



CURRICULUM VITAE - ANDREW SAMUEL FRIEDMAN
(SEPTEMBER 2008)



Harvard-Smithsonian Center For Astrophysics, 60 Garden St. Office P-302, Cambridge, MA
02138, (617) 495-4142, afriedman@cfa.harvard.edu, www.cfa.harvard.edu/~afriedman

EDUCATION

- 2008 Ph.D. Student (Astronomy), Harvard University, 5th Year
2006 A.M. (Astronomy), Harvard University
2001 B.A. *Summa Cum Laude*, (Physics & Astrophysics), University of California, Berkeley

HONORS AND AWARDS

- 2006-2008 National Aeronautics & Space Administration (NASA) Graduate Student Research Program Fellowship
2003-2006 National Science Foundation (NSF) Graduate Research Fellowship
2004,2005 Certificate of Distinction in Teaching, Derek Bok Center for Teaching and Learning, Harvard University
Spring 2004 (Science A-35: Matter in the Universe), Fall 2005 (Science A-47: Cosmic Connections)
2003-2007 James Mills Pierce Fellowship, Astronomy Department, Harvard University
2001 Graduated With Highest Honors in Physics, Highest Distinction in General Scholarship,
Summa Cum Laude, Phi Beta Kappa, University of California, Berkeley (December 2001)

POSITIONS

- 2005 Teaching Fellow, *Science A-47: Cosmic Connections*, Harvard University, Fall 2005
2004-2005 Teaching Fellow, *Science A-35: Matter In The Universe*, Harvard University, Spring 2004, Spring 2005
2002 Teaching Assistant, *Summer Science Program*, Happy Valley School, Ojai, CA, Summer 2002
2001 Teaching Assistant, *Astronomy 10: Introductory Astronomy*, UC Berkeley, Fall 2001

SELECTED PUBLICATIONS

1. **A.S. Friedman**, R.P. Kirshner, R. P., J. S. Bloom, W. M. Wood-Vasey, M. Modjaz, M. Hicken, et al. "*Cosmological Applications of Novel Standardized Candles*", **Ph.D. Thesis** (Spring 2009, in prep.)
2. **A.S. Friedman**, W.M Wood-Vasey, J.S. Bloom, M. Hicken, R.P Kirsner, et al., "*Breaking the Degeneracy Between Intrinsic Color Variation and Dust Extinction of Type Ia Supernovae with Optical and Infrared Photometry*", (2008, in prep.)
3. W.M. Wood-Vasey, **A.S. Friedman**, J.S. Bloom, M. Hicken, M. Modjaz, R.P. Kirshner, et al. "*Type Ia Supernovae are Good Standard Candles in the Near Infrared: Evidence from PAIRITEL*", **ApJ** submitted (November 2007)
4. **A.S. Friedman** "*Using GRBs For Cosmology*", **Sky & Telescope**, Volume 112, No. 2, pg. 35, (August 2006)
(with Robert Naeye, "*Dissecting the Bursts of Doom*", *Sky & Telescope*, August 2006 pp 30-37)
5. **A.S. Friedman** and J. S. Bloom 2005, "*Toward a More Standardized Candle Using GRB Energetics and Spectra*", **Astrophysical Journal**, ApJ, v627, Issue 1, pp. 1-25 (July 2005)
6. **A.S. Friedman** and J. S. Bloom 2005, "*Present and Future Prospects for GRB Standard Candles*", **Il Nuovo Cimento C**, v028, Issue 04-05, pp. 669-672, (19 October 2005) (astro-ph/0502559)
7. W.D. Li, A. V. Filippenko, R.R. Treffers, **A.S. Friedman et al.**, "*The Lick Observatory Supernova Search*", **Cosmic Explosions**, 2000, Ed. S. Holt and W.W. Zheng, New York, American Institute of Physics.
8. **International Astronomical Union (IAU) Circulars: A. S. Friedman et al.**, Discovered 8 Supernovae with the Katzman Automatic Imaging Telescope (KAIT) [SNe: 01ae, 01L, 00fa, 99gb, 99ej, 99bx, 99bh, 99ac] (1999-2001)

SELECTED PRESENTATIONS

1. **A.S. Friedman**, W.M. Wood-Vasey, J.S. Bloom, M. Hicken, M. Modjaz, R.P. Kirshner et al. "*Type Ia Supernovae are Good Standard Candles in the Near Infrared: Evidence from PAIRITEL*", Poster Presentation, 211th Meeting of the American Astronomical Society (AAS), *Austin, TX*, (January 7-11, 2008)
2. **A.S. Friedman**, "*The Absolute Brightness of Type Ia SNe in the NIR from PAIRITEL: Implications for the NASA/DOE Joint Dark Energy Mission*," 2nd GSRP Symposium, *NASA Goddard Space Flight Center, Greenbelt, MD*, (Sep 19-21, 2007)
3. **A.S. Friedman**, "*Infrared Light Curves of Type Ia Supernovae from PAIRITEL*", Workshop: Accretion and Explosion: The Astrophysics of Degenerate Stars, *Kavli Institute for Theoretical Physics (KITP), UC Santa Barbara*, (February 20, 2007)
4. **A.S. Friedman**, M. Modjaz, W.M. Wood-Vasey, C.H. Blake, R.P. Kirshner, et al. "*Infrared Light Curves of Nearby Supernovae with the Peters Automated Infrared Imaging Telescope (PAIRITEL)*", Poster Presentation, 207th Meeting of the American Astronomical Society (AAS), *Washington, DC*, (January 8-12, 2006)
5. **A. S. Friedman**, "*The Present and Future of GRB Cosmology*", Supernova Acceleration Probe (SNAP) Science Meeting, *Lawrence Berkeley National Laboratories, Berkeley, California*, (July 15, 2005)
6. **A. S. Friedman** and J. S. Bloom, "*The Present and Future of GRB Cosmography*", Short Oral Presentation, 205th Meeting of the American Astronomical Society (AAS), *San Diego, California*, (January 9-13, 2005)
7. **A. S. Friedman** & J. S. Bloom, "*Toward a More Standardized Candle Using GRB Energetics and Spectra*", Poster Presentation, 4th Workshop on Gamma-Ray Bursts in the Afterglow Era, *Rome, Italy*, (October 18-22, 2004)



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RESEARCH INTERESTS / COLLABORATIONS

Interests: Cosmology, Supernovae, Infrared Data Analysis, Photometry, High Energy Astrophysics, Gamma-Ray Bursts
Professor Robert P. Kirshner, Harvard, Graduate Thesis Advisor, The CfA Supernova Group, Cambridge, MA
Professor Joshua S. Bloom, UC Berkeley, Peters Automated Infrared Imaging Telescope (PAIRITEL), Mt. Hopkins, AZ
Dr. Neil Gehrels, NASA Goddard Space Flight Center, NASA GSFC Swift Satellite, Greenbelt, MD
Professor Alex V. Filippenko, Dr. Weidong Li, UC Berkeley, Undergraduate Advisors, Lick Observatory Supernova Search

WORKSHOPS ATTENDED

1. NASA GSRP Symposium, *NASA Goddard Space Flight Center*, Greenbelt, Maryland, September 19-21, 2007
2. Accretion and Explosion: the Astrophysics of Degenerate Stars, *Kavli Institute For Theoretical Physics (KITP)*, UC Santa Barbara, Santa Barbara, CA, January 29 – February 23, 2007
3. NASA GSRP Symposium, *NASA Goddard Space Flight Center*, Greenbelt, Maryland, September 18-22, 2006
4. Penn State Summer School in Astrostatistics, *Pennsylvania State University*, College Station, PA, June 6-10, 2006

PUBLIC OUTREACH

1. *Our Place in Space, Dudley House Crosstalk*, Harvard University, (March 6 2008) (With Jason Gallicchio, Harvard Physics Department)
2. *Measuring Cosmic Expansion and Acceleration with Supernovae and Gamma-Ray Bursts*, Guest Lecture, **Summer Science Program**, Ojai, California, (July 3, 2006)
3. *The Coolest Things In Astronomy: Take II*, Guest Lecture, **The Math Circle**, Northeastern University, (December 10 2005)
4. *Your Place in the Cosmos: From Planets to Stars to Galaxies and Beyond, Dudley House Crosstalk*, Harvard University, (December 8 2005) (With Ryan Hickox, Harvard-Smithsonian Center For Astrophysics)
5. *White Dwarfs, Neutron Stars, Black Holes, Supernova Explosions, and the Origins of Humanity*, Guest Lecture, **Science A-47: Cosmic Connections**, Harvard University, (November 7 2005)
6. *The Coolest Things In Astronomy*, Guest Lecture, **The Math Circle**, Northeastern University, (May 22 2005)

MEDIA COVERAGE

1. I was interviewed by Journalist Jeanne Lenzer on June 21 2007 for an upcoming article in *Discover Magazine* about Astronaut training and the future of the space program, and potential future articles for Salon and Slate.
2. Gamma-Ray Bursts (GRBs): Andrew Friedman, *Astronomy Q & A Podcast*, Harvard-Smithsonian Center For Astrophysics Science Media Group, Interview with Robert Naeye, Senior Editor, Sky & Telescope Magazine, May 10 2006
3. Professor Robert Kirshner and I were interviewed at the 207th American Astronomical Society (AAS) Conference in Washington DC, Jan 11 2006 by Robert Irion of Science Magazine. The article provides a good look at the recent excitement and controversy surrounding Gamma-Ray burst cosmology. - Irion, R., *Astronomers Push and Pull Over Dark Energy's Role in Cosmos*, **Science**, 20 Jan. 2006, Vol. 311, pg. 316
4. During the January 2005 (AAS) conference in San Diego, I was interviewed by a local radio DJ, Onto the Ontologist on his program, **Temporary Autonomous Zones**, at <http://radioactiveradio.org/>. We discuss the Big Bang, the nature of time, parallel universes, astrology, aliens, and the militarization of space.
5. Professor Joshua Bloom and I were interviewed by Robert Irion of Science Magazine, discussing our work on the potential applications of Gamma-Ray Bursts for cosmology. We are quoted in *Astronomer's Eager for a Swift New Vision of the Universe*, Irion, R., **Science**, 8 Oct. 2004, Vol. 306, pg. 214-215

PROFESSIONAL SOCIETIES, SERVICES

1. Manuscript Referee for the *Astronomical Journal* (AJ), *Journal of Cosmology and Astroparticle Physics* (JCAP) 2004 –
2. Junior Member, *American Astronomical Society* (AAS), 2002 –
3. Member, *American Association for the Advancement of Science* (AAAS), 2002 –

OTHER EXPERIENCE

1. Editor In Chief / Webmaster, *The Harvard Satirical Press*, 2003-present: www.harvardsp.com
2. Arts & Comedy Fellow, *Dudley House*, Harvard University, 2006-07, 2007-08
3. Web Designer, *Harvard Graduate Student Council*: www.harvardgsc.com
4. Resident Advisor, *Graduate School of Arts & Sciences Residence Halls*, Child Hall, 4th Floor, 2004-05, 2005-06
5. Social Coordinator / Webmaster, *Harvard University Graduate Dormitory Council* (GDC), 2003-04: www.harvardgdc.com
6. Staff Writer / Graphic Designer, *Berkeley Scientific Journal*, 351 Campbell Hall, UC Berkeley, 2000-2002



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OTHER PRESENTATIONS

7. *Cosmological Applications of Novel Standardized Candles: II*, **A. S. Friedman**, Thesis Advisory Committee (TAC) Meeting, Harvard-Smithsonian Center For Astrophysics, November 27, 2007
8. *Cosmological Applications of Novel Standardized Candles*, **A. S. Friedman**, Thesis Advisory Committee (TAC) Meeting, Harvard-Smithsonian Center For Astrophysics, June 26, 2006
9. **A.S. Friedman**, "*Selected PAIRITEL Data Analysis Issues*", 2nd Annual PAIRITEL Workshop, *Harvard-Smithsonian Center For Astrophysics*, (May 16, 2006)
10. *The Promise and Limitations of GRB Standard Candles*, **A. S. Friedman**, Graduate Student Research Forum, Harvard University, (March 14, 2006)
11. *Toward a More Standardized Candle Using GRB Energetics and Spectra*, **A. S. Friedman**, High Energy Astrophysics Division (HEAD) Lunch Talk, Harvard-Smithsonian Center For Astrophysics, Cambridge, Massachusetts, (Feb. 9, 2005)

OTHER POSITIONS

12. Physics / Astronomy Tutor, *Cesar E. Chavez Student Learning Center*, UC Berkeley, Spring 2001
13. Study Abroad, Butler University Institute for Study Abroad, *University of New South Wales*, Sydney Australia, Spring 2000
14. Student Instructor, *English 198: Science Fiction*, UC Berkeley, Spring 1999
15. Web and Graphic Design, *Personal Website*: www.andyfriedman.org

COMPUTER SKILLS

Operating Systems: Mac OSX Tiger/Leopard, Windows XP, Unix/Linux/Solaris

Programming Languages: IDL, php, python, MySQL, Mathematica

Software: Word, Excel, Power Point, Photoshop, InDesign, Dreamweaver, Acrobat Professional, Quark XPress, Final Draft

Formatting: HTML, emacs, LaTeX

2002-present Graduate Student, *Astronomy*, Harvard University, Cambridge Massachusetts

2006-present NASA GSRP Fellow, NASA Goddard Space Flight Center, Greenbelt, Maryland