

CONTACT INFORMATION	Center for Cosmology and Particle Physics New York University 726 Broadway, 10th Floor New York, NY 10003, USA	<i>E-mail:</i> macfadyen@nyu.edu <i>WWW:</i> cosmo.nyu.edu/aim
CURRENT APPOINTMENT	<b>New York University</b> , New York, NY, USA <i>Department of Physics, Center for Cosmology and Particle Physics</i> Professor of Physics	
RESEARCH APPOINTMENTS	<b>Institute for Advanced Study</b> , Princeton, NJ, USA <i>School of Natural Sciences</i> Postdoctoral Member in Astrophysics, 2004–2007  <b>California Institute of Technology</b> , Pasadena, CA, USA <i>Theoretical Astrophysics &amp; Relativity</i> Lee A. DuBridge Postdoctoral Fellow, 2001–2004	
EDUCATION	<b>University of California</b> , Santa Cruz, CA <i>Ph. D., Astrophysics, 2000</i> Thesis: “Collapsars: Gamma-Ray Bursts and Asymmetric Supernovae” Advisor: Stan Woosley  <b>Columbia University</b> , New York, NY <i>B.A., Astrophysics</i>	
PUBLICATION SUMMARY	NASA ADS: 95 publications, 9000+ citations, 2900+ normalized citations Google Scholar: 11,500+ citations; h-index 54	
GRANTS AWARDED	NASA Astrophysics Theory (21-ATP21-0108; MacFadyen, PI), <i>Orbital Evolution and Multi-Messenger Signatures of Binary Black Holes with Circumbinary Disks</i> , 2022–2025, \$875,740  NSF Division of Astronomical Sciences (AST-1715356; MacFadyen, PI), <i>Collaborative Research: Mergers of Massive Black Holes at the Centers of Galaxies</i> , 2017–2022, \$384,653  NASA Fermi Cycle 6 Theory Grant, “Dynamics and Radiation of Fermi GRB Afterglows” (NNX13AO93G; MacFadyen, PI), 1/2014–1/2016, \$60,000  NASA Astrophysics Theory (NNX11AE05G; MacFadyen, Institutional PI, <i>The Response of a Circumbinary Disk to a Black Hole Merger</i> , 2011–2015, \$280,685  NSF Division of Astronomical Sciences (AST-1009863; MacFadyen, PI), <i>Simulating Relativistic Turbulence</i> , 2010–2014, \$400,737  NASA Astrophysics Theory (NNX10AF62G; MacFadyen, PI) <i>The Dynamics and Afterglow Radiation of Gamma-Ray Bursts</i> , 2010–2013, \$328,500	

NASA Chandra Cycle 14 Theory Grant, “Developing a hydrodynamical simulation based gamma-ray burst afterglow fit code” (TM3-14005X; van Eerten (NYU), PI; MacFadyen, Co-I), 12/2012–12/2013, \$80,000

NASA SWIFT Guest Investigator (SWIF03-0000-0060; MacFadyen, PI) *Numerical Simulation of Relativistic Blastwaves*, 2005–2006, \$18,000

HONORS &  
FELLOWSHIPS

Iakobachvili Faculty Science Award, 2016

Scialog Fellow, Research Corporation for Scientific Advancement, 2015, 2016

Distinguished Scientific Visitor, Carnegie Observatories, 2014–2015

Visiting Scholar, Harvard University, 2010–2011

Kavli Frontiers Fellow, National Academy of Sciences, 2007–2009

POPULAR MEDIA

**Japan Broadcasting Company NHK**, *The Cosmic Front*, 2014: Public television interview on GRBs with my NYU group

**National Geographic Magazine**, *Cosmic Explosions*, 2007: My NYU research is featured along with full-page graphics of my simulations of GRBs; the article quotes my description of my NYU research on GRBs and supernovae

**Science News**, 2007-, Several issues have quoted me in interviews concerning my NYU work on GRBs and supernovae regarding other research including, the issues 11/3/07, 3/8/08, 7/18/09

**NOVA, PBS**, 2001, My research was featured in the NOVA television episode “*Hunt for the Death Star*” for which I was interviewed and my computer simulations are extensively shown

**U.S. News & World Report**, My research was featured in an article on GRBs and cosmic explosions

**Sky & Telescope**, My research was featured in an article on GRBs and cosmic explosions

ONLINE  
AUDIO & VIDEO  
PRESENTATIONS

KITP Conference: *Merging Visions: Exploring Compact-Object Binaries with Gravity and Light*, Santa Barbara, June 27, 2019

[http://online.kitp.ucsb.edu/online/gravast\\_c19/macfadyen/rm/jwvideo.html](http://online.kitp.ucsb.edu/online/gravast_c19/macfadyen/rm/jwvideo.html)

“*Open Digital Infrastructure in Astrophysics*,” Kavli Institute for Theoretical Physics, UC Santa Barbara, June 5, 2019

<http://online.kitp.ucsb.edu/online/odia19/macfadyen/rm/jwvideo.html>

KITP Program: *The New Era of Gravitational-Wave Physics and Astrophysics*, Santa Barbara, May 31, 2019

<http://online.kitp.ucsb.edu/online/gravast19/macfadyen/rm/jwvideo.html>

Center for Computational Astrophysics Colloquium, Flatiron Institute, February 1, 2019

<https://www.simonsfoundation.org/event/cca-colloquium-andrew-macfadyen>

KITP Workshop: Astrophysics from a Neutron Star Merger, Santa Barbara, December 14, 2017

[http://online.kitp.ucsb.edu/online/nsmerg\\_m17/macfadyen](http://online.kitp.ucsb.edu/online/nsmerg_m17/macfadyen)

KITP Conference: GW170817: The First Double Neutron Star Merger, Santa Barbara, December 6, 2017

[http://online.kitp.ucsb.edu/online/nsmerg\\_c17/macfadyen](http://online.kitp.ucsb.edu/online/nsmerg_c17/macfadyen)

KITP Rapid Response Workshop: Astrophysics from LIGO's First Black Holes, Santa Barbara, August 12, 2016

<http://online.kitp.ucsb.edu/online/gwaves-m16/macfadyen>

Space Telescope Science Institute: "Mysterious Connection Between Superluminous Supernovae and Gamma-Ray Bursts," May 25, 2016

<https://webcast.stsci.edu/webcast/detail.xhtml;jsessionid=D199D703EC7651talkid=5088&parent=1>

9th Harvard-Smithsonian Sackler Conference on Theoretical Astrophysics: "The Transient Sky," Cambridge, May 16, 2016

<https://www.youtube.com/watch?v=LEbY2v2cG2Q&feature=youtu.be>

Stony Brook Physics and Astronomy Colloquium, September 15, 2015

[http://www.physics.sunysb.edu/Physics/movies/physics/macfadyen\\_col091515\\_ref.mov](http://www.physics.sunysb.edu/Physics/movies/physics/macfadyen_col091515_ref.mov)

Center for Astrophysics (CFA) Colloquium, Harvard, February 5, 2015 (45 min)

<https://www.youtube.com/watch?v=hq7cWhes6Dg>

Harvard ITC Luncheon Talk on Top Heavy Jets, February 5, 2015 (15 min; starts at 38:48)

<https://www.youtube.com/watch?v=sIYZO46qfSA>

Joint NOAO/Steward Colloquium, University of Arizona, October 16, 2014 (46 min)

<http://ua.lecturecast.arizona.edu/Panopto/Pages/Viewer.aspx?id=2a8b309e-cd2f-4c6e-b773-f7b73b8ed32e>

Harvard ITC Luncheon Talk on Binary Black Hole Accretion, April 3, 2014 (12 min; starts at 39:22)

<https://www.youtube.com/watch?v=0iOVVnjZie8&feature=youtu.be>

KITP Conference: Rattle and Shine: Gravitational Wave and Electromagnetic Studies of Compact Binary Mergers, Aug 2, 2012 (35 min)

<http://online.kitp.ucsb.edu/online/chirps-c12/macfadyen>

Royal Society Discussion: New Windows on Transients Across the Universe, April 23, 2012 (30 min, audio only)

<http://downloads.royalsociety.org/audio/DM/DM2012-06/MacFadyen.mp3>

CITA Astrophysics Colloquium, Jan 12, 2012 (67 min)  
<http://hosting.epresence.tv/CITA/1/watch/407.aspx>

The 2011 International Summer School on AstroComputing: Computational Explosive Astrophysics, UC Berkeley & LBNL/NERSC, July 18–29, 2011 (25 min each):  
#1: [http://hipacc.ucsc.edu/Talk\\_single.php?Tid=131&SerId=9&Aid=9](http://hipacc.ucsc.edu/Talk_single.php?Tid=131&SerId=9&Aid=9)  
#2: [http://hipacc.ucsc.edu/Talk\\_single.php?Tid=132&SerId=9&Aid=9](http://hipacc.ucsc.edu/Talk_single.php?Tid=132&SerId=9&Aid=9)

The Future of AstroComputing, San Diego Supercomputing Center, Dec 17, 2010 (11 min)  
[http://hipacc.ucsc.edu/Talk\\_single.php?Tid=125&SerId=12&Aid=12](http://hipacc.ucsc.edu/Talk_single.php?Tid=125&SerId=12&Aid=12)

KITP Astro Plasmas Conference, Oct 2, 2009 (30 min)  
<http://online.kitp.ucsb.edu/online/astroplasmas-c09/macfadyen>

CFA Colloquium, Harvard University, Sep 3, 2009 (73 min, audio starts at 14:37)  
<http://www.cfa.harvard.edu/events/colloquia/fall109.html>

KITP Stellar Death Conference, Aug 21, 2009 (30 min)  
<http://online.kitp.ucsb.edu/online/sdeath-c09/macfadyen>

EDUCATIONAL  
APPOINTMENTS

Harvard–Smithsonian Center for Astrophysics, Cambridge, MA, USA  
*Education Department*  
Research Associate for Educational Projects, 1988–1992

New York City Public Schools, New York, NY, USA  
*Thomas Edison High School*  
High School Science Teacher, 1988

TEACHING

General Relativity (undergraduate course) Spring, 2017–2021

Computational Physics (core graduate course) G85.2000.001, Fall, 2007–2011, 2016–2018

Computational Physics (undergraduate course) V85.0210001 (cross-listed with G85.2000.001), Fall 2008, Fall 2010, Fall, 2011, Fall, 2013

High Energy Astrophysics (graduate course) G85.2053.001, Spring, 2009, Spring, 2014

Physics II (undergraduate course, enrollment: 50 students), Spring, 2012, 2013

General Physics I (undergraduate course, enrollment: 550 students), Fall, 2012

Electromagnetism (required graduate course) G85.2005.001, Spring, 2010

STUDENT AND  
POSTDOC  
ADVISING

Research thesis advisor to physics graduate students Jonathan Zrake, Paul Duffell, Geoffrey Ryan, Yike Tang, Xiaoyi Xie, Yiyang Wu, Chris Tiede, Austin McDowell, Marcus DuPont

Ph.D. Thesis Advisor to Dr. Jonathan Zrake, Ph.D. 2013; next position: KIPAC post-doctoral fellow, Stanford University; current position: Assistant Professor, Clemson University

Ph.D. Thesis Advisor to Dr. Paul Duffell, Ph.D. 2014; next position: TAC postdoctoral fellow, UC Berkeley; current position: Assistant Professor, Purdue University

Ph.D. Thesis Advisor to Dr. Geoffrey Ryan, Ph.D. 2017; next position: JSI postdoctoral fellow, University of Maryland; current position: Postdoctoral Fellow, Perimeter Institute

Ph.D. Thesis Advisor to Dr. Yike Tang, Ph.D. 2018, next position: Geophysics researcher, Houston

Ph.D. Thesis Advisor to Dr. Xiaoyi Xie, Ph.D. 2018, next position: Postdoctoral Research Fellow in Relativistic Astrophysics, University of Southampton

Advisor to Ph.D. students Trey Jensen, Chris Tiede, Austin McDowell for summer research projects

Ph. D. thesis committee member: Sebastian Pueblas (2008), Subinoy Das (2008), Rahman Rakbir (2009), Ronnie Jansen (2009), Ilias Cholis (2010), Lisa Goodenough (2010), Ronnie Jansson (2010), Tao Jiang (2012), Lisa Dixon (2012), Jonathan Zrake (2013), George Lewis (2013), Tao Jiang (2013), Paul Duffell (2014), Jia Liu (2014), Craig Lage (2014), Hongliang Liu (2016), Yuqian Liu (2017)

Prelim committee: Tao Jiang, Rob Morris, George Lewis, Jonathan Zrake, Paul Duffell, Ben Roig, Deepak Khuruna, Craig Lage, Danielle Pina, Ricardo Neves, Hongliang Liu, Yuqian Liu, Egecan Cogulu

Advisor to undergraduate students Ilana Gat, Joyce Laine, Bezia Lederman, Richard Zhang, George Wong, Randall Kayser, Niclas Wahlstrom

Honors undergraduate thesis advisor to Ilana Gat, winner of Borgmann thesis prize, 2013 and NSF graduate fellowship to Caltech, 2013

Honors undergraduate thesis committee member for Iraj Eshghi, 2017

Advisor to postdoctoral researchers Dr. Hendrik van Eerten (2010–2013) now Lecturer (Assistant Professor) at University of Bath, UK, Dr. Brian Farris (2012–2015) now data scientist at Capitol One Labs, Dr. Takamitsu Tanaka (2014–2015) next position: Research Assistant Professor SUNY Stony Brook University

Advisor to postdoctoral fellows Dr. Weiqun Zhang (2007–2010; next position: Staff Scientist, Lawrence Berkeley National Laboratory) and Dr. Joseph Gelfand (2007–2010 NSF fellow; next position: Assistant Professor of Physics, NYU Abu Dhabi)

NYU SERVICE AND OUTREACH Director of Graduate Studies, Physics Department, 2018–2021

NYU Institutional Representative, Universities Space Research Association (USRA) Council of Institutions, 2016–

Executive Committee, Physics Department, 2016–2020

Graduate Studies Committee, Physics Department, 2012–2013

Committee on Undergraduate Curriculum, Faculty of Arts and Sciences, Spring 2010

Physics department graduate student admissions committee, 2008–2009, 2011–2012, 2018–2021

NYU-Abu Dhabi faculty recruitment committee

Organizer, Joint Physics–Courant High Reynolds Number Fluid Flow (HiREFF) seminars, 2010

Astrophysics seminar organizer, 2007–2008

Big Apple Astrophysics Colloquium co-organizer, Spring 2008, Fall 2015

Physics department computing and library committees, 2007–2015

Presented public talk “How to See Black Holes” at Greenwich Public Library, Oct 15, 2017

Outreach speaker for high school students (e.g., John Jay High School math club, May, 2010)

Panelist, 2017 Lynford Lecture, NYU Tandon School of Engineering, Nov 20, 2017

EXTERNAL SERVICE Vice President, Board of Trustees, AMIAS, Institute for Advanced Study, Princeton, 2013–2021

Member, Board of Trustees, AMIAS, Institute for Advanced Study, Princeton, 2013–2015, 2016–2018, 2018–2021

Advisory Panel, Simons Foundation, Center for Computational Astrophysics, 2015

Reviewer for National Science Foundation proposals, 2012

Reviewer and panelist for NASA Hubble Fellowships, 2018

Reviewer and review panel chair for NASA proposals, 2010, 2011, 2014, 2018

Panelist for Senior Review of NASA astrophysics missions, 2016

Reviewer for Israel Science Foundation proposals, 2012

Reviewer for Natural Sciences and Engineering Research Council of Canada (NSERC) proposals, 2011, 2012

Reviewer for Research Foundation Flanders (FWO), Belgium, 2011

Reviewer for Superior Council of the National Fund for Scientific & Technological Development (FONDECYT), Chile, 2009

Scientific Organizer, Chinese-American Kavli Frontiers of Science Symposia, National Academy of Sciences, 2008 & 2009. Session organizer: Exoplanets (2008), Cyberinfrastructure/LHC Data Challenge (2009), Gamma-Ray Bursts (2009)

External Ph. D. committee member for Adam Jacobs, Stony Brook University (8/2016)

External Ph. D. committee member for Daniel D’Orazio, Columbia University (6/2016)

External Ph. D. committee member and chair for Roman Shcherbakov, Harvard University (4/2011)

External Ph. D. committee member for Alexander Tchekhovskoy, Harvard University (5/2010)

Scientific organizer for inaugural Tri-State Astronomy Meeting for astronomers at public and private colleges and universities in the New York, New Jersey, & Connecticut area, October, 2008

Scientific organizer for International Astronomical Union (IAU) Symposium No. 250, “Massive Stars as Cosmic Engines,” December, 2007

Scientific organizer for GRBMAG14 meeting, Bormio, Italy, January 20–24, 2014

Co-adviser with Zoltan Haiman (Columbia) to Lia Coralles, Dan D’Orazio and Andrea Derdzinski, Ph. D. students in astronomy at Columbia

Referee for Astrophysical Journal, Monthly Notices of the Royal Astronomical Society and Nature

#### CONFERENCES AND WORKSHOPS

1. “Time Domain Astronomy in the High Redshift Universe,” George Washington University, Washington DC, June 23 – 26, 2020, Invited Talk (postponed)
2. “Multiscale Modeling of Astrophysical and Space Plasmas,” Center for Computational Astrophysics, Flatiron Institute, May, 13 – Aug 2, 2019, Invited Talk
3. “Ioffe Workshop on GRBs and other transient sources: 25 Years of Konus-Wind Experiment,” St. Petersburg, Russia, September 9–13, 2019, Invited Talk (declined)
4. “Merging Visions: Exploring Compact-Object Binaries with Gravity and Light,” Kavli Institute for Theoretical Physics (KITP), UC Santa Barbara, June 24–27, 2019, invited talk
5. “The New Era of Gravitational-Wave Physics and Astrophysics,” Kavli Institute for Theoretical Physics (KITP), UC Santa Barbara, May 13, 2019 - July 5, 2019, invited participant and speaker
6. “Open Digital Infrastructure in Astrophysics,” Kavli Institute for Theoretical Physics (KITP), UC Santa Barbara, June 4–5, 2019, invited talk
7. “LSST Detection of Optical Counterparts of Gravitational Waves 2019 Workshop,” Columbia, May 4, 2019, participant
8. “First workshop on stellar mass black hole mergers in AGN disks,” March 11–13, 2019, Center for Computational Astrophysics, invited participant and speaker
9. “Deep Learning for Multi-Messenger Astrophysics: Real-time Discovery at Scale,” National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign, October 17–19, 2018, invited talk (declined)
10. “Workshop on the Plasma Physics of Neutron Star Mergers,” Center for Computational Astrophysics, Flatiron Institute, October 1–3 2018, invited participant
11. “Eternal Multi-Messenger Workshop,” Center for Computational Astrophysics, Flatiron Institute, August 31, 2018, co-organizer

12. "Unsolved Problems in Astrophysics and Cosmology," Etvos University, Budapest, July 1–6 2018, invited talk
13. "The Astrophysics of Massive Black Hole Mergers: From Galaxy Mergers to the Gravitational Wave Regime," Aspen Center for Physics, June 17–July 1, 2018
14. "Compact Stars in the QCD Phase Diagram VII," CUNY Graduate Center, June 11–15, 2018, organizer
15. "3rd PANDA Symposium," Chengdu, China, June 18–22, 2018, invited talk (declined)
16. "International Workshop on the Exploding Universe," Tsung-Dao Lee Institute, Shanghai, China, May 28–June 1, 2018, invited talk
17. "CCA joint galaxy formation/compact objects mini-workshop," Center for Computational Astrophysics, Flatiron Institute, May 11, 2018
18. "Relativistic Plasma Astrophysics," Purdue University, May 6–10, 2018, invited talk
19. "Gravitational Wave Astrophysics During the Next LIGO Observing Run," Princeton Center for Theoretical Science, April 27–28, 2018, participant
20. "Astrophysics from a Neutron Star Merger," Kavli Institute for Theoretical Physics, Santa Barbara, Dec 11–15, 2017, invited participant
21. "GW170817: The First Double Neutron Star Merger," Kavli Institute for Theoretical Physics, Santa Barbara, Dec 5–8, 2017, invited talk
22. "The Astrophysics of Neutron Star Mergers," Flatiron Institute, Nov 20–22, 2017, invited talk
23. "Rapid Response Workshop on Neutron Star Mergers," Center for Theoretical Physics, Columbia, Oct 21, 2017
24. "2017 Gruber Cosmology Conference," Yale, October 13, 2017, invited talk
25. "Galaxy Formation and Compact Object joint group meeting," Center for Computational Astrophysics, Oct 6, 2017, invited talk
26. "Compact Object group meeting," Center for Computational Astrophysics, Sep 29, 2017, discussion leader
27. "And then there was Light: Electromagnetic Signatures of Stellar Mass Binary Black Hole Mergers," Lorentz Center, Leiden, September 4–8, 2017, invited talk
28. "Astrophysics of Gravitational Radiation Sources and Multi-messenger Astronomy in the Era of LIGO Detections" Aspen Center for Physics, July 16–August 7, 2017
29. The Accreting Universe, T. D. Lee Institute, Shanghai, July 12–14, 2017, invited talk (declined)
30. "The disc migration issue: from protoplanets to supermassive black holes," Kavli Institute, Cambridge University, May 22–24, 2017, invited talk
31. LSST Detection of Optical Counterparts of Gravitational Waves, Columbia University, May 12–13, 2017
32. Phenomena, Physics, and Puzzles Of Massive Stars and their Explosive Outcomes, KITP, Santa Barbara, March 20–24, 2017, invited talk (declined)
33. Black Hole Network Meeting on Supermassive Black Hole Binaries, Simons Center for Computational Astrophysics, March 3, 2017, co-organizer
34. "Time-Domain Astrophysics: Incorporating Observations, Theory, and Computation in the American Northeast," Radcliffe Institute, Cambridge, November 17–18, 2016



35. "Scialog: Time Domain Astrophysics: Stars and Explosions," Tucson, AZ, October 13–16, 2016, Participating Fellow
36. "Universal Accretion: The Physics of Mass Accretion on All Scales and in Diverse Environments," Aspen Center for Physics, August 21–September 4, 2016
37. "KITP Rapid Response Workshop: Astrophysics from LIGO's First Black Holes," Kavli Institute for Theoretical Physics, Santa Barbara, August 1–12, 2016
38. "Emergence, Evolution and Effects of Black Holes in the Universe: The Next 50 Years of Black Hole Physics," Aspen Center for Physics, July 3–July 10, 2016
39. "COSPAR 2016", Istanbul, Turkey, July 30– August 4, 2016, Invited Talk (meeting cancelled)
40. "The Mysterious Connection Between Superluminous Supernovae and Gamma-Ray Bursts", Space Telescope Science Institute, May 23–25, 2016, Invited talk
41. "9th Sackler Conference in Theoretical Astrophysics: The Transient Sky," Harvard, May 16–19, 2016, Invited Talk
42. "Relativistic Plasma Astrophysics", Purdue University, May 9–11, 2016, Invited Talk
43. "GR@100++", Princeton Center for Theoretical Science, April 7–9, 2016, Invited Talk
44. Mayacamas 2016: Fundamentals of Astrophysics, Calistoga, CA, March 30–April 3, 2015, Invited Talk
45. "Rapid Fire Workshop on Compact Binary Mergers", Columbia Center for Theoretical Physics, February 21, 2016, Invited Talk
46. "Physics of Extreme Energy Release, as Illustrated by PWNe and GRBs," ISSI Workshop, Bern, Switzerland, November 21–28, 2015, Invited Review Talk
47. "Scialog: Time Domain Astrophysics: Stars and Explosions," Tucson, AZ, October 22–25, 2015, Participating Fellow
48. "X-Ray Vision: Probing the Universe in Depth and Detail with the X-Ray Surveyor," Washington, DC, October 6–8, 2015, Invited Talk
49. "Particle Astrophysics and Cosmology, Including Fundamental Interactions (PACIFIC - 2015)," Mo'orea, French Polynesia, September 12–19, 2015, Invited Talk (declined)
50. "Fireworks Meeting," Liverpool, England, June, 22–26, 2015 (declined)
51. "Gamma-Ray Bursts: a tool to explore the young Universe," International Space Science Institute in Beijing (ISSI-BJ), Beijing, China, April 13–17, 2015, Invited Review (declined)
52. Mayacamas 2015: Fundamentals of Astrophysics, Calistoga, CA, April 1–5, 2015, Invited Participant
53. "Black Holes in Dense Star Clusters," Aspen Center for Physics, January 17–22, 2015, Contributed Talk
54. "SWIFT 10 Years of Discovery," La Sapienza University, Rome, Italy, December 2–5, 2014, Contributed Talk
55. "Ioffe Workshop on GRBs and other Explosive Transients: Twenty Years of Konus-Wind Experiment," St. Petersburg, Russia, September 22–26, 2014, Invited Talk
56. "The r-process: Status & Challenges," Institute for Nuclear Theory, University of Washington, Seattle, July 28–August 1, 2014, Invited Review
57. UNSOLVED PROBLEMS in Astrophysics and Cosmology, Budapest, Hungary, June 29–July 5, 2014, Invited Talk (declined)

58. "Fast and Furious: Understanding Exotic Astrophysical Transients," Aspen Center for Physics, June 16–23, 2014
59. "Gamma-Ray Bursts in the Multi-messenger Era," Paris, France, June 16–19, 2014, Invited Talk (declined)
60. "Ultra-Compact Binaries as Laboratories for Fundamental Physics," Aspen Center for Physics, June 8–15, 2014
61. Workshop on Relativistic Plasma Astrophysics, Purdue University, May 11–15, 2014, Invited Talk
62. Mayacamas 2014: Fundamentals of Astrophysics, Calistoga, CA, April 16–20, 2014, Invited Lecture
63. ISSI workshop on THE STRONGEST MAGNETIC FIELDS IN THE UNIVERSE, Bern, Switzerland, February 3–7, 2014, Invited Talk (declined)
64. Gamma-ray Burst - Magnetar Thinkshop (GRBMAG14), Bormio, Italy, January 20–24, 2014, Scientific Organizer, Session Chair and Discussion Leader
65. Texas Relativistic Astrophysics Meeting, Dallas, Texas, Contributed Talk (cancelled)
66. Supernovae and Gamma-Ray Bursts in Kyoto 2013, Nov 11–15, 2013, Kyoto, Japan, Invited Talk
67. Future Directions of Relativistic Jets, Aug 20–Sep 2, 2013, Skokloster, Sweden, Invited Talk, session chair
68. American Physical Society (APS) Meeting, Denver, April 13–16, 2013, Invited Talk, session chair
69. "Joining the Electromagnetic and Gravitational Wave Skies," American Astronomical Society Meeting, Long Beach, CA, Jan 6–10, 2013, Invited Talk/Panelist
70. Gravitational Wave and Electromagnetic Studies of Compact Binary Mergers, Kavli Institute for Theoretical Physics, Santa Barbara, July 30 – August 3, 2012, Invited Talk and panelist
71. Fermi/Swift Gamma-Ray Bursts 2012 Conference, Munich, May 7–11, 2012, Invited Review Talk
72. Connecting the Electromagnetic and Gravitational Wave Skies in the Era of Advanced LIGO, Princeton Center for Theoretical Science, April 30–May 4, 2012, Invited Discussion Leader and Speaker
73. Kavli Royal Society Meeting: Interpreting Signals from Astrophysical Transient Experiments, Chicheley Hall, England, April 25–26, 2012, Invited Participant
74. 2012 Royal Society Discussion: New Windows on Transients Across the Universe, London, April 23–24, 2012, Invited Talk and panelist
75. International Astronomical Union, IAU Symposium 279: Death of Massive Stars: Gamma-Ray Bursts and Supernovae, Nikko, Japan, March 12–16, 2012, Invited Talk
76. Time Domain Astrophysics with Swift, Clemson, October 24–26, 2011, Invited Talk
77. The 2011 International Summer School on Astro-Computing: Computational Explosive Astrophysics, UC Berkeley & LBNL/NERSC, July 18–29, 2011, Invited Lecturer
78. The Origin of the Elements: A Modern Perspective, European Center for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy, May 16–20, 2011, Invited Talk

79. GRBs as Probes: From the Progenitor's Environment to the High Redshift Universe, Como, Italy, May 16–20, 2011, Invited Review Talk
80. Compressible Turbulence at the Intersection of Astrophysics and Engineering, Center for Nonlinear Studies & Los Alamos National Laboratory, Santa Fe, NM, April 25–28, 2011, Invited Talk
81. The Future of AstroComputing, San Diego Supercomputing Center, December 16–17, 2010, Invited Talk (declined)
82. Fermi Space Telescope Science Workshop, New York University, December 1, 2010, Invited Talk
83. Gamma Ray Bursts 2010, Annapolis, November 1–4, 2010, Invited Talk
84. Accretion and Outflow in Black Hole Systems, Kathmandu, Nepal, October 11–15, 2010, Invited Talk (declined)
85. 19th International Conference on General Relativity and Gravitation (GR19), Mexico City, July 5–9, 2010, Invited Talk: "Magnetized Relativistic Flows"
86. Deciphering the Ancient Universe with Gamma Ray Bursts, Kyoto, Japan, April 19–23, 2010, Invited Talk: "Afterglow Light curves from High Resolution Multi-dimensional Simulations"
87. Computational Relativistic Astrophysics: Frontiers of MHD, Princeton Center for Theoretical Science, Princeton University, January 13–16, 2010, Invited Talk (declined)
88. 215<sup>th</sup> meeting of the American Astronomical Association (AAS), Washington D.C., January 2–8, 2010, Invited Talk: Multi-Band Light Curves from Two-Dimensional Simulations of Gamma-Ray Burst Afterglows
89. Gravitational Wave Bursts: Astrophysics, Data Analysis and Numerical Relativity, Chichen-Itza, Mexico, December 9–11, 2009, Invited Talk
90. Computational General Relativistic Astrophysics, Princeton Center for Theoretical Science, Princeton University, October 22–24, 2009, Invited Talk: "GRB Hydrodynamics"
91. KITP Conference: Nonlinear Processes in Astrophysical Plasmas: Particle Acceleration, Magnetic Field Amplification, and Radiation Signatures, Kavli Institute for Theoretical Physics, Santa Barbara, September 28–October 2, 2009, Invited Talk: "Magnetic Field Amplification by Macroscopic Turbulence"
92. The Shocking Universe: Gamma Ray Bursts and High Energy Shock Phenomena in the Universe, Venice, Italy, September 14–18, 2009, Invited Talk: "GRB Afterglow Lightcurves from Multi-Dimensional Simulations"
93. A Festival of Cosmic Explosions, California Institute of Technology, August 21–23, 2009, Invited Talk: "Jets Play a Role in Supernova Explosions"
94. KITP Conference: Stellar Death and Supernovae, Kavli Institute for Theoretical Physics, Santa Barbara, August 17–21, 2009, Invited Review Talk: "Collapsar Model"
95. Marcel Grossman Meeting 12, Paris, France, July 12–18, 2009, Invited Review Talk, GRB1 session: "Hydrodynamics of GRB Outflows"
96. Marcel Grossman Meeting 12, Paris, France, July 12–18, 2009, Invited Talk, GRB3 session: "Relativistic Blastwaves"
97. Marcel Grossman Meeting 12, Paris, France, July 12–18, 2009, Invited Talk, ANM8 session: "Magnetic Field Amplification in Turbulent Shear Flows"

98. Physics of Relativistic Flows: An Observational View, NORDITA, Albanova Center, Stockholm, Sweden, June 2, 2009, Invited Talk: "The Dynamics and Afterglow Radiation of Gamma-Ray Bursts"
99. "GRB Physics" Kavli Institute for Astronomy and Astrophysics (KIAA), Peking University, Beijing, China, May 4 – June 19, 2009 (declined)
100. Frontiers in Space Astrophysics: Neutron Stars & Gamma Ray Bursts, Cairo & Alexandria, Egypt, March 30–April 4, 2009, Invited Review Talk: "New Developments & Scenarios for Long Bursts: Hydrodynamics of Collapsar Jets"
101. 5th UC Irvine Center for Cosmology Workshop: Intermediate-Mass Black Holes: from First Light to Galactic Nuclei, Irvine, April 1–3, 2009 (declined)
102. 2008 Fireworks Meeting: First Results from Wide-Field Surveys, The Weizmann Institute, Rehovot, Israel, December 14–21, 2008, Invited Talk
103. Texas Symposium on Relativistic Astrophysics, Vancouver, Canada, December 8–12, 2008, Invited Talk: "Advances in GRB Simulations: Magnetic Field Amplification by 3D Relativistic Shear Instabilities"
104. Frontiers in Numerical Gravitational Astrophysics, Second Course of the International School on Astrophysical Relativity "John Archibald Wheeler", Erice, Italy, June 27–July 5, 2008, Two Invited Lectures on "Special Relativistic Hydrodynamics"
105. American Physical Society Meeting, St. Louis, April, 2008, Invited Talk: "Gamma Ray Bursts from Massive Stars"
106. International Astronomical Union 250th Meeting, Kuai, Hawaii, December, 2007, Invited Review Talk: "Long Gamma-Ray Bursts – Core Collapse Supernova Connection"
107. Supernova 1987A: 20 Years After – Supernovae and Gamma-Ray Bursters, Aspen Center for Physics, February 18–25, 2007, Invited Review Talk: "Very Asymmetric Supernovae"
108. SWIFT and GRBs: Unveiling the Relativistic Universe, Venice, Italy, June 5–9, 2006, Invited Talk and panelist
109. GRBs in the SWIFT Era, Washington D.C., November 29–December 2, 2005
110. American Physical Society, 47th Meeting of the Division of Plasma Physics, Denver, October 24–28, 2005, Invited Talk: "Stellar Collapse and Explosion: Relativistic AMR Simulations"
111. Grand Challenge Problems in Computational Astrophysics, Institute for Pure & Applied Mathematics, University of California Los Angeles, May 3, 2005, Invited Talk
112. 22nd Texas Symposium on Relativistic Astrophysics, Stanford, December 13–17, 2004, Invited Talk
113. Stanford Linear Accelerator Center (SLAC) Workshop on Plasma Astrophysics, Invited Talk, August 16, 2004
114. The Supernova–Gamma Ray Burst Connection, Institute for Nuclear Theory, University of Washington, Seattle, July 12–14, 2004, Invited Talk
115. The Fate of the Most Massive Stars, Grand Teton, Wyoming, May 23–28, 2004, Invited Talk
116. American Astronomical Society 203rd Meeting: Gamma-Ray Bursts, Atlanta, January 4–8, 2004, Invited Talk
117. Center for Gravitational Wave Physics, Penn State, Second Gravitational Wave Phenomenology Workshop, Nov 6–8, 2003, Invited Review Talk

118. Aspen Center for Physics: "The Nuclear Physics of Core Collapse Supernovae," and "Magnetic Reconnection," Aspen, Colorado, May-June, 2003, Invited Talk
119. The Restless High-Energy Universe - A Symposium on X-Ray Astronomy, Royal Academy of Arts and Sciences of the Netherlands, Amsterdam, May 5-8, 2003, Invited Talk
120. International Astronomical Union (IAU) Colloquium 192 "Supernovae," Valencia, Spain, April 22-26, 2003, Invited Review Talk
121. ESO/MPA/MPE Workshop "From Twilight to Highlight: The Physics of Supernova Explosions," Garching, Germany, July 30, 2002, Invited Talk
122. American Astronomical Society, Summer Meeting, Core-Collapse of Massive Stars: Supernovae and Gamma-Ray Bursts, Albuquerque, NM, June, 2002, Invited Talk
123. American Physical Society, Spring Meeting with the High Energy Astrophysics Division (HEAD), Albuquerque, NM, April, 2002, Invited Talk
124. Aspen Center for Physics: "Gamma-Ray Bursts In The Afterglow Era," Aspen, Colorado, June, 2001, Invited Talk
125. American Astronomical Society 198th Meeting, Pasadena, California, June, 2001, "Gamma-Ray Bursts: A Mystery and a Tool," Invited Talk
126. The 18th Jerusalem Winter School in Theoretical Physics: "COSMIC EXPLOSIONS Gamma-Ray Bursts & Related Phenomena," Hebrew University of Jerusalem, January, 2001, Invited Review Talk
127. Explosive Phenomena in Astrophysical Compact Objects, Korea Institute for Advanced Studies, Seoul, Korea, May, 2000, Invited Talk
128. Fifth Huntsville Gamma-Ray Burst Symposium, Huntsville, Alabama, Oct. 18-22, 1999
129. 10th Annual October Maryland Astrophysics Conference: "Cosmic Explosions!", Oct 11-13, 1999, Contributed Talk
130. ESO Workshop on Black Holes in Binaries and Galactic Nuclei: "Diagnostics, Demography and Formation, In Honour of Professor Riccardo Giacconi," Munich, Germany, September, 1999, Contributed Talk
131. IAU (International Astronomical Union) Symposium 195: "Highly Energetic Physical Processes and Mechanisms for Emissions from Astrophysical Plasmas," Montana State University, July 1999, Contributed Talk
132. "Gamma-Ray Bursts and their Afterglows", Institute for Theoretical Physics, Santa Barbara, March 15-18, 1999
133. American Astronomical Society 193rd Meeting, Austin, Texas, January, 1999, "Collapsars - Gamma Ray Bursts and Explosions in 'Failed Supernovae' "
134. American Astronomical Society 192nd Meeting, San Diego, California, June, 1998, "The Collapsar Model for Gamma Ray Bursts - Two-Dimensional Calculations"
135. Ringberg Castle Meeting on Neutrino and Gamma-Ray Astrophysics, Tegernsee, Germany, September, 1997

COLLOQUIA &  
SEMINARS

1. University of Delaware, Physics Colloquium, Spring, 2020 (postponed)
2. UCLA, Astronomy Colloquium, December 4, 2019
3. University of Oregon, Physics Colloquium, October 17, 2019
4. California Institute of Technology, Astronomy Colloquium, May 29, 2019
5. Flatiron Institute, Center for Computational Astrophysics Colloquium, Feb 1, 2019
6. University of Amsterdam, Astronomy Colloquium, November 23, 2016
7. Princeton University and Institute for Advanced Study Joint Astrophysics Colloquium, April 26, 2016
8. Stony Brook University, Physics Colloquium, September 15, 2015
9. University of Chicago, Astronomy Colloquium, April 29, 2015
10. UC Santa Cruz, FLASH seminar, April 17, 2015
11. Stanford University, KIPAC Colloquium, April 16, 2015
12. UC Berkeley, Theoretical Astrophysics Center Seminar, April 13, 2015
13. Harvard University, Center for Astrophysics Colloquium, February 5, 2015
14. Capodimonte Observatory, Colloquium, Naples, Italy, December 10, 2014
15. Princeton University, Gravity Group Seminar, December 5, 2014 (postponed)
16. Carnegie Observatories, Colloquium, Pasadena, November 6, 2014
17. Stony Brook University, Astrophysics Seminar, October 29, 2014
18. University of Arizona, Joint NOAO/Seward Colloquium, October 16, 2014
19. Northwestern University, CIERA seminar, October 7, 2014
20. Columbia University, Physics Colloquium, September 15, 2014
21. Oskar Klein Center Colloquium, Stockholm, Sweden, May 27, 2014
22. Harvard University, ITC Colloquium, April 3, 2014
23. University of Maryland, JSI Colloquium, February 3, 2014
24. University of Colorado, Astronomy Colloquium, September 24, 2012
25. Yale University, Astronomy Colloquium, September 6, 2012
26. Institute for Advanced Study, Princeton, Astrophysics Colloquium, May 22, 2012
27. Penn State University, Astronomy Colloquium, January, 18, 2012
28. Canadian Institute for Theoretical Astrophysics (CITA), University of Toronto, Astrophysics Seminar, January 12, 2012
29. Queens College, Physics Colloquium, (TBD)
30. Purdue University, Physics Colloquium, April 7, 2011
31. Harvard University, ITC Seminar, February 8, 2011
32. University of Minnesota, Astronomy Colloquium, Oct 8, 2010
33. Institute for Advanced Study, Princeton, Astrophysics Seminar, May 13, 2010
34. Stony Brook University, Astrophysics Seminar, April 16, 2010
35. Goddard Institute for Space Studies, Astrophysics Seminar, March 12, 2010
36. American Museum of Natural History, Astrophysics Seminar, February 2, 2010
37. New York University, Physics Colloquium, January 28, 2010

38. Nordic Institute for Theoretical Physics, Stockholm, Sweden, NORDITA Seminar, June 11, 2009
39. Harvard University, Center for Astrophysics Colloquium, September 3, 2009
40. Columbia University, ISCAP Seminar, Institute for Strings, Cosmology and Astroparticle Physics, February 27, 2009
41. Harvard University, ITC Colloquium, December 11, 2008
42. University of Delaware, Physics Colloquium, March, 2008
43. Columbia University, Astronomy Colloquium, April 25, 2007.
44. University of Wisconsin, Madison, Astronomy Colloquium, February, 2006
45. University of Montreal, Physics Colloquium, March, 2006
46. McGill University, Astrophysics Seminar, November, 2005
47. Space Telescope Science Institute, Colloquium, May, 2005
48. National Radio Astronomy Observatory (NRAO) & University of Virginia, Joint Colloquium, December 6, 2004
49. University of Rochester, Astronomy Colloquium, October 11, 2004
50. National Radio Astronomy Observatory (NRAO) Colloquium, Socorro, New Mexico, April 4, 2004
51. Montana State University, Physics Colloquium, March, 2004
52. University of Illinois Urbana-Champaign, Theoretical Astrophysics & General Relativity Seminar, October 29, 2003
53. University of California, Berkeley, Theoretical Astrophysics Seminar, December 3, 2003
54. University of Arizona, Theoretical Astrophysics Colloquium, September 22, 2003
55. Duke University/North Carolina State/University of North Carolina, Joint Astrophysics Colloquium, April, 2003
56. Canadian Institute for Theoretical Astrophysics, Seminar, October 21, 2002
57. California Institute of Technology, Theoretical Astrophysics and Relativity Seminar, November, 2001
58. University of California, Santa Cruz, Astronomy and Astrophysics Colloquium, September, 2000

## PUBLICATIONS

1. Turner, N. J. J., & MacFadyen, A., A search for stars in the intergalactic neutral hydrogen cloud HI 1225+01: the star formation threshold in galaxies, *Monthly Notices of the Royal Astronomical Society*, **285**, 125 (1997)
2. MacFadyen, A. I., & Woosley, S. E., Collapsars: Gamma-Ray Bursts and Explosions in "Failed Supernovae", *Astrophysical Journal*, **524**, 262 (1999)
3. Woosley, S. E., & MacFadyen, A. I., Central engines for gamma-ray bursts, *A&AS*, **138**, 499 (1999)
4. Woosley, S.; MacFadyen, A. I.; Heger, A., Collapsars, Gamma-Ray Bursts and Supernovae, *Supernovae and Gamma-Ray Bursts* (1999)
5. Aloy, M. A., Müller, E., Ibáñez, J. M., Martí, J. M., & MacFadyen, A., Relativistic Jets from Collapsars, *Astrophysical Journal*, **531**, L119 (2000)
6. Woosley, S. E., & MacFadyen, A. I., Gamma-ray bursts, supernovae, and SN 1998bw., *Memorie della Societa Astronomica Italiana*, **71**, 357 (2000)
7. Hartmann, D. H., & MacFadyen, A. I., Hypernovae, Collapsars, and Gamma-Ray Bursts, *Nuclear Physics B*, **80**, 135 (2000)
8. MacFadyen, A. I., Woosley, S. E., & Heger, A., Supernovae, Jets, and Collapsars, *Astrophysical Journal*, **550**, 410 (2001)
9. Kobayashi, S., Ryde, F., & MacFadyen, A., Luminosity and Variability of Collimated Gamma-Ray Bursts, *Astrophysical Journal*, **577**, 302 (2002)
10. Ramirez-Ruiz, E., MacFadyen, A. I., & Lazzati, D., Precursors and Electron-Positron Pair Loading from Erupting Fireballs, *Monthly Notices of the Royal Astronomical Society*, **331**, 197 (2002)
11. Zhang, W., Woosley, S. E., & MacFadyen, A. I., Relativistic Jets in Collapsars, *Astrophysical Journal*, **586**, 356 (2003)
12. Proga, D., MacFadyen, A. I., Armitage, P. J., & Begelman, M. C., Axisymmetric Magnetohydrodynamic Simulations of the Collapsar Model for Gamma-Ray Bursts, *Astrophysical Journal*, **599**, L5 (2003)
13. MacFadyen, A. I., Supernova Explosions from Accretion Disk Winds, *From Twilight to Highlight: The Physics of Supernovae*, 97 (2003)
14. MacFadyen, A. I., Collapsar Disks and Winds, *Gamma-Ray Burst and Afterglow Astronomy 2001: A Workshop Celebrating the First Year of the HETE Mission*, **662**, 202 (2003)
15. MacFadyen, A., Long Gamma-Ray Bursts, *Science*, **303**, 5654 (2004)
16. Fox, D. B., Frail, D. A., Price, P. A., Kulkarni, S. R., Berger, E., et al., The afterglow of GRB 050709 and the nature of the short-hard  $\gamma$ -ray bursts, *Nature*, **437**, 845 (2005)
17. Soderberg, A. M. et al., An HST Search for Supernovae Accompanying X-Ray Flashes, *Astrophysical Journal*, **627**, 877 (2005)
18. MacFadyen, A. I., Ramirez-Ruiz, E., & Zhang, W., X-ray flares following short gamma-ray bursts from shock heating of binary stellar companions, *arXiv:astro-ph/0510192* (2005)
19. Gal-Yam, A. et al., A novel explosive process is required for the  $\gamma$ -ray burst GRB 060614, *Nature*, **444**, 1053 (2006)
20. Zhang, W., Woosley, S. E., & MacFadyen, A. I., Gamma-ray bursts: nature's brightest explosions, *Journal of Physics Conference Series*, **46**, 403 (2006)
21. Uzdensky, D. A., & MacFadyen, A. I., Stellar Explosions by Magnetic Towers, *Astrophysical Journal*, **647**, 1192 (2006)



22. Soderberg, A. M. et al., An HST Study of the Supernovae Accompanying GRB 040924 and GRB 041006, *Astrophysical Journal*, **636**, 391 (2006)
23. Zhang, W., & MacFadyen, A. I., RAM: A Relativistic Adaptive Mesh Refinement Hydrodynamics Code, *Astrophysical Journal Supplement Series*, **164**, 255 (2006)
24. Uzdensky, D. A., & MacFadyen, A. I., Magnetar-Driven Magnetic Tower as a Model for Gamma-Ray Bursts and Asymmetric Supernovae, *Astrophysical Journal*, **669**, 546 (2007)
25. Soderberg, A. M. et al., A Spectacular Radio Flare from XRF 050416a at 40 Days and Implications for the Nature of X-Ray Flashes, *Astrophysical Journal*, **661**, 982 (2007)
26. Uzdensky, D. A., & MacFadyen, A. I., Magnetically dominated jets inside collapsing stars as a model for gamma-ray bursts and supernova explosions, *Physics of Plasmas*, **14**, 056506 (2007)
27. MacFadyen, A. I., & Milosavljević, M., An Eccentric Circumbinary Accretion Disk and the Detection of Binary Massive Black Holes, *Astrophysical Journal*, **672**, 83 (2008)
28. Goodman, J., & MacFadyen, A., Ultra-relativistic geometrical shock dynamics and vorticity, *Journal of Fluid Mechanics*, **604**, 325 (2008)
29. Budnik, R., Katz, B., MacFadyen, A., & Waxman, E., Cosmic Rays from Transrelativistic Supernovae, *Astrophysical Journal*, **673**, 928 (2008)
30. Zhang, W., & MacFadyen, A., The Dynamics and Afterglow Radiation of Gamma-Ray Bursts. I. Constant Density Medium, *Astrophysical Journal*, **698**, 1261 (2009)
31. Zhang, W., MacFadyen, A., & Wang, P., Three-Dimensional Relativistic Magnetohydrodynamic Simulations of the Kelvin-Helmholtz Instability: Magnetic Field Amplification by a Turbulent Dynamo, *Astrophysical Journal*, **692**, L40 (2009)
32. Corrales, L. R., Haiman, Z., & MacFadyen, A., Hydrodynamical Response of a Circumbinary Gas Disk to Black Hole Recoil and Mass Loss, *Monthly Notices of the Royal Astronomical Society*, **404**, 947 (2010)
33. Perna, R. & MacFadyen, A., Flare-less long Gamma-ray Bursts and the properties of their massive star progenitors, *Astrophysical Journal*, **710**, L103-106 (2010)
34. Ramirez-Ruiz, E., & MacFadyen, A. I., The Hydrodynamics of Gamma-Ray Burst Remnants, *Astrophysical Journal*, **716**, 1028 (2010)
35. van Eerten, H., Zhang, W. & MacFadyen, A., Off-Axis Gamma-Ray Burst Afterglow Modeling Based On A Two-Dimensional Axisymmetric Hydrodynamics Simulation, *Astrophysical Journal*, **722**, 235 (2010)
36. Duffell, P. C., & MacFadyen, A. I., TESS: A Relativistic Hydrodynamics Code on a Moving Voronoi Mesh, *Astrophysical Journal Supplement*, **197**, 15 (2011)
37. van Eerten, H. J., & MacFadyen, A. I., Synthetic Off-axis Light Curves for Low-energy Gamma-Ray Bursts, *Astrophysical Journal Letters*, **733**, L37 (2011)
38. van Eerten, H. J., & MacFadyen, A. I., Observational implications of gamma-ray burst afterglow jet simulations and numerical light curve calculations, *Astrophysical Journal*, **751**, 155 (2012)
39. Zrake, J., & MacFadyen, A., Numerical Simulations of Driven Relativistic MHD Turbulence, *Astrophysical Journal*, **744**, 32 (2012)
40. Sari, R., Bode, N., Yalinewich, A., & MacFadyen, A., Slightly Two or Three Dimensional Self-Similar Solutions, *Physics of Fluids*, **24**, 087102 (2012)

41. van Eerten, H. J., van der Horst, A. J., & MacFadyen, A. I., Gamma-ray burst afterglow broadband fitting based directly on hydrodynamics simulations, *Astrophysical Journal*, **749**, 44 (2012)
42. van Eerten, H. J., & MacFadyen, A. I., Gamma-ray burst afterglow scaling relations for the full blast wave evolution, *Astrophysical Journal Letters*, **747**, L30 (2012)
43. Duffell, P. C., & MacFadyen, A. I., Global Calculations of Density Waves and Gap Formation in Protoplanetary Disks using a Moving Mesh, *Astrophysical Journal*, **755**, 7 (2012)
44. van Eerten, H. J., & MacFadyen, A. I., Gamma-Ray Burst Afterglow Light Curves from a Lorentz-Boosted Simulation Frame and the Shape of the Jet Break, *Astrophysical Journal*, **767**, 141 (2013)
45. Zrake, J. & MacFadyen, A., Spectral and Intermittency Properties of Relativistic Turbulence, *Astrophysical Journal Letters*, **763**, L12 (2013)
46. Milisavljevic, D. et al, Multi-wavelength Observations of Supernova 2011ei: Time-dependent Classification of Type IIb and Ib Supernovae and Implications for Their Progenitors, *Astrophysical Journal* **767**, 71 (2013)
47. Zrake, J. & MacFadyen, A. I., Magnetic energy production by turbulence in binary neutron star mergers, *Astrophysical Journal Letters*, **769**, L29 (2013)
48. Duffell, P. C., & MacFadyen, A. I., Gap Opening by Extremely Low Mass Planets in a Viscous Disk, *Astrophysical Journal*, **769**, 41 (2013)
49. Gat, I., van Eerten, H. J., & MacFadyen, A. I., No flares from GRB afterglow blast waves encountering sudden circumburst density change, *Astrophysical Journal*, **771**, 1 (2013)
50. Duffell, P. C., & MacFadyen, A. I., Rayleigh-Taylor Instability in a Relativistic Fireball on a Moving Computational Grid, *Astrophysical Journal*, **775**, 87 (2013)
51. D’Orazio, D., Haiman, Z., & MacFadyen, A. I., Accretion into the Central Cavity of a Circumbinary Disk, *Monthly Notices of the Royal Astronomical Society* **436**, 2997 (2013)
52. Andersson, N. et. al., The Transient Gravitational-Wave Sky, *Classical and Quantum Gravity*, **30**, 19 (2013)
53. Duffell, P. C., & MacFadyen, A. I., A “Boosted Fireball” Model for Structured Relativistic Jets, *Astrophysical Journal Letters*, **776**, L9 (2013)
54. Pfeiffer, H. & MacFadyen, A. I., Hyperbolicity of Force-Free Electrodynamics, under review, arxiv:1307.7782 (2013)
55. Perna, Rosalba; Duffell, Paul; Cantiello, Matteo; MacFadyen, Andrew I., The Fate of fallback Matter around Newly Born Compact Objects, *Astrophysical Journal*, **781**, 119, (2014)
56. Farris, Brian D.; Duffell, Paul; MacFadyen, Andrew I.; Haiman, Zoltan, Binary Black Hole Accretion from a Circumbinary Disk: Gas Dynamics inside the Central Cavity, *Astrophysical Journal*, **783**, 134 (2014)
57. Duffell, P. C., & MacFadyen, A. I., Shock Corrugation by Rayleigh-Taylor Instability in GRB Afterglow Jets, *Astrophysical Journal Letters*, **791**, L1 (2014)
58. Mazzali, P., MacFadyen, A., Woosley, S., Pian, E., Tanaka, M., An upper limit to the energy of gamma-ray bursts indicates that GRB/SNe are powered by magnetars, *MNRAS*, **443**, 67 (2014)

59. Duffell, Paul C.; Haiman, Zoltan; MacFadyen, Andrew I.; D’Orazio, Daniel J.; Farris, Brian D., The Migration of Gap-opening Planets is Not Locked to Viscous Disk Evolution, *Astrophysical Journal Letters*, **792**, L10, (2014)
60. Chakraborti, S et. al., A Missing-Link in the Supernova-GRB Connection: The Case of SN 2012ap, *Astrophysical Journal*, **805**, 187 (2015)
61. Zhang, Bin-Bin; van Eerten, Hendrik; Burrows, David N.; Ryan, Geoffrey Scott; Racusin, Judith L.; Troja, Eleonora; MacFadyen, Andrew, A Comprehensive Analysis on Chandra Deep Follow-up GRBs: Implications for Off-Axis Jets, *Astrophysical Journal*, **806**, 15 (2015)
62. Ryan, G.; van Eerten, H.; MacFadyen, A.; Zhang, B., Gamma Ray Bursts Are Observed Off-Axis, *Astrophysical Journal*, **799**, 3 (2015)
63. Farris, Brian D.; Duffell, Paul; MacFadyen, Andrew I.; Haiman, Zoltan, Characteristic Signatures in the Thermal Emission from Accreting Binary Black Holes, *MNRAS Letters*, **446L**, 36 (2015)
64. Duffell, Paul C.; MacFadyen, Andrew I., From Engine to Afterglow: Collapsars Naturally Produce Top-Heavy Jets and Early-Time Plateaus in Gamma Ray Burst Afterglows, *Astrophysical Journal*, **806**, 205 (2015)
65. Bruno Giacomazzo, Jonathan Zrake, Paul Duffell, Andrew MacFadyen, and Rosalba Perna, Producing Magnetar Magnetic Fields in the Merger of Binary Neutron Stars, *Astrophysical Journal*, **809**, 39 (2015)
66. Duffell, Paul C.; MacFadyen, Andrew I., High-Frequency Voronoi Noise Reduced by Smoothed Mesh Motion, *MNRAS*, **449**, 2718, (2015)
67. Farris, Brian D.; Duffell, Paul; MacFadyen, Andrew I.; Haiman, Zoltan, Binary Black Hole Accretion During Inspiral and Merger, *MNRAS Letters*, **447**, L80 (2015)
68. D’Orazio, Daniel J.; Haiman, Zoltan; Duffell, Paul; Farris, Brian D.; MacFadyen, Andrew I., A reduced orbital period for the supermassive black hole binary candidate in the quasar PG 1302-102?, *MNRAS*, **452**, 2540D (2015)
69. Duffell, Paul C.; Quataert, Eliot; MacFadyen, Andrew I., A Narrow Short-Duration GRB Jet from a Wide Central Engine, *Astrophysical Journal*, **813**, 64 (2015)
70. D’Orazio, Daniel J.; Haiman, Zoltan; Duffell, Paul; MacFadyen, Andrew I.; Farris, Brian D., A transition in circumbinary accretion discs at a binary mass ratio of 1:25, *MNRAS*, **459**, 2379 (2016)
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86. Fong, W. et. al., The Optical Afterglow of GW170817: An Off-axis Structured Jet and Deep Constraints on a Globular Cluster Origin, *Astrophysical Journal Letters*, **883**, 1 (2019)
87. Hajela, A. et. al., Two years of non-thermal emission from the binary neutron star merger GW 170817: rapid fading of the jet afterglow and first constraints on the kilonova fastest ejecta, *Astrophysical Journal Letters*, **886**, 1 (2019)
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93. Westernacher-Schneider, John Ryan ; Zrake, Jonathan ; MacFadyen, Andrew ; Haiman, Zoltan, Multi-band light curves from eccentric accreting supermassive black hole binaries, submitted to *PRD*, arXiv:2111.06882 (2021)
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