



Andrew Samuel Friedman
Curriculum Vitae (As of December 2006)



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

EDUCATION

Harvard University

Ph.D. Candidate in Astronomy, 4th Year Student, Thesis Defense in Spring 2008

University of California, Berkeley

B.A., Physics & Astrophysics, December 2001, *Summa Cum Laude*, Phi Beta Kappa

RESEARCH www.astrouniverse.info

Interests: Cosmology, High Energy Astrophysics, Gamma-Ray Bursts, Supernovae, Infrared Data Analysis, Photometry

Harvard University - Harvard-Smithsonian Center For Astrophysics, 60 Garden Street, Cambridge, MA 02138

Graduate Thesis Advisor: Professor Robert P. Kirshner, *The CfA Supernova Group*

Research Exam Advisors: Professor Ramesh Narayan & Professor Joshua S. Bloom (Harvard-CfA, UC Berkeley)

University of California, Berkeley - Department of Astronomy, 601 Campbell Hall, Berkeley CA 94720

Undergraduate Thesis Advisor: Professor Alexei V. Filippenko, *The Lick Observatory Supernova Search*

PUBLICATIONS

- Friedman, A. S. and Bloom, J. S. 2005, "Toward a More Standardized Candle Using GRB Energetics and Spectra" *Astrophysical Journal*, v627, Issue 1, pp. 1-25 (July 2005)
- Friedman A. S., and Bloom, J. S., 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)
- In preparation*, Friedman, A. S., Kirshner, R. P., Modjaz, M., Blake, C., Bloom, J. S., and Wood-Vasey, W. M., "Cosmological Applications of Novel Standardized Candles", Ph.D. Thesis, to be completed Spring 2008
- Li, W.D., Filippenko, A.V., Treffers, R.R., Friedman, A. *et al.*, "The Lick Observatory Supernova Search", *Cosmic Explosions*, 2000, Ed. S. Holt and W.W. Zheng, New York, American Institute of Physics.
- IAU Circulars: Discovered 8 Supernovae with the Katzman Automatic Imaging Telescope (KAIT)
SN 2001ae ([KAIT](#) / [ADS](#)) - SN 2001L ([KAIT](#) / [ADS](#)) - SN 2000fa ([KAIT](#) / [ADS](#)) - SN 1999gb ([KAIT](#) / [ADS](#))
SN 1999ej ([KAIT](#) / [ADS](#)) - SN 1999bx ([KAIT](#) / [ADS](#)) - SN 1999bh ([KAIT](#) / [ADS](#)) - SN 1999ac ([KAIT](#) / [ADS](#))

SELECTED PRESENTATIONS

- "Selected PAIRITEL Data Analysis Issues", A.S. Friedman, 2nd Annual PAIRITEL Workshop, Harvard-Smithsonian Center For Astrophysics, May 16, 2006
- "The Promise and Limitations of GRB Standard Candles", Friedman A.S., Graduate Student Research Forum, Harvard University, March 14, 2006
- "Infrared Light Curves of Nearby Supernovae with the Peters Automated Infrared Imaging Telescope (PAIRITEL)", A.S. Friedman, M. Modjaz, W.M. Wood-Vasey, C.H. Blake, R.P. Kirshner, et al., Poster Presentation, 207th Meeting of the American Astronomical Society (AAS), Washington, DC, January 8-12, 2006
- "The Present and Future of GRB Cosmology", Friedman, A.S., Supernova Acceleration Probe (SNAP) Science Meeting, Lawrence Berkeley National Laboratories, Berkeley, California, July 15, 2005
- "Towards a More Standardized Candle Using GRB Energetics and Spectra", Friedman A.S., High Energy Astrophysics Division (HEAD) Lunch Talk, Harvard-Smithsonian Center For Astrophysics, Cambridge, Massachusetts, February 9, 2005
- "The Present and Future of GRB Cosmography", Friedman A.S., & Bloom, J.S., Short Oral Presentation, 205th Meeting of the American Astronomical Society (AAS), San Diego, California, January 9-13, 2005
- "Towards a More Standardized Candle Using GRB Energetics and Spectra", Friedman A.S., & Bloom, J.S., Poster Presentation, 4th Workshop on Gamma-Ray Bursts in the Afterglow Era, Rome, Italy, October 18-22, 2004

FELLOWSHIPS, HONORS, AND AWARDS

- National Aeronautics & Space Administration Graduate Student Research Program (NASA GSRP) Fellowship, 2006-present
- National Science Foundation (NSF) Graduate Research Fellowship, 2002-2006
- Certificate of Distinction in Teaching, Derek Bok Center for Teaching and Learning, Harvard University, Spring 2004, Fall 2005
- James Mills Pierce Fellowship, Astronomy Department, Harvard University, 2002-present
- Graduated With Highest Honors in Physics, Highest Distinction in General Scholarship, Summa Cum Laude, Phi Beta Kappa, University of California, Berkeley, December 2001



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TEACHING

- Teaching Fellow, Science A-47: Cosmic Connections, Harvard University, Fall 2005
- Guest Lecturer, The Math Circle, Northeastern University, Spring 2005, Fall 2005
- Teaching Fellow, Science A-35: Matter In The Universe, Harvard University, Spring 2004, Spring 2005
- Teaching Assistant / Guest Lecturer, Summer Science Program, Happy Valley School, Ojai, CA, Summer 2002, Summer 2006
- Teaching Assistant, Astronomy 10: Introductory Astronomy, UC Berkeley, Fall 2001
- Physics / Astronomy Tutor, Cesar E. Chavez Student Learning Center, UC Berkeley, Spring 2001
- Student Instructor, English 198: Science Fiction, UC Berkeley, Spring 1999

OTHER EXPERIENCE

- Dudley House Arts & Comedy Fellow, Harvard University, 2006-07
- Web Designer, Harvard Graduate Student Council: www.harvardgsc.com
- Resident Advisor, Graduate School of Arts & Sciences Residence Halls, Child Hall, 4th Floor, 2004-05, 2005-06
- Editor In Chief/Webmaster, The Harvard Satirical Press: A GSAS Student Organization, 2003-present: www.harvardsp.com
- Social Coordinator / Webmaster, Harvard University Graduate Dormitory Council (GDC), 2003-04: www.harvardgdc.com
- Staff Writer / Graphic Designer, Berkeley Scientific Journal, 351 Campbell Hall, UC Berkeley, 2000-2002
- Study Abroad, Butler University Institute for Study Abroad, University of New South Wales, Sydney Australia, Spring 2000
- Web and Graphic Design, Personal Website: www.andyfriedman.org

POPULAR SCIENCE / PUBLIC OUTREACH

PUBLICATIONS

- Friedman, A. "Using GRBs For Cosmology", *Sky & Telescope*, August 2006 (with Robert Naeye, "Dissecting the Bursts of Doom", *Sky & Telescope*, August 2006 pp 30-37), Volume 112, No. 2, pg. 35
- Friedman, A. "The Fabric of Reality" *Berkeley Scientific Journal*, Vol. 5, Issue 1, Spring 2001, p. 28-30
- Friedman, A. "Fundamental Constants of Physics: The Genes of the Universe." *Berkeley Scientific Journal*, Vol. 5, Issue 2, Fall 2001, p. 100-104
- Friedman, A. "The Fundamental Distinction Between Brains and Turing Machines" *Berkeley Scientific Journal*, Vol. 6, Issue 1, Spring 2002, p. 28-33

PUBLIC TALKS

- "Measuring Cosmic Expansion and Acceleration with Supernovae and Gamma-Ray Bursts", Guest Lecture, Summer Science Program, Ojai, California, July 3, 2006
- "The Coolest Things In Astronomy: Take It", Guest Lecture, The Math Circle, Northeastern University, December 10 2005
- "Your Place in the Cosmos: From Planets to Stars to Galaxies and Beyond", Dudley House Crosstalk, Harvard University, December 8 2005 (With Mr. Ryan Hickox, Harvard-Smithsonian Center For Astrophysics), [\[pdf\]](#)
- "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, [\[Real Player Streaming Video \(click on Nov 07 link\), pdf\]](#)
- "The Coolest Things In Astronomy", Guest Lecture, The Math Circle, Northeastern University, May 22 2005

INTERVIEWS

- Astronomy Q & A Podcast, "Gamma-Ray Bursts (GRBs): A discussion with Robert Naeye & Andrew Friedman", Harvard-Smithsonian Center For Astrophysics Science Media Group, Interview with Robert Naeye, Senior Editor, Sky & Telescope Magazine, May 10 2006
- Professor Robert Kirshner and I were interviewed at the 207th 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, [\(pdf\)](#)
- During the January 2005 American Astronomical Society (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 [\[mp3\]](#)
- After posting astro-ph/0408413, Professor Joshua Bloom and I were interviewed by Robert Irion of Science Magazine, discussing the potential applications of Gamma-Ray Bursts for cosmology. We are Quoted in the October 8th issue of *Science* - Irion, R., "Astronomer's Eager for a Swift New Vision of the Universe", *Science*, 8 Oct. 2004, Vol. 306, pg. 214-215, [\[pdf\]](#)

PROFESSIONAL SOCIETIES, SERVICES

- Manuscript Referee for the *Astronomical Journal* (AJ), 2004–Present
- Junior Member, American Astronomical Society (AAS), 2002–Present
- Member, American Association for the Advancement of Science (AAAS), 2002–Present