

Teviet David Creighton

DATE OF BIRTH 21 SEPTEMBER 1972
CITIZENSHIP CANADIAN

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DEGREES

- 2000 Doctor of Philosophy in theoretical physics
 California Institute of Technology, Adviser: Kip S. Thorne
 Thesis title: *From the Big Bang to Tumbleweeds: Analysis of signals from relic gravitons, neutron stars, and terrestrial gravitational noise in gravitational wave detectors*
- 1994 Bachelor of Science (with first class honours)
 major in Physics and minor in Astrophysics
 University of Calgary, Alberta

EMPLOYMENT

- 2007–present Assistant Professor
 University of Texas at Brownsville
- 2005–2006 Postdoctoral Researcher
 Jet Propulsion Laboratory
- 2001–2005 Postdoctoral Researcher
 California Institute of Technology
- 1999–2001 Postdoctoral Researcher
 University of Wisconsin – Milwaukee
- 1998–1999 Research Assistant
 California Institute of Technology
 (Supervisor: Kip S Thorne)
- 1994–1998 Teaching Assistant
 California Institute of Technology
 (Supervisors: Donald Skelton and Frank Porter)
- 1992–1994 Research Assistant
 University of Calgary
 (Supervisors: David Hobill and Sun Kwok)

AWARDS AND HONORS

1999	Jocelyn Bell Prize for best student presentation at 15th Pacific Coast Gravity Meeting
1997	Jocelyn Bell Prize for best student presentation at 13th Pacific Coast Gravity Meeting
1994–95	Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship (awarded but not received due to studies in the US)
1994	Lieutenant Governor's Gold Medal for highest achievement in the Faculty of Science at University of Calgary
1994	The Department of Physics Venkatesan Silver Medallion for achievement of the highest proficiency in field of study
1992–94	NSERC Undergraduate Student Research Awards
1990–94	Canada Science Scholarships
1990	University of Calgary Maths Extension Programme Prize
1990	The Chemical Institute of Canada High School Chemistry Exam, Special Merit Award, placed first in Alberta
1990	Chem 13 News Research Assistantship Examination, placed 4th in Canada
1990	Euclid Mathematics Contest, placed 5th out of 10 000 in Canada

TEACHING EXPERIENCE

Undergraduate Classical Mechanics

Undergraduate Modern Physics

Undergraduate Electrodynamics

Graduate gravitational-wave physics and data analysis

PROFESSIONAL ACTIVITIES

Grants Funded

NSF-PHY 0855432: "Radio telescopes and gravitational-wave observatories: Two windows on the same Universe", \$80,000 over 2 years. PI: T. Creighton.

NSF-AST 0750913: "Pulsar Search Partnerships: Attracting Talented Young Hispanic Students into Careers in Astrophysics", \$1,055,565 over 5 years. PI: F. Jenet. Co-Is: M. Benacquista, T. Creighton, A. Rodriguez-Zermeno.

Refereeing Duties

New Journal of Physics

Classical and Quantum Gravity

The Astrophysical Journal

Physical Review D

US National Science Foundation

Invited Talks

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| June 2010 | "Listening to the Universe with gravitational waves"
Astronomy Ambassadors summer academy, University of Texas, Brownsville |
| October 2010 | "Extreme Astronomy"
Science Academy of South Texas, Mercedes |
| September 2009 | "Gamma-ray bursts and gravitational waves"
CGWA seminar, University of Texas, Brownsville, Texas |
| December 2008 | "Pulsar timing near supermassive black holes"
Gravity seminar, University of Wisconsin, Milwaukee |

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| October 2008 | <p>“Planets”
 Space Odyssey public lecture, Brownsville Museum of Fine Art, Brownsville</p> |
| February 2008 | <p>“Sound and fury: Listening to black holes and the Big Bang with LISA”
 Monday Night Physics public lecture, University of Texas, Brownsville</p> |
| June 2006 | <p>“Einstein@home: Tapping into global interest in LIGO for gravitational pulsar searches”
 Caltech-JPL Gravitational Wave Research seminar, California Institute of Technology, Pasadena</p> |
| November 2005 | <p>“Measuring supermassive black holes with LISA”
 Xiamen University, Fujian, China</p> |
| October 2005 | <p>“Measuring properties of pulsar populations using LIGO”
 University of Texas, Brownsville</p> |
| October 2005 | <p>“Data analysis methods for Galactic binaries”
 Analysis Methods for Interferometric Gravitational-wave Observatories in Space (AMIGOS) meeting, Pasadena, California</p> |
| October 2004 | <p>“Gravitational Waves: Listening to the Universe”
 Chinese-American Frontiers of Science Symposium, Irvine, California</p> |
| March 2004 | <p>“Einstein@home: Massive distributed computing for gravitational-wave detection”
 World Year of Physics 2005 Second Preparatory Meeting, Montreal, Québec</p> |
| April 2003 | <p>“First LIGO/GEO Upper Limits on Pulsar Gravitational Emissions”
 Caltech-JPL Gravitational Wave Research Seminar, California Institute of Technology, Pasadena, California</p> |
| December 2002 | <p>“LIGO-II: Sources and Astrophysics”
 Gravitational Wave Data Analysis Workshop, Kyoto, Japan</p> |
| December 2002 | <p>“Gravitational Capture”
 Gravitational Wave Data Analysis Workshop, Kyoto, Japan</p> |
| October 2002 | <p>“Bothrodesy: The promise and challenges of extreme-mass-ratio inspirals”
 Gravitational Radiation Source Simulation and Data Analysis Focus Session, Pennsylvania State University, State College, Pennsylvania</p> |

- October 2002 “Extreme-mass-ratio inspirals: A data analysis problem for LISA”
LIGO seminar, California Institute of Technology, Pasadena, California
- November 1999 “Sonic booms and tumbleweeds as detectable gravitational signals in LIGO”
Gravity seminar, University of Wisconsin, Milwaukee
- Contributed Talks*
- January 2009 “Pulsar timing near supermassive black holes: I. Schwarzschild holes and eclipsing orbits”
Gravitational-Wave Data Analysis Workshop, San Juan, Puerto Rico
- March 2006 “Detecting black holes in globular clusters using pulsar timing”
22nd Pacific Coast Gravity Meeting, Kavli Institute for Theoretical Physics, University of California, Santa Barbara
- March 2004 “Detectability of extreme-mass-ratio inspirals with LISA”
20th Pacific Coast Gravity Meeting, California Institute of Technology, Pasadena, California
- March 2003 “Zoom, Whirl, and Chirp: Listening for extreme-mass-ratio inspirals with LISA”
19th Pacific Coast Gravity Meeting, University of Utah, Salt Lake City, Utah
- February 1999 “Atmospheric gravity gradients: a low-frequency noise limit for LIGO”
15th Pacific Coast Gravity Meeting, Institute for Theoretical Physics, University of California, Santa Barbara
- March 1998 “Cosmological Gravitational Waves”
14th Pacific Coast Gravity Meeting, University of Oregon, Eugene, Oregon
- November 1997 “Analysis of Caltech 40 m interferometer data: Constructing the filter bank”
Second Gravitational Wave Data Analysis Workshop, Orsay, Essonne, France
- March 1997 “Search techniques for periodic gravitational waves”
13th Pacific Coast Gravity Meeting, Institute for Theoretical Physics, University of California, Santa Barbara
- March 1996 “Computational costs for continuous gravitational wave searches”
12th Pacific Coast Gravity Meeting, University of Utah, Salt Lake City, Utah

Meetings organized

June 2009	Summer School in Gravitational Wave Astronomy, Yunnan University, Kunming, Yunnan, China
June 2008	Summer School in Gravitational Waves and Numerical Relativity, Morningside Center of Mathematics, Chinese Academy of Sciences, Beijing, China
June 2007	CGWA-Nanjing Summer School on Gravitational-Wave Astronomy, China West Normal University, Nanchong, Sichuan, China
October 2006	Chinese-American Frontiers of Science Symposium, University of California, Irvine
October 2005	Chinese-American Frontiers of Science Symposium, Xiamen University, Fujian, China

REFERENCES

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PUBLICATIONS

Refereed publications

1. The LIGO Scientific Collaboration J Abadie et al., *First Search for Gravitational Waves from the Youngest Known Neutron Star*, *Astrophysical Journal* **722** 1504–1513 (October 2010)
2. The LIGO Scientific Collaboration, the Virgo Collaboration J Abadie, et al., *Predictions for the rates of compact binary coalescences observable by ground-based gravitational-wave detectors*, *Classical and Quantum Gravity* **27** 173001 (September 2010)
3. The LIGO Scientific Collaboration, the Virgo Collaboration J Abadie, et al., *Search for Gravitational-wave Inspiral Signals Associated with Short Gamma-ray Bursts During LIGO's Fifth and Virgo's First Science Run*, *Astrophysical Journal* **715** 1453–1461 (June 2010)
4. The LIGO Scientific Collaboration, the Virgo Collaboration B Abbott, et al., *Search For Gravitational-wave Bursts Associated with Gamma-ray Bursts using Data from LIGO Science Run 5 and Virgo Science Run 1*, *Astrophysical Journal* **715** 1438–1452 (June 2010)
5. The LIGO Scientific Collaboration, the Virgo Collaboration J Abadie, et al., *All-sky search for gravitational-wave bursts in the first joint LIGO-GEO-Virgo run*, *Physical Review D* **81** 102001 (May 2010)
6. The LIGO Scientific Collaboration, the Virgo Collaboration B Abbott, et al., *Searches for Gravitational Waves from Known Pulsars with Science Run 5 LIGO Data*, *Astrophysical Journal* **713** 671–685 (April 2010)
7. Predoi V, Clark J, Creighton T, Daw E, Fairhurst S, Heng I S, Kanner J, Regimbau T, Shawhan P, Siemens X, Sutton P, Vecchio A, White D, and Woan G, *Prospects for joint radio telescope and gravitational-wave searches for astrophysical transients*, *Classical and Quantum Gravity* **27** 084018 (April 2010)
8. The LIGO Scientific Collaboration B Abbott et al., *LIGO: the Laser Interferometer Gravitational-Wave Observatory*, *Reports on Progress in Physics* **72** 076901 (July 2009)
9. Yan Wang, Teviet Creighton, Richard H Price, and Frederick A Jenet, *Strong field effects on pulsar arrival times: general orientations*, *Astrophysical Journal* **705** 1252–1259 (2009)
10. The LIGO Scientific Collaboration B Abbott et al., *Search for High Frequency Gravitational Wave Bursts in the First Calendar Year of LIGO's Fifth Science Run*, *Physical Review D* **80** 102002 (2009)

11. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational-wave bursts in the first year of the fifth LIGO science run*, Physical Review D **80** 102001 (2009)
12. The LIGO Scientific Collaboration and the Virgo Collaboration, *An upper limit on the stochastic gravitational-wave background of cosmological origin*, Nature **460** 990–994 (2009)
13. The LIGO Scientific Collaboration B Abbott et al., *First LIGO search for gravitational wave bursts from cosmic (super)strings*, Physical Review D **80** 062002 (2009)
14. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational wave ring-downs from perturbed black holes in LIGO S4 data*, Physical Review D **80** 062001 (2009)
15. The LIGO Scientific Collaboration B Abbott et al and D P Anderson, *Search for gravitational waves from low mass compact binary coalescence in 186 days of LIGO's fifth science run*, Physical Review D **80** 047101 (2009)
16. The LIGO Scientific Collaboration B Abbott et al., *Einstein@Home search for periodic gravitational waves in early S5 LIGO data*, Physical Review D **80** 042003 (2009)
17. The LIGO Scientific Collaboration B Abbott et al., *Stacked Search for Gravitational Waves from the 2006 SGR 1900+14 Storm*, Astrophysical Journal Letters **701** L68–L74 (2009)
18. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational waves from low mass binary coalescences in the first year of LIGO's S5 data*, Physical Review D **79** 122001 (2009)
19. The LIGO Scientific Collaboration B Abbott et al., *Einstein@Home search for periodic gravitational waves in LIGO S4 data*, Physical Review D **79** 022001 (January 2009)
20. The LIGO Scientific Collaboration B Abbott et al., *LIGO: the Laser Interferometer Gravitational-Wave Observatory*, Reports on Progress in Physics **72** 076901 (2009)
21. Yan Wang, Frederick A Jenet, Teviet Creighton, and Richard H Price, *Strong field effects on pulsar arrival times: circular orbits and equatorial beams*, Astrophysical Journal **697** 237–246 (2009)
22. The LIGO Scientific Collaboration B Abbott et al., *All-Sky LIGO Search for Periodic Gravitational Waves in the Early Fifth-Science-Run Data*, Physical Review Letters **102** 111102 (2009)
23. Teviet Creighton, Fredrick A Jenet, and Richard H Price, *Pulsar timing and space-time curvature*, Astrophysical Journal **693** 1113–1117 (2009)
24. Teviet Creighton, *Tumbleweeds and airborne gravitational noise sources for LIGO*, Classical and Quantum Gravity **25** 125011 (2008)

25. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational waves from binary inspirals in S3 and S4 LIGO data*, Physical Review D **77** 062002 (2008)
26. L Baggio et al., *A joint search for gravitational wave bursts with AURIGA and LIGO.*, Classical and Quantum Gravity **25** 095004 (2008)
27. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational waves associated with 39 gamma-ray bursts using data from the second, third, and fourth LIGO runs*, Physical Review D **77** 062004 (2008)
28. The LIGO Scientific Collaboration B Abbott et al., *All-sky search for periodic gravitational waves in LIGO S4 data*, Physical Review D **77** 022001 (2008)
29. The LIGO Scientific Collaboration, ALLEGRO Collaboration B Abbott, et al., *First Cross-Correlation Analysis of Interferometric and Resonant-Bar Gravitational-Wave Data for Stochastic Backgrounds.*, Physical Review D **76** 022001 (2007)
30. The LIGO Scientific Collaboration B Abbott et al., *Upper limit map of a background of gravitational waves.*, Physical Review D **76** 082003 (2007)
31. The LIGO Scientific Collaboration B Abbott et al., *Searching for Stochastic Background of Gravitational Waves with LIGO.*, Astrophysical Journal **659** 918 (2007)
32. The LIGO Scientific Collaboration B Abbott et al, M Kramer, and A G Lyne, *Upper Limits on Gravitational Wave Emission from 78 Radio Pulsars.*, Physical Review D **76** 042001 (2007)
33. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational-wave bursts in LIGO data from the fourth science run.*, Classical and Quantum Gravity **24** 5343–5369 (2007)
34. The LIGO Scientific Collaboration 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.*, Physical Review D **76** 082001 (2007)
35. The LIGO Scientific Collaboration B Abbott et al., *Search for gravitational wave radiation associated with the pulsating tail of the SGR 1806-20 hyperflare of December 27, 2004 using LIGO*, Physical Review D **76** 062003 (2007)
36. The LIGO Scientific Collaboration B Abbott et al., *Joint LIGO and TAMA300 search for gravitational waves from inspiralling neutron star binaries*, Physical Review D **73** 102002 (2006)
37. The LIGO Scientific Collaboration B Abbott et al., *Search for Gravitational Wave Bursts in LIGO's Third Science Run*, Classical and Quantum Gravity **23** S29–S39 (2006)
38. The LIGO Scientific Collaboration B Abbott et al., *Upper Limits from LIGO and TAMA Detectors on the Rate of Gravitational Wave Bursts*, Physical Review D **72** 122004 (2005)

39. The LIGO Scientific Collaboration B Abbott et al., *Upper Limits on a Stochastic Background of Gravitational Waves*, Physical Review Letters **95** 221101 (2005)
40. The LIGO Scientific Collaboration B Abbott et al., *First All-sky Upper Limits from LIGO on the Strength of Periodic Gravitational Waves Using the Hough Transform*, Physical Review D **72** 102004 (2005)
41. The LIGO Scientific Collaboration B Abbott et al., *Search for Gravitational Waves from Primordial Black Hole Binary Coalescences in the Galactic Halo*, Physical Review D **72** 082002 (2005)
42. The LIGO Scientific Collaboration B Abbott et al., *Search for Gravitational Waves from Galactic and Extra-galactic Binary Neutron Stars*, Physical Review D **72** 082001 (2005)
43. The LIGO Scientific Collaboration B Abbott et al., *Upper limits on gravitational wave bursts in LIGO's second science run*, Physical Review D **72** 062001 (2005)
44. The LIGO Scientific Collaboration B Abbott et al., *A Search for Gravitational Waves Associated with the Gamma Ray Burst GRB030329 Using the LIGO Detectors*, Physical Review D **72** 042002 (2005)
45. Fredrick A Jenet, Teviet Creighton, and Andrea Lommen, *Pulsar Timing and the Detection of Black Hole Binary Systems in Globular Clusters*, The Astrophysical Journal Letters **627** L125–L128 (2005)
46. The LIGO Scientific Collaboration B Abbott et al., *Limits on gravitational wave emission from selected pulsars using LIGO data*, Physical Review Letters **94** 181103 (2005)
47. Jonathan R Gair, Leor Barack, Teviet Creighton, Curt Cutler, Shane L Larson, E Sterl Phinney, and Michele Vallisneri, *Event rate estimates for LISA extreme mass ratio capture sources*, Classical and Quantum Gravity **21** S1595–S1606 (2004)
48. The LIGO Scientific Collaboration B Abbott et al., *Analysis of First LIGO Science Data for Stochastic Gravitational Waves*, Physical Review D **69** 122004 (2004)
49. The LIGO Scientific Collaboration B Abbott et al., *Analysis of LIGO data for gravitational waves from binary neutron stars*, Physical Review D **69** 122001 (2004)
50. The LIGO Scientific Collaboration B Abbott et al., *First upper limits from LIGO on gravitational wave bursts*, Physical Review D **69** 102001 (2004)
51. The LIGO Scientific Collaboration B Abbott et al., *Setting upper limits on the strength of periodic gravitational waves from PSR J1939+2134 using the first science data from the GEO 600 and LIGO detectors*, Physical Review D **69** 082004 (2004)
52. The LIGO Scientific Collaboration B Abbott et al., *Detector Description and Performance for the First Coincidence Observations Between LIGO and GEO*, Nuclear Inst and Methods in Physics Research A **517** 154–179 (2004)

53. Teviet Creighton, *Advanced LIGO: Sources and Astrophysics*, Classical and Quantum Gravity **20** S853–S869 (2003)
54. Patrick R Brady and Teviet Creighton, *Searching for periodic sources with LIGO. II: Hierarchical searches*, Physical Review D **61** 082001 (2000)
55. Bruce Allen et al., *Observational Limit on Gravitational Waves from Binary Neutron Stars in the Galaxy*, Physical Review Letters **83** 1498 (1999)
56. Patrick R Brady, Teviet Creighton, Curt Cutler, and Bernard F Schutz, *Searching for periodic sources with LIGO*, Physical Review D **57** 2101–2116 (1998)

Other publications

1. Teviet Creighton and Richard H Price, *Black Holes*, Technical report, Scholarpedia, URL http://www.scholarpedia.org/article/Black_Holes (December 2007)
2. John Baker et al., *LISA: Probing the Universe with Gravitational Waves*, Technical Report LISA-LIST-RP-436, LISA Mission Science Office, URL <http://www.srl.caltech.edu/lisa/> (January 2007)
3. L Barak et al., *Estimates of Detection Rates for LISA Capture Sources*, Technical report, LISA Science Team Working Group 1, URL <http://www.tapir.caltech.edu/listwg1/EMRI/LISTEMRIreport.pdf> (February 2004)
4. E S Phinney et al., *LISA Science Requirements*, Technical report, LISA Science Team Working Group 1, URL <http://www.its.caltech.edu/~esp/lisa/LISTwg1.req-pr.pdf> (December 2001)
5. E S Phinney et al., *Science Impact of the Low Frequency Performance of LISA*, Technical report, LISA Science Team Working Group 1, URL <http://www.tapir.caltech.edu/listwg1/LowFreq/LISTwg1.lowf.ps> (November 2001)
6. Teviet Creighton, *Gravitational waves and the cosmological equation of state*, E-print archive gr-qc/9907045 (1999)
7. Teviet Creighton, *Package inject: routines for simulating gravitational waves and their effects on a detector*, in LAL: The LIGO Algorithm Library, (LIGO Scientific Collaboration, URL <http://www.lsc-group.phys.uwm.edu/lal>) (2001)
8. Teviet Creighton, *Package pulsar: routines for detecting quasiperiodic gravitational waves*, in LAL: The LIGO Algorithm Library, (LIGO Scientific Collaboration, URL <http://www.lsc-group.phys.uwm.edu/lal>) (2000)
9. Teviet Creighton, *Package tdfilters: routines for constructing and applying digital time-domain filters*, in LAL: The LIGO Algorithm Library, (LIGO Scientific Collaboration, URL <http://www.lsc-group.phys.uwm.edu/lal>) (2000)

10. Teviet Creighton, *GRASP Routines: Template Bank Generation and Searching*, in GRASP: a data analysis package for gravitational wave detection, by Bruce Allen, (LIGO project, URL <http://www.lsc-group.phys.uwm.edu/~ballen/grasp-distribution>) (1997)
11. Teviet D Creighton and David W Hobill, *Continuous Time Dynamics and Iterative Maps of Ellis-MacCallum-Wainwright Variables*, in *Deterministic Chaos in General Relativity*, pages 433–448. Plenum Press, New York (1994), Proceedings of a NATO Advanced Research Workshop on Deterministic Chaos in General Relativity, held July 25–30, 1993, in Kananaskis, Alberta, Canada.

7 October, 2010