parameter-space metric for matched filtering*, Pennsylvania State University, **Conference on astrophysical sources of gravitational waves** in July 1995.
1. *Templates for LIGO's search for coalescing binaries*, California Institute of Technology, **11th Pacific Coast Gravity Meeting** in March 1995.

Selected refereed publications [\[back to contents\]](#)

My recently updated publications are usually best viewed at [this INSPIRES link](#). Here I have selected refereed small author list papers and refereed big collaboration papers to which I made a direct contribution (noted at the end of each entry). Some papers have notes on publicity or students.

- [1] **Owen, Benjamin J.**, Lee Lindblom, Luciano Soares Pinheiro, and Binod Rajbhandari. Improved Upper Limits on Gravitational Wave Emission from NS 1987A in SNR 1987A. arXiv:2310.19964.
- [2] Ish Gupta et al. Characterizing Gravitational Wave Detector Networks: From A[#] to Cosmic Explorer. arXiv:2307.10421 [**Lead section on discovery potential of new sources**].
- [3] **Owen, Benjamin J.**, Lee Lindblom, and Luciano Soares Pinheiro. First Constraining Upper Limits on Gravitational-wave Emission from NS 1987A in SNR 1987A. *Astrophys. J. Lett.*, 935(1):L7, 2022. [**Featured in AAS Nova**].
- [4] P. B. Covas, M. A. Papa, R. Prix, and **Owen, B. J.** Constraints on r-modes and Mountains on Millisecond Neutron Stars in Binary Systems. *Astrophys. J. Lett.*, 929(2):L19, 2022.
- [5] Binod Rajbhandari, **Owen, Benjamin J.**, Santiago Caride, and Ra Inta. First searches for gravitational waves from r-modes of the Crab pulsar. *Phys. Rev. D*, 104(12):122008, 2021. [**Lead author was my graduate student**].
- [6] Lee Lindblom and **Owen, Benjamin J.** Directed searches for continuous gravitational waves from twelve supernova remnants in data from Advanced LIGO's second observing run. *Phys. Rev. D*, 101(8):083023, 2020.
- [7] B.P. Abbott et al. Model comparison from LIGO–Virgo data on GW170817's binary components and consequences for the merger remnant. *Class. Quant. Grav.*, 37(4):045006, 2020. [**Member of the paper writing team**].
- [8] Santiago Caride, Ra Inta, **Owen, Benjamin J.**, and Binod Rajbhandari. How to search for gravitational waves from *r*-modes of known pulsars. *Phys. Rev. D*, 100(6):064013, 2019. [**Lead author was my postdoc**].

- [9] B.P. Abbott et al. Directional limits on persistent gravitational waves using data from Advanced LIGO's first two observing runs. *Phys. Rev. D*, 100(6):062001, 2019. [**Followed up a signal candidate**].
- [10] B.P. Abbott et al. Searches for Gravitational Waves from Known Pulsars at Two Harmonics in 2015-2017 LIGO Data. *Astrophys. J.*, 879(1):10, 2019. [**Assisted with Crab pulsar timing glitch**].
- [11] B.P. Abbott et al. Searches for Continuous Gravitational Waves from 15 Supernova Remnants and Fomalhaut b with Advanced LIGO. *Astrophys. J.*, 875(2):122, 2019. [**Selected targets, ran searches, and wrote paper**].
- [12] B.P. Abbott et al. GW170817: Measurements of neutron star radii and equation of state. *Phys. Rev. Lett.*, 121(16):161101, 2018. [**Contributed to equation of state review**].
- [13] B.P. Abbott et al. GW170817: Observation of Gravitational Waves from a Binary Neutron Star Inspiral. *Phys. Rev. Lett.*, 119(16):161101, 2017. [**Member of equation of state review team, assisted with publicity**]. [**Featured in [Physics 10, 114](#)**].
- [14] B.P. Abbott et al. GW170104: Observation of a 50-Solar-Mass Binary Black Hole Coalescence at Redshift 0.2. *Phys. Rev. Lett.*, 118(22):221101, 2017. [Erratum: *Phys.Rev.Lett.* 121, 129901 (2018)]. [**Member of tests of relativity review team**]. [**Featured in [Physics 10, s60](#)**].
- [15] T.D. Abbott et al. Search for continuous gravitational waves from neutron stars in globular cluster NGC 6544. *Phys. Rev. D*, 95(8):082005, 2017. [**Selected target, supervised lead author Santiago Caride toward end**].
- [16] B.P. Abbott et al. Observation of Gravitational Waves from a Binary Black Hole Merger. *Phys. Rev. Lett.*, 116(6):061102, 2016. [**Contributed to text and publicity**]. [**Featured in [Physics 9, 17](#)**].
- [17] Robert Coyne, Alessandra Corsi, and **Owen, Benjamin J.** Cross-correlation method for intermediate duration gravitational wave searches associated with gamma-ray bursts. *Phys. Rev. D*, 93(10):104059, 2016.
- [18] J. Aasi et al. Searches for continuous gravitational waves from nine young supernova remnants. *Astrophys. J.*, 813(1):39, 2015. [**Selected targets, ran searches, wrote paper**].
- [19] J. Aasi et al. Directed search for gravitational waves from Scorpius X-1 with initial LIGO data. *Phys. Rev. D*, 91(6):062008, 2015. [**Assisted supervision of lead author Letizia Sammut**].
- [20] Ashikuzzaman Idrisy, **Owen, Benjamin J.**, and David I. Jones. *R*-mode frequencies of slowly rotating relativistic neutron stars with realistic equations of state. *Phys. Rev. D*, 91(2):024001, 2015. [**Lead author was my graduate student**].
- [21] J. Aasi et al. First Searches for Optical Counterparts to Gravitational-wave Candidate Events. *Astrophys. J. Suppl.*, 211:7, 2014. [**Chaired burst review committee**].
- [22] L. Sammut, C. Messenger, A. Melatos, and **Owen, B.J.** Implementation of the frequency-modulated sideband search method for gravitational waves from low mass X-ray binaries. *Phys. Rev. D*, 89(4):043001, 2014.

- [23] J. Aasi et al. Gravitational waves from known pulsars: results from the initial detector era. *Astrophys. J.*, 785:119, 2014. [**Helped interface with pulsar astronomers**].
- [24] J. Aasi et al. Directed search for continuous gravitational waves from the Galactic center. *Phys. Rev. D*, 88(10):102002, 2013. [**Contributed to text**].
- [25] Drew Keppel, Andrew P. Lundgren, **Owen, Benjamin J.**, and Hanyuan Zhu. Parameter space metric for 3.5 post-Newtonian gravitational-waves from compact binary inspirals. *Phys. Rev. D*, 88:063002, 2013.
- [26] M.W.E. Smith et al. The Astrophysical Multimessenger Observatory Network (AMON). *Astropart. Phys.*, 45:56–70, 2013. [**Advised lead author on GW bursts**].
- [27] Nathan K. Johnson-McDaniel and **Owen, Benjamin J.** Maximum elastic deformations of relativistic stars. *Phys. Rev. D*, 88:044004, 2013. [**Lead author was my graduate student**].
- [28] S. Adrian-Martinez et al. A First Search for coincident Gravitational Waves and High Energy Neutrinos using LIGO, Virgo and ANTARES data from 2007. *JCAP*, 06:008, 2013. [**Chaired burst review committee**].
- [29] J. Aasi et al. Einstein@Home all-sky search for periodic gravitational waves in LIGO S5 data. *Phys. Rev. D*, 87(4):042001, 2013. [**Helped set up search**].
- [30] P.A. Evans et al. Swift follow-up observations of candidate gravitational-wave transient events. *Astrophys. J. Suppl.*, 203:28, 2012. [**Chaired burst review committee**].
- [31] J. Abadie 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. [**Chaired burst review committee**].
- [32] J. Abadie et al. All-sky search for gravitational-wave bursts in the second joint LIGO-Virgo run. *Phys. Rev. D*, 85:122007, 2012. [**Chaired burst review committee**].
- [33] J. Abadie et al. Search for Gravitational Waves from Intermediate Mass Binary Black Holes. *Phys. Rev. D*, 85:102004, 2012. [**Chaired burst review committee**].
- [34] J. Abadie et al. Implications For The Origin Of GRB 051103 From LIGO Observations. *Astrophys. J.*, 755:2, 2012. [**Chaired burst review committee**].
- [35] Nathan K. Johnson-McDaniel and **Owen, Benjamin J.** Shear modulus of the hadron-quark mixed phase. *Phys. Rev. D*, 86:063006, 2012. [Erratum: *Phys.Rev.D* 87, 129903 (2013)]. [**Lead author was my graduate student**].
- [36] J. Abadie et al. All-sky Search for Periodic Gravitational Waves in the Full S5 LIGO Data. *Phys. Rev. D*, 85:022001, 2012. [**Helped write paper**].
- [37] B.P. Abbott et al. Implementation and testing of the first prompt search for gravitational wave transients with electromagnetic counterparts. *Astron. Astrophys.*, 539:A124, 2012. [**Chaired burst review committee**].
- [38] Alessandra Corsi and **Owen, Benjamin J.** Maximum gravitational-wave energy emissible in magnetar flares. *Phys. Rev. D*, 83:104014, 2011.

- [39] J. Abadie et al. Search for Gravitational Wave Bursts from Six Magnetars. *Astrophys. J. Lett.*, 734:L35, 2011. [**Chaired burst review committee**].
- [40] J. Abadie et al. A search for gravitational waves associated with the August 2006 timing glitch of the Vela pulsar. *Phys. Rev. D*, 83:042001, 2011. [**Chaired burst review committee**].
- [41] Lee Lindblom, John G. Baker, and **Owen, Benjamin J.** Improved Time-Domain Accuracy Standards for Model Gravitational Waveforms. *Phys. Rev. D*, 82:084020, 2010.
- [42] J. Abadie et al. First search for gravitational waves from the youngest known neutron star. *Astrophys. J.*, 722:1504–1513, 2010. [**Helped write paper and supervise lead author Karl Wette**].
- [43] **Owen, Benjamin J.** How to adapt broad-band gravitational-wave searches for r-modes. *Phys. Rev. D*, 82:104002, 2010.
- [44] Nicolas Yunes, Richard O’Shaughnessy, **Owen, Benjamin J.**, and Stephon Alexander. Testing gravitational parity violation with coincident gravitational waves and short gamma-ray bursts. *Phys. Rev. D*, 82:064017, 2010. [**Lead author was my graduate student**].
- [45] J. Abadie et al. All-sky search for gravitational-wave bursts in the first joint LIGO-GEO-Virgo run. *Phys. Rev. D*, 81:102001, 2010. [**Chaired burst review committee**].
- [46] B.P. Abbott et al. Searches for gravitational waves from known pulsars with S5 LIGO data. *Astrophys. J.*, 713:671–685, 2010. [**Helped write paper and interface with pulsar astronomers**].
- [47] Nathan K. Johnson-McDaniel, Nicolas Yunes, Wolfgang Tichy, and **Owen, Benjamin J.** Conformally curved binary black hole initial data including tidal deformations and outgoing radiation. *Phys. Rev. D*, 80:124039, 2009. [**Lead author was my graduate student**].
- [48] B.P. Abbott et al. Stacked Search for Gravitational Waves from the 2006 SGR 1900+14 Storm. *Astrophys. J. Lett.*, 701:L68–L74, 2009. [**Member of review team**].
- [49] P. Kalmus, K.C. Cannon, S. Marka, and **Owen, B.J.** Stacking Gravitational Wave Signals from Soft Gamma Repeater Bursts. *Phys. Rev. D*, 80:042001, 2009.
- [50] **Owen, Benjamin J.** How photon astronomy affects searches for continuous gravitational waves. *Class. Quantum Grav.*, 26(20), 4 2009.
- [51] Jocelyn S. Read, Benjamin D. Lackey, **Owen, Benjamin J.**, and John L. Friedman. Constraints on a phenomenologically parameterized neutron-star equation of state. *Phys. Rev. D*, 79:124032, 2009.
- [52] B. Abbott et al. All-sky LIGO Search for Periodic Gravitational Waves in the Early S5 Data. *Phys. Rev. Lett.*, 102:111102, 2009. [**Helped write paper**].
- [53] Lee Lindblom, **Owen, Benjamin J.**, and Duncan A. Brown. Model Waveform Accuracy Standards for Gravitational Wave Data Analysis. *Phys. Rev. D*, 78:124020, 2008.
- [54] B. Abbott et al. Search for Gravitational Wave Bursts from Soft Gamma Repeaters. *Phys. Rev. Lett.*, 101:211102, 2008. [**Helped choose parameters and write paper**].

- [55] B. Abbott et al. Beating the spin-down limit on gravitational wave emission from the Crab pulsar. *Astrophys. J. Lett.*, 683:L45–L50, 2008. [Erratum: *Astrophys.J.Lett.* 706, L203–L204 (2009), Erratum: *Astrophys.J.* 706, L203–L204 (2009)]. [**Helped write paper**].
- [56] B. Abbott et al. The Einstein@Home search for periodic gravitational waves in LIGO S4 data. *Phys. Rev. D*, 79:022001, 2009. [**Helped set up search**].
- [57] K. Wette et al. Searching for gravitational waves from Cassiopeia A with LIGO. *Class. Quant. Grav.*, 25:235011, 2008. [**Picked target and parameters, helped write paper and supervise lead author**].
- [58] B. Abbott et al. Search of S3 LIGO data for gravitational wave signals from spinning black hole and neutron star binary inspirals. *Phys. Rev. D*, 78:042002, 2008. [**Helped code template bank and write paper**].
- [59] B. Abbott et al. All-sky search for periodic gravitational waves in LIGO S4 data. *Phys. Rev. D*, 77:022001, 2008. [Erratum: *Phys.Rev.D* 80, 129904 (2009)]. [**Helped plot results and write paper**].
- [60] B. Abbott 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. D*, 76:062003, 2007. [**Helped review results and write paper**].
- [61] B. Abbott et al. Upper limits on gravitational wave emission from 78 radio pulsars. *Phys. Rev. D*, 76:042001, 2007. [**Helped interface with pulsar astronomers and write paper**].
- [62] B. Abbott 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. D*, 76:082001, 2007. [**Helped check calculations and write paper**].
- [63] **Owen, B.J.** Detectability of periodic gravitational waves by initial interferometers. *Class. Quant. Grav.*, 23:S1–S8, 2006.
- [64] Mohit Nayyar and **Owen, Benjamin J.** R-modes of accreting hyperon stars as persistent sources of gravitational waves. *Phys. Rev. D*, 73:084001, 2006. [**Lead author was my graduate student**].
- [65] Benjamin D. Lackey, Mohit Nayyar, and **Owen, Benjamin J.** Observational constraints on hyperons in neutron stars. *Phys. Rev. D*, 73:024021, 2006. [**Lead author was my undergraduate student**].
- [66] **Owen, Benjamin J.** Maximum elastic deformations of compact stars with exotic equations of state. *Phys. Rev. Lett.*, 95:211101, 2005.
- [67] Nicolas Yunes, Wolfgang Tichy, **Owen, Benjamin J.**, and Bernd Bruegmann. Binary black hole initial data from matched asymptotic expansions. *Phys. Rev. D*, 74:104011, 2006. [**Lead author was my graduate student**].
- [68] B. Abbott et al. Limits on gravitational wave emission from selected pulsars using LIGO data. *Phys. Rev. Lett.*, 94:181103, 2005. [**Helped interface with pulsar astronomers and write paper**].

- [69] B. Abbott et al. Analysis of LIGO data for gravitational waves from binary neutron stars. *Phys. Rev. D*, 69:122001, 2004. [**Helped check code and write paper**].
- [70] **Owen, Benjamin J.** and Lee Lindblom. Gravitational radiation from the r mode instability. *Class. Quant. Grav.*, 19:1247–1254, 2002.
- [71] Lee Lindblom and **Owen, Benjamin J.** Effect of hyperon bulk viscosity on neutron star r modes. *Phys. Rev. D*, 65:063006, 2002.
- [72] Hideyuki Tagoshi, Akira Ohashi, and **Owen, Benjamin J.** Gravitational field and equations of motion of spinning compact binaries to 2.5 postNewtonian order. *Phys. Rev. D*, 63:044006, 2001.
- [73] Lee Lindblom, **Owen, Benjamin J.**, and Greg Ushomirsky. Effect of a neutron star crust on the r mode instability. *Phys. Rev. D*, 62:084030, 2000.
- [74] Bruce Allen et al. Observational limit on gravitational waves from binary neutron stars in the galaxy. *Phys. Rev. Lett.*, 83:1498, 1999. [**Coded template waveforms**].
- [75] Lee Lindblom, Gregory Mendell, and **Owen, Benjamin J.** Second order rotational effects on the r modes of neutron stars. *Phys. Rev. D*, 60:064006, 1999.
- [76] Serge Droz, Daniel J. Knapp, Eric Poisson, and **Owen, Benjamin J.** Gravitational waves from inspiraling compact binaries: Validity of the stationary phase approximation to the Fourier transform. *Phys. Rev. D*, 59:124016, 1999.
- [77] **Owen, Benjamin J.** and B.S. Sathyaprakash. Matched filtering of gravitational waves from inspiraling compact binaries: Computational cost and template placement. *Phys. Rev. D*, 60:022002, 1999.
- [78] **Owen, Benjamin J.**, Lee Lindblom, Curt Cutler, Bernard F. Schutz, Alberto Vecchio, and Nils Andersson. Gravitational waves from hot young rapidly rotating neutron stars. *Phys. Rev. D*, 58:084020, 1998.
- [79] Lee Lindblom, **Owen, Benjamin J.**, and Sharon M. Morsink. Gravitational radiation instability in hot young neutron stars. *Phys. Rev. Lett.*, 80:4843–4846, 1998. [**Featured in Phys. Rev. Focus 1, 18**].
- [80] **Owen, Benjamin J.**, Hideyuki Tagoshi, and Akira Ohashi. Nonprecessional spin orbit effects on gravitational waves from inspiraling compact binaries to second postNewtonian order. *Phys. Rev. D*, 57:6168–6175, 1998.
- [81] **Owen, Benjamin J.** Search templates for gravitational waves from inspiraling binaries: Choice of template spacing. *Phys. Rev. D*, 53:6749–6761, 1996.

Other refereed publications [\[back to contents\]](#)

These refereed publications are large collaborative works to which I contributed only through big collaboration service and/or data taking.

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