

ADRIA C. UPDIKE

Roger Williams University, Department of Chemistry and Physics
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EDUCATION and PROFESSIONAL EXPERIENCE

- Ph.D., Physics**, Clemson University, Clemson, SC December 2010
Dissertation title: *Gamma Ray Bursts as Probes of Dust in the Evolving Universe*
Adviser: Professor Dieter H. Hartmann
- M.S., Physics**, Clemson University, Clemson, SC May 2007
Thesis title: *Gamma Ray Burst Afterglow Observations*
Adviser: Professor Dieter H. Hartmann
- B.A., Physics and Astronomy**, Smith College, Northampton, MA May 2003
Thesis title: *How Twisted is the Sun? Calculation of Magnetic Helicity in a Force-Free Field*
Adviser: Professor Suzan Edwards
Cum Laude, Highest Honors
- Assistant Professor of Physics**, Roger Williams University, Bristol, RI. Aug 2012 - present
Taught undergraduate physics classes.
- Visiting Assistant Professor**, Dickinson College, Carlisle, PA. Aug 2011 - Aug 2012
Taught introductory astronomy and physics for the life sciences.
- Research Associate**, NASA GSFC / CRESST / UMDCP, Greenbelt, MD. Nov 2010 – Aug 2011
Constructing models of chemical evolution and dust growth in molecular clouds with Dr. Eli Dwek.
- Graduate Student**, Clemson University, Clemson, SC. Jan 2006 – Dec 2010
Studies of gamma ray burst afterglows and utility as probes with Prof. Dieter Hartman.
- Adjunct Instructor of Physics**, Montana State University, Bozeman, MT. Sept 2005 – Dec 2005
Taught undergraduate astronomy and physics labs.
- Graduate Student**, Montana State University, Bozeman, MT. Sept 2003 – Aug 2005
Worked on models of solar flares and magnetic helicity in solar structures.
- REU Student**, National Solar Observatory, Sunspot, NM. June 2002 – Aug 2002
Studies of helical magnetic structure on the Sun with Dr. Alexei Pevstov.
- Research Assistant**, Columbia University Biosphere II, Oracle, AZ. Sept 2001 – Dec 2001
Determining the distance to open clusters using dust reddening with Prof. Katy Garmany.

REU Student, Harvard-Smithsonian Astrophysical Observatory, Cambridge, MA. June 2001 – Aug 2001
Investigating the energy output of explosive events on the solar surface with Dr. Amy Winebarger.

Research Intern, University of Massachusetts at Amherst, Amherst, MA. June 2000 – Aug 2000
Looking for galaxies in the Zone of Avoidance with 2MASS and Arecibo data with Prof. Steve Schneider.

Undergraduate Student, Smith College, Northampton, MA. Sept 1999 – May 2003
Teaching assistant for astronomy and physics classes and labs.

TEACHING and ADVISING EXPERIENCE

Calculus-Based Physics – Two semester calculus-based introductory physics for physical science and engineering majors. Roger Williams University, fall 2012 and spring 2013.

Introductory Astronomy – Two semester history of astronomy, origin and evolution of the solar system, stellar and galactic evolution, cosmology. Dickinson College, fall 2011 and summer 2012.

Physics for the Life Sciences – Two semester algebra-based introductory physics for pre-med students. Dickinson College, fall 2011 and spring 2012.

- Supervised an undergraduate research student in observational astrophysics research, spring 2013 at RWU.
- Academic adviser to two undergraduate students at RWU, 2012-2013 academic year.
- Supervised two undergraduate research students in computational astrophysics, spring 2012 at Dickinson College.
- Supervised three SARA REU students in conjunction with Prof. Dieter Hartmann (Clemson University) during the 2009 and 2010 summer sessions, resulting in AAS posters and undergraduate research journal papers.
- Initiated and taught graduate student seminars on topics in observational astronomy, spring 2010.
- Clemson PHYS 499: Supervised 5 undergraduate physics majors on original research projects relating to observational and computational astrophysics through the Clemson Creative Inquiry program, 2008 - 2010.
- Teaching Assistant for Physics and Astronomy classes and labs, Clemson University (2006 - 2009)
- Teaching Assistant and Adjunct Instructor for introductory physics classes and labs, Montana State University (2003 - 2005)
- Teaching Assistant in Astronomy, Advanced Summer Program at St. Paul's School (private high school program in Concord, NH for high school juniors), 2003.
- Instructor for four art classes during the Smith College Winter Session in 2000, 2001, and 2003.
- Teaching Assistant for Astronomy and Physics classes and labs, Smith College (2000 - 2003)

PUBLICATIONS

Refereed

1. *The unusual afterglow of the Gamma-Ray Burst 100621A*. Greiner et al. Submitted to A&A, April 2013.
2. *Illuminating the Darkest Gamma-Ray Bursts with Radio Observations*. Zauderer et al. 2013 ApJ, 767, 161.

3. *Multi-color observations of short GRB afterglows: 20 events observed between 2007 and 2010.* Nicuesa Guelbenzu et al. 2012 A&A, 548, 101.
4. *A deep search for the host galaxies of gamma-ray bursts with no detected optical afterglow.* Rossi et al. 2012 A&A, 545, 77.
5. *The fast evolution of SN 2010bh associated with XRF 100316D.* Olivares E. F. et al. 2012 A&A, 539, 76.
6. *Supersolar metal abundances in two galaxies at $z \sim 3.57$ revealed by the GRB 090323 afterglow spectrum.* Savaglio, S. et al. 2012 MNRAS, 420, 627.
7. *The late-time afterglow of the extremely energetic short burst GRB 090510 revisited.* Nicuesa Guelbenzu et al. 2012 A&A, 538, 7.
8. *BL Lacertae objects beyond redshift 1.3 - UV-to-NIR photometry and photometric redshift for Fermi/LAT blazars.* Rau, A. et al. 2012 A&A, 538, 26.
9. *GROND view of “dark bursts” and the related bias in host galaxy properties.* Greiner, J. MSAIS, 21,121.
10. *GRB 091127: The cooling break race on magnetic fuel.* Filgas, R. 2011 A&A, 535, 57.
11. *The SEDs and host galaxies of the dustiest GRB afterglows.* Kruhler, T. et al. 2011 A&A, 534, 108.
12. *Spitzer 24 μ m Survey for Dust Disks around Hot White Dwarfs.* Chu et al. 2011 AJ, 142, 75.
13. *GRB 090426: Discovery of a Jet Break in a Short Burst Afterglow.* Nicuesa Guelbenzu et al. 2011 A&A, 531, 6.
14. *On the nature of the extremely fast optical rebrightening of the afterglow of GRB 081029.* Nardini et al. 2011 A&A, 531, 39.
15. *GRB 071028B, a burst behind large amounts of dust in an unabsorbed galaxy.* Clemens et al. 2011 A&A, 529, 110.
16. *Monster in the Dark: The Ultraluminous GRB 080607 and Its Dusty Environment.* Perley et al. 2011 AJ, 141, 36.
17. *Photometric Redshifts for Gamma-Ray Burst Afterglows from GROND and Swift/UVOT.* Kruhler et al. 2011 A&A, 526, 153.
18. *The two-component jet of GRB 080413B.* Filgas et al. 2011 A&A, 526, 113.
19. *The Nature of Dark Gamma Ray Bursts.* Greiner et al. 2011 A&A, 526, 30.
20. *The Swift/Fermi GRB 080928 from 1 eV to 150 keV.* Rossi et al. 2011 A&A, 529, 142.
21. *The Afterglows of Swift-era Gamma-Ray Bursts. I. Comparing pre-Swift and Swift era Long/Soft (Type II) GRB Optical Afterglows.* Kann et al. 2010 ApJ, 720, 1513.
22. *A Very Metal Poor Damped Lyman Alpha System Revealed Through The Most Energetic GRB 090926A.* Rau et al. 2010 ApJ, 720, 862.

23. *Evidence for Supernova-Synthesised Dust from the Rising Afterglow of GRB 071025 at $z \sim 5$* . Perley et al. 2010 MNRAS, 406, 2473.
24. *Optical and near-infrared follow-up observations of four Fermi/LAT GRBs: redshifts, afterglows, energetics, and host galaxies*. McBreen et al. 2010 A&A, 516, 71.
25. *The Bright Optical/NIR Afterglow of the Faint GRB 080710 - Evidence For a Jet Viewed Off Axis*. Kruhler et al. 2009 A&A, 508, 593.
26. *Multiwavelength Analysis of the Intriguing GRB 061126: The Reverse Shock Scenario and Magnetization*. Gomboc et al. 2008 ApJ, 687, 443.
27. *A Photometric Redshift of $z = 1.8^{+0.4}_{-0.3}$ for the AGILE GRB 080514B*. Rossi et al. 2008 A&A, 491L, 29.
28. *The Rapidly Flaring Afterglow of the Very Bright and Energetic GRB 070125*. Updike et al. 2008 ApJ, 685, 361.
29. *Correlating Transition Region Explosive Events with Extreme-Ultraviolet Brightenings*. Winebarger, Updike, & Reeves. 2002 ApJL, 570, 105.

Presentations

- *Simulating Extinction in Gamma Ray Burst Host Galaxies*. Updike & Hartmann. 2013 AAS 22115207U.
- *Exploring the Origin of Dust in the Solar Neighborhood*. Updike & Dwek. 2012 AAS 21934310U.
- *Dust Properties of Gamma Ray Burst Host Galaxies*. Updike, Hartmann, Kann. 2011 AAS 2170801U.
- *Investigating Extinction Properties of Bok Globules with the SARA 0.9m Telescope*. Johnson, Updike, Hartmann. 2011 JSARA, 5, 43.
- *Using Gamma Ray Bursts to Probe Dust Evolution*. Updike. 2010 AAS 21536802U.
- *X-Ray Heating of Dust in Gamma-Ray Burst Environments*. Hackett, Updike, Hartmann. 2010 JSARA Volume 4.
- *Probing the Gamma-Ray Horizon with Gamma-Ray Bursts*. Cumbee, Updike, Hartmann. 2009 (accepted to JSARA).
- *Extinction Trends in GRB Host Galaxies*. Updike, Hartmann, Greiner, & Klose. 2008, AIPC 1133, 257.
- *Simulated Extinction for GRB Sightlines: Tracing the Cosmic Baron Distribution*. Updike, Hartmann, Greiner, & Klose. GRB 2008 conference (poster).
- *The Robotic Super-LOTIS Telescope: Results and Future Plans*. Williams, Milne, Park, Barthelmy, Hartmann, Updike, & Hurley. AIPC 1000, 2008.
- *Rapid Flaring in GRB 070125*. Updike, Hartmann, Milne, Williams, & Haislip. AIPC 1000, 2008.
- *The Bright Afterglow of GRB 070125*. Updike, Hartmann, Milne, Williams, Kann, & Haislip. GRB 2007 conference (poster).

- *Probing the Universe with Gamma-Ray Bursts*. Hartmann & Updike. 2007, AIPC 937, 542.
- *Probing the Early Universe with GRBs*. Updike, Hartmann, King, & Brittain. 2006, AAS, 20921206U.
- *Cosmic Chemical Evolution and Gamma-ray Bursts*. Hartmann, Updike, Brittain, & King. Paper presentation, 2006 AAS/HEAD meeting.
- *Calculation of Magnetic Helicity in a Force-Free Field*. Updike & Pevtsov. 2002, AAS, 201.8306U.
- *Solar Explosive Events: Nanoflares and Their Potential to Heat the Solar Corona*. Updike, Winebarger, & Reeves. 2001, AAS, 199.8808U.

GCN Notices and Astronomer's Telegrams

The Gamma ray burst Coordinate Network notices are rapidly distributed reports detailing observations done on gamma ray bursts (GRBs). I have 107 GCNs between 2006 and 2011, 90 of which as first author. I am a co-author on 22 ATELS (Astronomer Telegrams).

SEMINARS, PUBLIC LECTURES, and INVITED TALKS

- *Light up the universe – what exploding stars can tell us about the early universe*. Updike, 2012 invited talk (RWU).
- *Lighting Up the High Redshift Universe: Gamma Ray Bursts as Probes of Cosmic Chemical Evolution*. Updike, 2011 invited talk (Dickinson College).
- *Gamma Ray Bursts as Probes of the Dust Content of High Redshift Galaxies*. Updike, Kann, Hartmann, Dwek. 2011 talk at ESO conference “Multi-Wavelength Views of the ISM of High-Redshift Galaxies”, Santiago, Chile.
- *High Redshift Dust as probed by Gamma Ray Bursts*. Talk at NASA Goddard Space Flight Center, January 2011.
- *Investigating Dust Properties of Long GRB Host Galaxies*. GRB 2010 meeting in Annapolis, MD.
- *Probing Dust Evolution with Gamma Ray Bursts*. Cosmic Chemical Evolution Workshop, Maryland, 2010.
- *Probing Dust in the Universe with GRBs*. Swift Mission Conference, 2009.
- *Exploring Dust Evolution with Long Gamma Ray Bursts*. NASA Goddard Space Flight Center, 2010.
- *Dust Evolution in the Universe as Probed by Gamma Ray Bursts*. University of South Carolina (Columbia), 2010
- *Probing Dust Evolution with Long Gamma Ray Bursts*. Meeting of the Astronomers of South Carolina, College of Charleston, 2010
- *Using GRBs to Probe the Early Universe*. Smith College, 2009
- *Gamma Ray Burst Observations*. Clemson Area Amateur Astronomers meeting, 2008
- *GRB 070125*. Meeting of the Astronomers of South Carolina, Francis Marion University, 2007

- *Gamma Ray Bursts and the High Redshift Universe*. FLASH talk, National Optical Astronomy Organization, University of Arizona. 2008
- *Journey to the Beginning of the Universe*. Museum of the Rockies, Montana State University, July 2005.
- *Calculation of Magnetic Helicity*. Montana State University, April 2003, Smith College Research Exhibition, April 2003, Smith College Thesis Defense, April 2003, Amherst College, September 2002.
- *Solar Explosive Events*. Smith College Research Exhibition, April 2002, Smith College Astronomy Colloquium, October 2001.

MEMBERSHIPS

American Astronomical Society, Full Member (since 2001)
Sigma Pi Sigma (physics honor society, elected 2012)
Sigma Xi (scientific honor society, elected Junior year, 2002)
National Center for Science Education (since 2005)

HONORS

- Clemson Graduate School Professional Enrichment Grants, 2008, 2009, 2010.
- Sigma Xi Grant-In-Aid of Research, 2008.
- Mary Dailey Irvine Prize, Five College Astronomy Department, Best Astronomy Thesis 2003 (Smith College, Amherst College, Mount Holyoke College, Hampshire College, University of Massachusetts at Amherst).
- Highest Honors, Senior Thesis 2003.
- Honorable Mention, National Science Foundation Graduate Research Program, 2003.
- First Place in Physics, Sigma Xi Undergraduate Research Conference, Galvestin, TX, 2002.

SERVICE

Referee for the *Astrophysical Journal* (2008 - 2013).

OUTREACH

Volunteered at the Goddard Open Day, 2011. Frequent planetarium shows, trained students in use of the planetarium, and developed new shows (Clemson University, 2006 - 2010). Judged science fairs at local elementary and junior high schools in Bozeman, MT and Clemson, SC at the local and state level. Led and participated in outreach events including public telescope observing (Clemson University, 2006 - 2010, Smith College, 1999 - 2003).

OBSERVATIONAL EXPERIENCE

I have extensive experience running optical and near-infrared imaging instrumentation on small and mid-sized telescopes as well as in data reduction (IRAF, IDL) and interpretation. I have written successful NOAO proposals for time on the 4m Mayall telescope, the 2.1m telescope, and the 3.5m WIYN telescope. In addition, I have operated the 1.2m MDM telescope at KPNO, the 2.3m Bok telescope, the 0.6 and 0.9m SARA telescopes (KPNO and CTIO), the 2.2m ESO/MPE telescope at La Silla Observatory in Chile, the 1.3m Skinakas telescope in Crete, the 0.6m Super-LOTIS telescope at KPNO, and the 0.5m UVI telescope at the St. Thomas Observatory in the Virgin Islands, on-site and remotely for many of these instruments.

ACCEPTED PROPOSALS

I either authored, co-authored, or was included on the following successful proposals.

- ESO 086.D-0618: *Probing the very early Universe with high-redshift GRBs.*
- ESO 078.D-0519, ESO 079.D-0300, ESO 080.D-0167, ESO 082.A-0693, ESO 083.A-0084, ESO 084.D-0764: *High-resolution spectroscopy of GROND-selected high-redshift GRBs: Probing the very early Universe.*
- Fermi Guest Investigator Cycle 3, 1189: *Cosmic Metal Abundances from Fermi-GRB Afterglow Spectroscopy.*
- NOAO 2009 0030: *GRB Host Observations with 3.5m WIYN/WHIRC*
- NOAO 2009 0030: *GRB Afterglow Observations with 4m/NEWFIRM*
- NOAO 2008 0070: *GRB Afterglow Observations with 4m/NEWFIRM*
- NOAO 2007 0304: *GRB Afterglow Observations with 2.1m/FLAMINGOS*

WORKSHOPS ATTENDED

Improving the College Introductory Astronomy and Space Science General Education Course Through Active Engagement: A Tier I (Introductory) Workshop, Seattle, WA. Jan of 2013.

Gemini Data Workshop, NOAO / University of Arizona, Tucson, AZ. Summer of 2010.

Astrostatistics Workshop, Penn State University, University College, PA. Summer of 2010.

Chemical Evolution Workshop, St. Michaels, Maryland. Fall of 2010.

Herschel and the Characteristics of Dust in Galaxies, University of Leiden, the Netherlands. Spring of 2011.