

Curriculum Vitae

Brian David Metzger

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CURRENT POSITION: NASA Einstein Fellow (Princeton University)

RESEARCH INTERESTS: gamma-ray bursts, supernovae, nucleosynthesis, compact objects, accretion processes, gravitational wave astrophysics

EDUCATION

8/03–5/09 **University of California at Berkeley**
M.A. Physics (9/05), **Ph.D. Physics** (5/09)
Research Adviser: Professor Eliot Quataert

8/99–5/03 **The University of Iowa**
B.S. Physics (*Honors*), **Astronomy** (*Honors*), and **Mathematics**
Graduation with Highest Distinction, GPA: 4.21 (4.0 scale)
Research Adviser: Professor Benjamin Chandran

PAST RESEARCH EXPERIENCE

5/09–9/09 Postdoctoral Researcher, UC Berkeley Department of Astronomy
5/03–5/09 Graduate Research Assistant, UC Berkeley Department of Physics
5/02–8/02 NRAO REU Research Assistant, Very Large Array
6/00–5/03 Undergraduate Research Assistant, U Iowa Department of Physics

FELLOWSHIPS and AWARDS

9/09– NASA Einstein Fellowship (*Astrophysical Sciences, Princeton*)
11/09 AAS High Energy Astrophysics Division Dissertation Prize
9/09 NASA Hubble Fellowship (*declined*)
9/09 Lyman Spitzer Jr. Fellowship (*Astrophysical Sciences, Princeton, deferred*)
5/09 Mary Elizabeth Uhl Prize (*Astronomy Department, UC Berkeley*)
8/05–8/08 NASA Graduate Student Research Fellowship
5/03 James A. Van Allen Award (*Department of Physics, U Iowa*)
5/03 Callen Prize for Highest Promise in Graduate Research (*U Iowa*)
5/03 Rhodes/Dunlap Collegiate Scholarship (*U Iowa*)
5/02 William R. Savage Award (*Department of Physics, U Iowa*)
5/02 Phi Beta Kappa Honor Society

PEER-REVIEWED PUBLICATIONS (14 first author; 462 citations; h-index 14)

25. **B. D. Metzger**, D. Giannios, P. Mimica, “Afterglow Model for the Radio Emission from the Jetted Tidal Disruption Candidate *Swift* J1644+57,” 2011, MNRAS submitted
24. **B. D. Metzger** & E. Berger, “What is the Most Promising Electromagnetic Counterpart of a Neutron Star Binary Merger?,” 2011, ApJ submitted
23. **B. D. Metzger**, “Nuclear Dominated Accretion and Subluminous Supernovae from the Merger of a White Dwarf with a Neutron Star or Black Hole,” 2011, MNRAS accepted
22. N. Bucciantini, **B. D. Metzger**, T. A. Thompson, E. Quataert, “Short Gamma-Ray Bursts with Extended Emission from Magnetar Birth: Jet Formation and Collimation,” 2011, MNRAS accepted
21. J. S. Bloom, D. Giannios, **B. D. Metzger**, et al., “A Relativistic Jetted Outburst from a Massive Black Hole Fed by a Tidally Disrupted Star,” 2011, Science, 333, 203
20. D. Giannios & **B. D. Metzger**, “Radio Transients from Stellar Tidal Disruption by Massive Black Holes,” 2011, MNRAS, 416, 2102
19. **B. D. Metzger**, D. Giannios, S. Horiuchi, “Heavy Nuclei Synthesized in Gamma-Ray Burst Outflows as the Source of Ultra-High Energy Cosmic Rays,” 2011, MNRAS, 415, 2495
18. **B. D. Metzger**, D. Giannios, T. A. Thompson, N. Bucciantini, E. Quataert, “The Proto-Magnetar Model for Gamma-Ray Bursts,” 2011, MNRAS, 431, 2031
17. J. Nordhaus, S. Wellons, D. Spiegel, **B. D. Metzger**, E. G. Blackman, “Formation of High-Field Magnetic White Dwarfs from Common Envelopes,” 2011, Proceedings of the National Academy of Sciences, 108, 3135
16. **B. D. Metzger**, “Relic Proto-Stellar Disks and the Origin of Luminous Circumstellar Interaction in Core Collapse Supernovae,” 2010, MNRAS, 409, 284
15. S. Darbha, **B. D. Metzger**, E. Quataert, D. Kasen, P. Nugent, R. Thomas, “Nickel-Rich Outflows Produced by the Accretion-Induced Collapse of White Dwarfs: Light Curves and Spectra,” 2010, MNRAS, 409, 846
14. **B. D. Metzger**, G. Martinez-Pinedo, S. Darbha, E. Quataert, A. Arcones, D. Kasen, R. Thomas, P. Nugent, I. V. Panov, N. T. Zinner, “Electromagnetic Counterparts of Compact Object Mergers Powered by the Radioactive Decay of R-Process Nuclei,” 2010, MNRAS, 406, 2650
13. H. B. Perets, ..., **B. D. Metzger**, et al. , “A Faint Type of Supernova from a White Dwarf with a Helium-Rich Companion,” 2010, Nature, 465, 7296

12. **B. D. Metzger**, A. Arcones, E. Quataert, & G. Martinez-Pinedo, “The Effects of R-Process Heating on Fall-Back Accretion in Compact Object Mergers,” 2010, MNRAS, 402, 2771
11. N. Bucciantini, E. Quataert, **B. D. Metzger**, T. A. Thompson, J. Arons, L. Del Zanna, “Magnetized Relativistic Jets and Long-Duration GRBs from Magnetar Spin-down during Core-Collapse Supernovae,” 2009, MNRAS, 396, 2038
10. **B. D. Metzger**, A. L. Piro, & E. Quataert, “Nickel-Rich Outflows from Accretion Disks Produced by the Accretion-Induced Collapse of White Dwarfs,” 2009, MNRAS, 396, 1659
9. **B. D. Metzger**, A. L. Piro, & E. Quataert, “Neutron-Rich Freeze-Out in Accretion Disks Formed from Compact Object Mergers,” 2009, MNRAS, 396, 304
8. D. A. Perley, **B. D. Metzger**, et al. , “GRB 080503: Implications of a Naked Short Gamma-Ray Burst Dominated by Extended Emission,” 2008, ApJ, 696, 1871
7. **B. D. Metzger**, A. L. Piro, & E. Quataert, “Time Dependent Models of Accretion Disks Formed from Compact Object Mergers,” 2008, MNRAS, 390, 781
6. **B. D. Metzger**, T. A. Thompson, & E. Quataert, “On the Conditions for Neutron-Rich Gamma-Ray Burst Outflows,” 2008, ApJ, 676, 1130
5. **B. D. Metzger**, E. Quataert, & T. A. Thompson, “Short Duration Gamma-Ray Bursts with Extended Emission from Proto-Magnetar Spin-Down,” 2008, MNRAS, 385, 1455
4. N. Bucciantini, E. Quataert, J. Arons, **B. D. Metzger**, & T. A. Thompson, “Relativistic Jets and Long-Duration Gamma-Ray Bursts from the Birth of Magnetars,” 2008, MNRAS, 383, L25
3. **B. D. Metzger**, T. A. Thompson, & E. Quataert, “Proto-Neutron Star Winds with Magnetic Fields and Rotation,” 2007, ApJ, 659, 561
2. N. Bucciantini, E. Quataert, J. Arons, **B. D. Metzger**, & T. A. Thompson, “Magnetar-Driven Bubbles and the Origin of Collimated Outflows from Gamma-Ray Bursts,” 2007, MNRAS, 380, 1541
1. D. A. Frail, **B. D. Metzger**, E. Berger, S. R. Kulkarni, & S. A. Yost, “A Late-Time Flattening of Afterglow Light Curves,” 2004, ApJ, 600, 828

INVITED COLLOQUIA and SEMINARS

10/11	Wunch Seminar (<i>Princeton University</i>)
09/11	ITC Colloquium (<i>CfA Harvard</i>)
09/11	Gravity Theory Seminar (<i>MIT</i>)
05/11	Astronomy Department Colloquium (<i>California Institute of Technology</i>)
12/10	Astronomy Department Colloquium (<i>Penn State University</i>)
11/10	HEP/Astronomy Seminar (<i>University of Michigan</i>)
10/10	CCAPP Seminar (<i>Ohio State University</i>)
10/10	Astronomy Department Colloquium (<i>University of Minnesota</i>)
10/10	LIGO Multi-Messenger Study Group
09/10	Physics Department Colloquium (<i>University of Iowa</i>)
09/10	Physics Department Colloquium (<i>Notre Dame University</i>)
04/10	Astrophysics Science Division Colloquium (<i>NASA Goddard</i>)
02/10	Astronomy Department Colloquium (<i>Michigan State University</i>)
02/10	Wunch Seminar (<i>Princeton University</i>)
04/09	Institute for Nuclear and Particle Astrophysics (<i>LBNL</i>)
10/08	ITC Seminar (<i>CfA Harvard</i>)
10/08	Wunch Seminar (<i>Princeton University</i>)
10/08	Astronomy Seminar (<i>Columbia University</i>)

INVITED and CONTRIBUTED TALKS

10/11	LIGO Open Data Workshop, Invited (<i>Livingston, LA</i>)
10/11	Einstein Fellows Symposium (<i>NASA Goddard</i>)
09/11	New Horizons in Time Domain Astronomy Workshop, Invited (<i>Oxford, UK</i>)
09/11	2011 HEAD Meeting, Invited (<i>Newport, RI</i>)
06/11	MICRA 2011, Contributed (<i>Perimeter Institute; Waterloo, ON</i>)
03/11	The Prompt Activity of GRBs, Contributed (<i>Rayleigh, NC</i>)
11/10	Gamma-Ray Bursts 2010, Contributed (<i>Annapolis, MD</i>)
10/10	Einstein Fellows Symposium (<i>Harvard CfA</i>)
07/10	Nuclei in the Cosmos XI, Contributed (<i>Heidelberg, Germany</i>)
07/10	GSI R-Process Workshop, Contributed (<i>Darmstadt, Germany</i>)
06/10	Supernova Progenitors and Environments, Contributed (<i>IAP; Paris, France</i>)
04/10	The Eventful Universe: NOAO 50th Anniversary, Contributed (<i>Tucson, Az</i>)
04/10	2010 HEAD Meeting, Dissertation Award Talk (<i>Big Island, HI</i>)
01/10	215th AAS Meeting, Contributed (<i>Washington, DC</i>)
10/09	Einstein Fellows Symposium (<i>Harvard CfA</i>)
10/09	2009 BASH Symposium, Invited Review on Gamma-Ray Bursts (<i>UT; Austin, TX</i>)
04/09	Neutron Stars & Gamma-Ray Bursts 2009, Contributed (<i>Cairo, Egypt</i>)
04/07	SN 1987A: 20 Years Later, Contributed (<i>Aspen, CO</i>)

PROFESSIONAL ACTIVITIES

2011	Panelist, NASA <i>Fermi</i> Proposal Review
2010	Panelist, NASA Astrophysics Theory Proposal Review
2010–	Organizer/Coordinator, Princeton University Spring Colloquium Series
09/10	Public Lecture, Southeast Iowa Astronomy Club
2008–	Reviewer, <i>The Astrophysical Journal</i> , <i>New Astronomy</i> , <i>Monthly Notices of the Royal Astronomical Society</i>
12/07–4/08	Member, Faculty Search Committee (<i>Department of Physics, UC Berkeley</i>)
3/04–9/04	Member, Prelim Exam Committee (<i>Department of Physics, UC Berkeley</i>)

TEACHING and ADVISING EXPERIENCE

6/11–	Research Mentor, Princeton graduate student Konstantin Bochkarev
1/09–05/10	Research Mentor, UC Berkeley graduate student Siva Darbha (2 publications)
5/03–12/03	Graduate Student Instructor, UC Berkeley Department of Physics
8/02–5/03	Physics Tutor, University of Iowa Department of Physics

CONFERENCE PROCEEDINGS and WHITE PAPERS

9. **B. D. Metzger**, G. Martinez-Pinedo, S. Darbha, et al. 2010, “Radioactively Powered Electromagnetic Counterparts of Neutron Star Mergers,” Proceedings of Science: Nuclei in the Cosmos XI
8. **B. D. Metzger**, “Gamma-Ray Burst Central Engines: Black Hole vs. Magnetar,” Invited Review, Frank N. Bash Symposium 2009: New Horizons in Astronomy
7. **B. D. Metzger**, A. L. Piro, E. Quataert, & T. A. Thompson, “Observational Signatures of the Accretion-Induced Collapse of White Dwarfs,” 2009, Proceedings of ‘Neutron Stars and Gamma-Ray Bursts’ (Cairo/Alexandria, Egypt)
6. **B. D. Metzger**, T. A. Thompson, & E. Quataert, “Are Gamma-Ray Burst Outflows Neutron-Rich?,” 2008, Proceedings of “Gamma-Ray Bursts 2007” (Santa Fe, NM)
5. N. Bucciantini, E. Quataert, J. Arons, **B. D. Metzger**, & T. A. Thompson, “Magnetar Driven Bubbles and the Origin of Collimated GRB Outflows,” 2008, AIP: “Astrophysics of Compact Objects”, Volume 968, pp. 26-31
4. **B. D. Metzger**, T. A. Thompson, & E. Quataert, “Proto-Neutron Star Winds, Magnetar Birth, and Gamma-Ray Bursts,” 2007, AIP: “SN 1987A: 20 Years Later,” 937, 521

3. T. A. Thompson, **B. D. Metzger**, N. Bucciantini, “Proto-Magnetars as GRB Central Engines: Uncertainties, Limitations, and Particulars,” 2010, AIP, 1279, 81
2. J. S. Bloom, ..., **B. D. Metzger**, et al., “Astro2010 Decadal Survey Whitepaper: Coordinated Science in the Gravitational and Electromagnetic Skies,” 2009, arXiv:0902.1527
1. A. Soderberg, ..., **B. D. Metzger**, et al. 2009, “Astro2010 Decadal Survey Whitepaper: The Dynamic X-ray Sky of the Local Universe,” 2009, arXiv:0902.3674

REFERENCES

1. Eliot Quataert, Department of Astronomy, The University of California, B-20 Hearst Field Annex, Berkeley, CA 94720, (510) 642-3792, eliot@astro.berkeley.edu
2. Todd Thompson, Department of Astronomy, The Ohio State University, McPherson Laboratory, Columbus, OH 43210, (614) 292-7971, thompson@astronomy.ohio-state.edu
3. Edo Berger, Harvard College Observatory, 60 Garden Street, Cambridge, MA 02138, (617) 495-7914, eberger@cfa.harvard.edu
4. Jeremy Goodman, Princeton University, Peyton Hall, Princeton, NJ 08544, (609) 258-3586, jeremy@astro.princeton.edu
5. Joshua Bloom, Department of Astronomy, The University of California, B-20 Hearst Field Annex, Berkeley, CA 94720, (510) 643-3839, j bloom@astro.berkeley.edu